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**3RD GENERATION
PARTNERSHIP
PROJECT 2
"3GPP2"**

Signaling Conformance Test Specification for cdma2000 Spread Spectrum Systems

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FOREWORD

(This foreword is not part of this specification)

This Specification was prepared by Technical Specification Group C of the Third Generation Partnership Project 2 (3GPP2). This Specification is the first revision of the document and defines air interface signaling conformance tests for CDMA mobile stations/access terminals. This version of the specification supersedes all previous revisions.

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Introduction

This specification defines air interface signaling conformance tests for CDMA base stations and mobile stations. Mobile station tests are applicable to MOB_P_REV equal to or less than seven. Base station tests are applicable to P_REV equal to or less than seven. In this document, 'mobile station' refers to a subscriber terminal, handset, PDA, wireless local loop unit, or any other subscriber terminal that communicates with the base station at the air interface. 'Base station' refers to the composite functionality of the base station and connected network elements or emulators.

Scope

This specification defines air interface signaling conformance tests for CDMA mobile stations. It is applicable to P_REV_IN_USE equal to or less than twelve. In this document, 'mobile station' refers to a subscriber terminal, handset, PDA, wireless local loop unit, or any other CDMA subscriber terminal that communicates with the base station at the air interface. 'Base station' refers to the composite functionality of the base station and connected network elements. A cabled connection is typically used for the air interface connection between the mobile station and an emulated base station(s).

Testing Objective

The objective of these tests is to demonstrate mobile station or base station compliance to over-the-air messaging and protocol requirements in the cdma2000®¹ family of standards indicated in the Traceability sections of each test case. This standard does not address all possible test cases.

Execution Strategy

Separate signaling conformance tests are specified for mobile stations and base stations. Tests are typically performed using an emulator to interface with the unit under test, with a cabled connection for the RF interface. Any test should be executed only if unit under test supports corresponding feature.

Base Station and Mobile Station Configurations

Unless otherwise specified in a test case, the base station and mobile station shall be configured as indicated in Annex C. This includes connections between mobile and base stations, radio channel configurations, and layer 3 overhead message content, CDMA constants, and CDMA equations.

Measurement Tolerances

Unless otherwise specified, a measurement tolerance, including the tolerance of the measurement equipment, of $\pm 10\%$ is assumed. Unless otherwise specified, the lor/loc value shall

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be within ± 0.1 dB of the value specified, and the loc value shall be within ± 5 dB of the value specified.

Notes

“Shall” and “shall not” identify requirements to be followed strictly to conform to this document and from which no deviation is permitted. “Should” and “should not” indicate that one of several possibilities is recommended as particularly suitable, without mentioning or excluding others, that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is discouraged but not prohibited. “May” and “need not” indicate a course of action permissible within the limits of the document. “Can” and “cannot” are used for statements of possibility and capability, whether material, physical or causal.

Supplementary Terms and Definitions

Abbreviated Alert - An abbreviated alert is used to remind the mobile station user that previously selected alternative routing features are still active.

AC - See Authentication Center.

Access Attempt - A sequence of one or more access probe sequences on the Access Channel containing the same message. See also Access Probe and Access Probe Sequence.

Access Channel - A Reverse CDMA Channel used by mobile stations for communicating to the base station. The Access Channel is used for short signaling message exchanges such as call originations, responses to pages, and registrations. The Access Channel is a slotted random access channel.

Access Channel Message - The information part of an access probe consisting of the message body, length field, and CRC.

Access Channel Message Capsule - An Access Channel message plus the padding.

Access Channel Preamble - The preamble of an access probe consisting of a sequence of all-zero frames that are sent at the 4800 bps rate.

Access Channel Request Message - An Access Channel message that is autonomously generated by the mobile station. See also Access Channel Response Message.

Access Channel Response Message - A message on the Access Channel generated to reply to a message received from the base station.

Access Channel Slot - The assigned time interval for an access probe. An Access Channel slot consists of an integer number of frames. The transmission of an access probe is performed within the boundaries of an Access Channel slot.

Access Entry Handoff (AHEO)- The act of transferring reception of the Paging Channel from one base station to another, when the mobile station is transitioning from the *Mobile Station Idle State* to the *System Access State*.

Access Handoff (AHO)- The act of transferring reception of the Paging Channel from one base station to another, when the mobile station is in the *System Access State* after an Access Attempt.

Access Overload Class (ACCOLC) - See Overload Class.

Access Probe - One Access Channel transmission consisting of a preamble and a message. The transmission is an integer number of frames in length and transmits one Access Channel message. See also Access Probe Sequence and Access Attempt.

Access Probe Handoff (APHO)- A handoff that occurs while the mobile station is performing an Access Attempt in the *System Access State*.

Access Probe Sequence - A sequence of one or more access probes on the Access Channel. The same Access Channel message is transmitted in every access probe of an access attempt. See also Access Probe and Access Attempt.

Access Sub-attempt - A sequence of one or more access probe sequences on the Access Channel transmitted to one pilot, containing the same message content other than the reported pilot information. See also Access Probe, Access Probe Sequence, and Access Attempt.

ACCOLC - See Overload Class

Acknowledgment - A Layer 2 response by the mobile station or the base station confirming that a signaling message was received correctly.

Action Time - The time at which the action implied by a message should take effect.

Active Set - The set of pilots associated with the CDMA Channels containing Forward Traffic Channels assigned to a particular mobile station.

Active User Zone - A user zone in which the mobile station makes its presence known via an explicit registration in order to activate tiered service features. See also CDMA Tiered Services, User Zone, and Passive User Zone.

AEHO - See Access Entry Handoff.

Aging - A mechanism through which the mobile station maintains in its Neighbor Set the pilots that have been recently sent to it from the base station and the pilots whose handoff drop timers have recently expired.

AHO – See Access Handoff.

A-key - A secret, 64-bit pattern stored in the mobile station and HLR/AC. It is used to generate/update the mobile station's Shared Secret Data.

AMPS – Advanced Mobile Phone System

APHO – See Access Probe Handoff.

Assured Mode - Mode of delivery that guarantees (if a loss of channel is not declared) that a PDU will be delivered to the peer. A PDU sent in assured mode is retransmitted by the LAC sublayer, up to a maximum number of retransmissions, until the LAC entity at the sender receives an acknowledgement for the PDU. See also Confirmation of Delivery.

Authentication - A procedure used by a base station to validate a mobile station's identity.

Authentication Center (AC) - An entity that manages the authentication information related to the mobile station.

Authentication Response (AUTHR) - An 18-bit output of the authentication algorithm. It is used, for example, to validate mobile station registrations, originations and terminations.

Autonomous Registration - A method of registration in which the mobile station registers without an explicit command from the base station.

Auxiliary Pilot Channel - A non-data-bearing, direct-sequence spread spectrum signal optionally transmitted by a CDMA base station.

Auxiliary Transmit Diversity Pilot Channel. - A pilot channel, counterpart to an Auxiliary Pilot Channel, that is transmitted by a CDMA base station from the non-primary antenna when orthogonal transmit diversity is employed.

AWGN - Additive White Gaussian Noise.

Bad Frames - Frames classified as insufficient frame quality or as 9600 bps primary traffic only, with bit errors.

Band Class - A set of frequency channels and a numbering scheme for these channels.

Base Station (BS) - A fixed station used for communicating with mobile stations. In this document, the term base station refers to the entire cellular system infrastructure including transceiver equipment and Mobile Switching Center.

Base Station Authentication Response (AUTHBS) - An 18-bit pattern generated by the authentication algorithm. AUTHBS is used to confirm the validity of base station orders to update the Shared Secret Data.

Blank-and-Burst - The preemption of an entire Traffic Channel frame's primary traffic by signaling traffic or secondary traffic. Blank-and-burst is performed on a frame-by-frame basis.

bps - Bits per second.

Broadcast User Zone - A user zone that is identified to the mobile station by means of broadcast messages. It corresponds to the RF coverage area of a particular set of cells and sectors. See also CDMA Tiered Services and Mobile-Specific User Zone.

BS - See Base Station.

Call Disconnect - The process that releases the resources handling a particular call. The disconnect process begins either when the mobile station user indicates the end of the call by generating an on-hook condition or other call-release mechanism, or when the base station initiates a release.

Call History Parameter (COUNT) - A modulo-64 event counter maintained by the mobile station and Authentication Center that is used for clone detection.

Candidate Frequency - The frequency for which the base station specifies a search set, when searching on other frequencies while performing mobile-assisted handoffs.

Candidate Set - The set of pilots that have been received with sufficient strength by the mobile station to be successfully demodulated, but have not been placed in the Active Set by the base station. See also Active Set, Neighbor Set, and Remaining Set.

CASHO – Channel Assignment into Soft Handoff.

CC – Channel Configuration.

CCI – Base Station Configuration Change Indicator (sent on the QPCH).

CDMA - See Code Division Multiple Access.

CDMA Candidate Frequency - The Candidate Frequency specified for a search of CDMA pilots.

CDMA Cellular System - The entire system supporting Domestic Public Cellular Service operation as addressed by this Standard.

CDMA Channel - The set of channels transmitted between the base station and the mobile stations within a given CDMA frequency assignment. See also Forward CDMA Channel and Reverse CDMA Channel.

CDMA Channel Number - A number corresponding to the center of the CDMA frequency assignment.

CDMA Frequency Assignment - A 1.23 MHz segment of spectrum. The center of a CDMA frequency assignment is given by a CDMA Channel Number.

CDMA Preferred Set - The set of CDMA channel numbers in a CDMA system corresponding to Frequency Assignments that a mobile station will normally search to acquire a CDMA Pilot Channel. For CDMA cellular systems, the primary and secondary channels comprise the CDMA Preferred Set.

CDMA Tiered Services - System features and services that are based on location, potentially including private networks. User zones establish the availability of services. See also User Zone, Broadcast User Zone, Mobile-Specific User Zone, Active User Zone, and Passive User Zone.

Chip - See PN Chip.

Chip Rate - Equivalent to the spreading rate of the channel. It is either 1.2288 Mcps or 3.6864 Mcps.

Code Channel - A subchannel of a Forward CDMA Channel. A Forward CDMA Channel contains 64 code channels. Code channel zero is assigned to the Pilot Channel. Code channels 1 through 7 may be assigned either to the Paging Channels or to the Traffic Channels. Code channel 32 may be assigned either to a Sync Channel or to a Traffic Channel. The remaining code channels may be assigned to Traffic Channels.

Code Division Multiple Access (CDMA) - A technique for spread-spectrum multiple-access digital communications that creates channels through the use of unique code sequences.

Code Symbol - The output of an error-correcting encoder. Information bits are input to the encoder and code symbols are output from the encoder. See Convolutional Code.

Configuration Change Indicator - A one-bit datum, sent on the Quick Paging Channel. Appearance of the Configuration Change Indicator in the Quick Paging Channel serves to alert a slotted mode mobile station, operating in the idle state, that, after performing an idle handoff, it should monitor the Paging Channel, in order to determine if it should update its stored parameters.

Confirmation of Delivery - A notification sent by the LAC sublayer to Layer 3 at the sender, when the LAC entity at the sender receives the acknowledgment for a specific PDU sent in assured mode.

Convolutional Code - A type of error-correcting code. A code symbol can be considered as modulo 2 the convolution of the input data sequence with the impulse response of a generator function.

CRC - See Cyclic Redundancy Code.

Cyclic Redundancy Code (CRC) - A class of linear error detecting codes which generate parity check bits by finding the remainder of a polynomial division.

Data Block - A unit of information exchanged between the mux sublayer and a service or an upper layer signaling.

dB - Decibel, a logarithmic unit used to describe a ratio.

dBc - Ratio of the sideband power to carrier power as referenced to the carrier. For CDMA, the total in-band power of the signal is measured in a 1.23 MHz bandwidth around the center frequency of the CDMA signal.

dBm - A measure of power expressed in terms of its ratio to one milliwatt.

dBm/Hz - A measure of power spectral density. The ratio, dBm/Hz, is the power in one Hertz of bandwidth, where power is expressed in units of dBm.

dBW - A measure of power expressed in terms of its ratio (in dB) to one watt.

Dedicated Control Channel - A portion of a Traffic Channel (Forward or Reverse) that carries a combination of user data, signaling, and power control information.

Deinterleaving - The process of unpermuting the symbols that were permuted by the interleaver. Deinterleaving is performed on received symbols prior to decoding.

Distance-Based Registration - An autonomous registration method in which the mobile station registers whenever it enters a cell whose distance from the cell in which the mobile station last registered exceeds a given threshold.

DTMF - See Dual-Tone Multifrequency.

Dual-Tone Multifrequency (DTMF) - Signaling by the simultaneous transmission of two tones, one from a group of low frequencies and another from a group of high frequencies. Each group of frequencies consists of four frequencies.

E_b - Average energy per information bit for the Sync Channel, Paging Channel, or Forward Traffic Channel at the mobile station antenna connector.

E_b/N_o - Energy-per-bit-to noise-per-hertz ratio.

E_b/N_t - The ratio of the combined received energy per bit to the effective noise power spectral density for the Sync Channel, Paging Channel, or Forward Traffic Channel at the mobile station antenna connector.

E_c - Average energy per PN chip for the Pilot Channel, Sync Channel, Paging Channel, Forward Traffic Channel, power control subchannel, or OCNS.

E_c/I_o - A notation used to represent a dimensionless ratio of the average power of some code-distinguished CDMA signal channel, typically a pilot, to the total power comprised of signal plus interference, within the signal bandwidth. It is usually expressed in dB units.

E_c/I_{or} - The ratio of the average transmit energy per PN chip for the Pilot Channel, Sync Channel, Paging Channel, Forward Traffic Channel, power control subchannel, or OCNS to the total transmit power spectral density

EHDM – *Extended Handoff Direction Message*

EIRP - See Equivalent Isotropic Radiated Power.

Erasure Indicator Bit - A bit used in the Rate Set 2 Reverse Traffic Channel frame structure to indicate an erased Forward Fundamental Code Channel or Forward Dedicated Control Channel frame.

ESN - Electronic Serial Number.

f-csch - Forward Common Signaling (Logical) Channel.

F-DCCH – Forward Dedicated Control Channel.

f-dsch - Forward Dedicated Signaling (Logical) Channel.

Fade Timer - A timer kept by the mobile station as a measure of Forward Traffic Channel continuity. If the fade timer expires, the mobile station drops the call.

FER - Frame Error Rate of Forward Traffic Channel. The value of FER may be estimated by using Service Option 2, 9, 30, or 31 (see TIA/EIA-126-C).

F-FCH – Forward Fundamental Channel.

FFPC – Fast Forward Power Control.

Flash - An indication sent on the CDMA Channel indicating that the receiver is to invoke special processing.

Foreign NID Roamer - A mobile station operating in the same system (SID) but in a different network (NID) from the one in which service was subscribed. See also Foreign SID Roamer and Roamer.

Foreign SID Roamer - A mobile station operating in a system (SID) other than the one from which service was subscribed. See also Foreign NID Roamer and Roamer.

Forward CDMA Channel - A CDMA Channel from a base station to mobile stations. The Forward CDMA Channel contains one or more code channels that are transmitted on a CDMA frequency assignment using a particular pilot PN offset. The code channels are associated with the Pilot Channel, Sync Channel, Paging Channels, and Traffic Channels. The Forward CDMA Channel always carries a Pilot Channel and may carry up to one Sync Channel, up to seven Paging Channels, and up to 63 Traffic Channels, as long as the total number of channels, including the Pilot Channel, is no greater than 64.

Forward Dedicated Control Channel - A portion of a Forward Traffic Channel that can carry a combination of primary data, secondary data, signaling, and power control information.

Forward Fundamental Channel - A portion of a Forward Traffic Channel that can carry a combination of primary data, secondary data, signaling, and power control information.

Forward Pilot Channel - A non-data-bearing direct-sequence spread spectrum signal transmitted continuously by each CDMA base station. The Forward Pilot Channel allows a mobile station to acquire the timing of the Forward CDMA Channel, provides a phase reference for coherent demodulation, and provides a means for signal strength comparisons between base stations for determining when to handoff. Different base stations are identified by different pilot PN sequence time phases. See also Pilot PN Sequence, Pilot PN Sequence Offset.

Forward Supplemental Channel (F-SCH) - An optional portion of a Forward Traffic Channel (Radio Configurations 3 and above) that operates in conjunction with a Fundamental Channel and or the Dedicated Control Channel in that Traffic Channel, and (optionally) with other Supplemental Channels to provide higher data rate services.

Forward Supplemental Code Channel - An optional portion of a Forward Traffic Channel (Radio Configurations 1 and 2) that operates in conjunction with a Fundamental Channel in that Traffic Channel, and (optionally) with other Supplemental Code Channels to provide higher data rate services.

Forward Traffic Channel - A code channel used to transport user and signaling traffic from a base station to a mobile station.

Forward Transmit Diversity Pilot Channel - A pilot channel transmitted by a CDMA base station from the non-primary antenna when orthogonal transmit diversity is employed.

FPC - Forward Power Control.

Frame - A basic timing interval in the system. For the Access Channel and Paging Channel a frame is 20 ms long. For the Traffic Channel, the frame may be 20 ms or 5 ms long. For the Sync Channel, a frame is 26.666 ms long.

Frame Category - A classification of a received Traffic Channel frame based upon transmission data rate, the frame contents (primary traffic, secondary traffic, or signaling traffic), and whether there are detected errors in the frame.

Frame Offset - A time skewing of Traffic Channel frames from System Time in integer multiples of 1.25 ms. The maximum frame offset is 18.75 ms.

Frame Quality Indicator - The CRC check applied to the 9600 bps and 4800 bps frames of Rate Set 1 and all frames of Rate Set 2.

F-SCH - See Forward Supplemental Channel.

Full TMSI - The combination of TMSI_ZONE and TMSI_CODE. The full TMSI is a globally unique address for the mobile station.

Fundamental Data Block - A data block that is transmitted by the mobile station/base station in every 20 ms time interval on the Fundamental Channel.

Fundamental RLP Frame - An RLP frame carried in a fundamental data block.

Gating Rate Set - This specifies the set of supported reverse pilot gating rates. The base station and the mobile station may support one or more gating rates.

GHDM – *General Handoff Direction Message.*

GHz - Gigahertz (10^9 Hertz).

Global Positioning System (GPS) - A US government satellite system that provides location and time information to users. See Navstar GPS Space Segment / Navigation User Interfaces ICD-GPS-200 for specifications.

Good Frames - Frames not classified as bad frames. See also Bad Frames.

Good Message - A received message is declared a good message if it is received with a correct CRC.

GNLM – *General Neighbor List Message.*

GPS See Global Positioning System.

Handoff - The act of transferring communication with a mobile station from one base station to another.

Hard Handoff - A handoff characterized by a temporary disconnection of the Traffic Channel. Hard handoffs occur when the mobile station is transferred between disjoint Active Sets, the CDMA frequency assignment changes, the frame offset changes, or the mobile station is directed from a CDMA Traffic Channel to an AMPS voice channel. See also Soft Handoff.

Hash Function - A function used by the mobile station to select one out of N available resources. The hash function distributes the available resources uniformly among a random sample of mobile stations.

HLR - See Home Location Register.

Home Location Register (HLR) - The location register to which a MIN/IMSI is assigned for record purposes such as subscriber information.

Home System - The cellular or PCS system in which the mobile station subscribes for service.

Hopping Pilot Beacon - A pilot beacon that changes CDMA Frequency periodically to simulate multiple base stations operating on different frequencies. The transmission of the hopping pilot beacon is discontinuous on any CDMA Channel.

Idle handoff - The act of transferring reception of the Paging Channel from one base station to another, when the mobile station is in the *Mobile Station Idle State*.

Implicit Registration - A registration achieved by a successful transmission of an origination or page response on the Access Channel.

IMSI_M - MIN-based IMSI using the lower 10 digits to store the MIN.

IMSI_O - Operational value of IMSI used by the mobile station for operation with the base station.

IMSI_T - True IMSI not associated with MIN. This could be 15 digits or fewer.

IMSI_T_11_12 – Mobile Country Code of IMST_T.

IMSI_T_S – Supplement of the MIN-based IMSI.

Interleaving - The process of permuting a sequence of symbols.

International Mobile Station Identity (IMSI) - A method of identifying stations in the land mobile service as specified in ITU-T Recommendation E.212.

I_o - The total received power spectral density, including signal and interference, as measured at the mobile station antenna connector.

I_{oc} - The power spectral density of a band-limited white noise source (simulating interference from other cells) as measured at the mobile station antenna connector.

I_{or} - The total transmit power spectral density of the Forward CDMA Channel at the base station antenna connector.

\hat{I}_{or} - The received power spectral density of the Forward CDMA Channel as measured at the mobile station antenna connector.

ITU – International Telecommunication Union.

kHz - Kilohertz (10^3 Hertz).

ksps - Kilo-symbols per second (10^3 symbols per second).

L2 Acknowledgment - A Layer 2 response by the mobile station or the base station confirming that a signaling message was received correctly

LAC – Link Access Control.

Layering - A method of organization for communication protocols in which the transmitted or received information is transferred in pipeline fashion, within each station, in well-defined encapsulated data units between otherwise decoupled processing entities (“layers”). A layer is defined in terms of its communication protocol to a peer layer in another entity and the services it offers to the next higher layer in its own entity.

Layer 1 - Layer 1 provides for the transmission and reception of radio signals between the base station and the mobile station. Also see Physical Layer.

Layer 2 - Layer 2 provides for the correct transmission and reception of signaling messages, including partial duplicate detection. Layer 2 makes use of the services provided by Layer 1.

Layer 3 - Layer 3 provides the control messaging for the cellular or PCS telephone system. Layer 3 originates and terminates signaling messages according to the semantics and timing of the communication protocol between the base station and the mobile station. Layer 3 makes use of the services provided by Layer 2.

Local Control - An optional mobile station feature used to perform manufacturer-specific functions.

Logical Channel - A communication path between the mobile station and the base station, described in terms of the intended use of, and access to, the transferred data, and direction of transfer. A logical channel can be “mapped” to and from one or more physical channels.

Logical-to-physical Mapping - The technique for forming associations between logical and physical channels.

Long Code - A PN sequence with period $(2^{42}) - 1$ that is used for scrambling on the Forward CDMA Channel and spreading on the Reverse CDMA Channel. The long code uniquely identifies a mobile station on both the Reverse Traffic Channel and the Forward Traffic Channel. The long code provides limited privacy. The long code also separates multiple Access Channels on the same CDMA Channel. See also Public Long Code and Private Long Code.

Long Code Mask - A 42-bit binary number that creates the unique identity of the long code. See also Public Long Code, Private Long Code, Public Long Code Mask, and Private Long Code Mask.

MAC – Medium Access Control.

Maximal Length Sequence (m-Sequence). A binary sequence of period $2n - 1$, n being a positive integer, with no internal periodicities. A maximal length sequence can be generated by a tapped n -bit shift register with linear feedback.

MCC - See Mobile Country Code.

Mcps - Megachips per second (106 chips per second).

Mean Input Power - The total received calorimetric power measured in a specified bandwidth at the antenna connector, including all internal and external signal and noise sources.

Mean Output Power - The total transmitted calorimetric power measured in a specified bandwidth at the antenna connector when the transmitter is active.

Message Body - The part of the message contained between the length field (MSG_LENGTH) and the CRC field.

Message Capsule - A sequence of bits comprising a single message and padding. The padding always follows the message and may be of zero length.

Message CRC - The CRC check associated with a message. See also Cyclic Redundancy Code.

Message Field - A basic named element in a message. A message field may consist of zero or more bits.

Message Record - An entry in a message consisting of one or more fields that repeats in the message.

MHz - Megahertz (106 Hertz).

MIN - See Mobile Identification Number.

MNC - See Mobile Network Code.

MOB_P_REV – Protocol revision number supported by a mobile station.

Mobile Directory Number - A dialable directory number that is not necessarily the same as the mobile station's air interface identification, i.e., MIN, IMSI_M or IMSI_T.

Mobile Identification Number (MIN) - The 34-bit number that is a digital representation of the 10-digit number assigned to a mobile station.

Mobile-Specific User Zone - A user zone that is identified by the mobile station. The mobile station may consider parameters such as the identity of the serving system, cell, and sector, and

the geographic location of that station in making the determination. See also CDMA Tiered Services, User Zone, Broadcast User Zone, Active User Zone, and Passive User Zone.

Mobile Station (MS) - A station that communicates with a base station while in motion or during halts at unspecified points.

Mobile Station Class - A classification of mobile stations based on characteristics such as slotted operation and transmission power. See Table 2.3.3-1 of TIA/EIA-553-A and Table 2.3.3-1 of this document.

Mobile Station Originated Call - A call originating from a mobile station.

Mobile Station Terminated Call - A call received by a mobile station (not to be confused with a disconnect or call release).

Mobile Switching Center (MSC) - A configuration of equipment that provides radiotelephone service. Also called the Mobile Telephone Switching Office (MTSO).

ms - Millisecond (10^{-3} second).

MS – See Mobile Station.

MSB - Most significant bit.

MSID – MSID Mobile Station Identification.

MSIN - Mobile Station Identification Number.

Multiplex Sublayer - One of the conceptual layers of the system that multiplexes and demultiplexes signaling traffic and various connected user traffic.

NAM - Number Assignment Module.

NDSS – Network Directed System Selection.

Neighbor Set - The set of pilots associated with the CDMA Channels that are probable candidates for handoff. Normally, the Neighbor Set consists of the pilots associated with CDMA Channels that cover geographical areas near the mobile station. See also Active Set, Candidate Set, Remaining Set, and Private Neighbor Set.

Network - A network is a subset of a cellular or PCS system, such as an area-wide cellular network, a private group of base stations, or a group of base stations set up to handle a special requirement. A network can be as small or as large as needed, as long as it is fully contained within a system. See also System.

Network Identification (NID) - A number that uniquely identifies a network within a cellular or PCS system. See also System Identification.

NID – See Network Identification.

Non-Autonomous Registration - A registration method in which the base station initiates registration. See also Autonomous Registration.

Non-Slotted Mode - An operation mode of the mobile station in which the mobile station continuously monitors the Paging Channel.

NNSCR – Non-Negotiable Service Configuration Record.

ns - Nanosecond (10^{-9} second).

N_t - The effective noise power spectral density at the mobile station antenna connector.

NULL - Any value that is not in the specified range of a field.

Null Traffic Channel Data - One or more frames of a specified data sequence sent at the lowest agreed-upon rate of the negotiated rate set. Null Traffic Channel data is sent when there is no primary, secondary, or signaling traffic available. Null Traffic Channel data serves to maintain the connectivity between the mobile station and the base station.

Numeric Information - Numeric information consists of parameters that appear as numeric fields in messages exchanged by the base station and the mobile station and information used to describe the operation of the mobile station.

OCNS – Orthogonal Channel Noise Simulator

OCNS E_c - The ratio of the average transmit energy per PN chip for the OCNS to the total transmit power spectral density.

OLPC – Outer Loop Power Control.

Optional Field - A field defined within a message structure that is optionally transmitted to the message recipient.

Order- A type of message that contains control codes for either the mobile station or the base station.

Ordered Registration - A registration method in which the base station orders the mobile station to send registration related parameters.

Orthogonal Channel Noise Simulator (OCNS) - A hardware mechanism used to simulate the users on the other orthogonal channels of a Forward CDMA Channel.

Overhead Message - A message sent by the base station on the Paging Channel to communicate base-station-specific and system-wide information to mobile stations.

Overload Class (OLC) - The means used to control system access by mobile stations, typically in emergency or other overloaded conditions. Mobile stations are assigned one (or more) of sixteen overload classes. Access to the CDMA system can then be controlled on a per class basis by persistence values transmitted by the base station.

P_REV – Protocol revision level supported by a base station.

P_REV_IN_USE – Protocol revision level currently in use by a mobile station.

PACA - Priority Access and Channel Assignment. See PACA Call.

PACA Call - A priority mobile station originated call for which no traffic channel or voice channel was immediately available, and which has been queued for a priority access channel assignment.

Packet - The unit of information exchanged between the service option applications of the base station and the mobile station.

Padding - A sequence of bits used to fill from the end of a message to the end of a message capsule, typically to the end of the frame or half frame. All bits in the padding are '0'.

Paging The act of seeking a mobile station when a call has been placed to that mobile station.

Paging Channel - A code channel in a CDMA channel used for transmission of control information and pages from a base station to a mobile station.

Paging Channel Slot - An 80 ms interval on the Paging Channel. Mobile stations operating in the slotted mode are assigned specific slots in which they monitor messages from the base station.

Paging_Chip_Bit - Number of PN chips per Paging Channel bit, equal to $128 \times v$ where v equals 1 when the data rate is 9600 bps and v equals 2 when the data rate is 4800 bps.

Paging E_c - Average energy per PN chip for the Paging Channel.

$\frac{Paging\ E_c}{I_{or}}$ - The ratio of the average transmit energy per PN chip for the Paging Channel to the total transmit power spectral density.

Paging Indicator (PI)- A one-bit datum, sent on the Quick Paging Channel. Quick paging indicators are associated with mobile stations, in pairs, via a hashing algorithm. Appearance of both of its indicators in its assigned Quick Paging Channel slot serves to alert a slotted mode mobile station, operating in the idle state, that it should monitor the Paging Channel starting in the next slot. See also Quick Paging Channel.

Parameter-Change Registration - A registration method in which the mobile station registers when certain of its stored parameters change.

Parity Check Bits - Bits added to a sequence of information bits to provide error detection, correction, or both.

Passive User Zone - A user zone in which the implicit registration that takes place at call setup is sufficient to trigger a change in tiered service features. See also CDMA Tiered Services, User Zone, and Active User Zone.

PCS - See Personal Communications Services.

PCS System - See Personal Communications Services System.

PDU - See Protocol Data Unit.

Permanent Memory - Power-off does not affect the information. This type of memory can not be altered.

Personal Communication Services System - A configuration of equipment that provides PCS radiotelephone services.

Physical Channel - A communication path between stations, described in terms of the RF characteristics such as coding, power control policies, etc.

Physical Layer - The part of the communication protocol between the mobile station and the base station that is responsible for the transmission and reception of data. The physical layer in the transmitting station is presented a frame by the multiplex sublayer and transforms it into an

over-the-air waveform. The physical layer in the receiving station transforms the waveform back into a frame and presents it to the multiplex sublayer above it.

PI – See Paging Indicator.

Piece-wise Linear FER Curve - An FER-versus- E_b/N_t curve in which the FER vertical axis is in log scale and the E_b/N_t horizontal axis is in linear scale expressed in dB, obtained by interpolating adjacent test data samples with straight lines.

Piece-wise Linear MER Curve - An MER-versus- E_b/N_t curve in which the MER vertical axis is in log scale and the E_b/N_t horizontal axis is in linear scale expressed in dB, obtained by interpolating adjacent test data samples with straight lines.

Pilot Beacon - A transmit-only base station that broadcasts a Pilot Channel, a Sync Channel, optionally a Paging Channel, but no Forward Traffic Channels. The mobile station measures the pilot beacon to assist in CDMA hard handoffs and inter-frequency idle-mode handoffs.

Pilot Channel - An unmodulated, direct-sequence spread spectrum signal transmitted continuously by each CDMA base station. The Pilot Channel allows a mobile station to acquire the timing of the Forward CDMA Channel, provides a phase reference for coherent demodulation, and provides a means for signal strength comparisons between base stations for determining when to handoff.

Pilot E_c - Average energy per PN chip for the Pilot Channel.

Pilot $\frac{E_c}{I_o}$ - The ratio of the combined pilot energy per chip, E_c , to the total received power spectral density (noise and signals), I_o , of at most K usable multipath components at the mobile station antenna connector (see 1.4). K is the number of demodulating elements supported by the mobile station.

$\frac{Pilot E_c}{I_{or}}$ - The ratio of the average transmit energy per PN chip for the Pilot Channel to the total transmit power spectral density.

Pilot PN Chip - One bit, or bit pair, of a pilot PN sequence, or the time interval corresponding thereto.

Pilot PN Sequence - A pair of modified maximal length PN sequences with period 2^{15} PN chips used to spread the Forward CDMA Channel and the Reverse CDMA Channel. Different base stations are identified by different pilot PN sequence offsets.

Pilot PN Sequence Offset - The time offset of a Forward Pilot Channel from CDMA System time, as transmitted by the base station, expressed modulo the pilot period.

Pilot PN Sequence Offset Index - The pilot PN sequence offset in units of 64 PN chips of a Forward Pilot Channel, relative to the zero offset pilot PN sequence.

Pilot Strength - The ratio of pilot power to total power in the signal bandwidth of a CDMA Forward or Reverse Channel. See also E_c/I_o .

PM – Privacy Mode.

PN – Pseudo-random Noise.

PN Chip - One bit in a PN sequence, or the time duration of such a bit. It corresponds to the smallest modulation interval in a CDMA system.

PN Sequence – Pseudo-random noise sequence. A deterministic, periodic binary sequence having limited statistical similarity to a Bernoulli (coin-tossing).

Power Control Bit - A bit sent in every 1.25 ms interval on the Forward Traffic Channel that signals the mobile station to increase or decrease its transmit power.

Power Control E_c - Average energy per PN chip for the power control subchannel. For the case when the power control sub-channel is assumed to be transmitted at the same power level that is used for the 9600 bps or 14400 bps data rate, the following equations apply: For Rate Set 1, it is equal to $\frac{v}{11+v}$ x (total Forward Traffic Channel energy per PN chip), where v equals 1 for 9600 bps, v equals 2 for 4800 bps, v equals 4 for 2400 bps, and v equals 8 for 1200 bps traffic data rate. For Rate Set 2, it is equal to $\frac{v}{23+v}$ x (total Forward Traffic Channel energy per PN chip), where v equals 1 for 14400 bps, v equals 2 for 7200 bps, v equals 4 for 3600 bps, and v equals 8 for 1800 bps traffic data rate. The total Forward Traffic Channel is comprised of traffic data and a power control sub-channel.

$\frac{\text{Power Control } E_c}{I_{or}}$ - The ratio of the average transmit energy per PN chip for the power control subchannel to the total transmit power spectral density.

Power Control Group - A 1.25 ms interval on the Forward Traffic Channel and the Reverse Traffic Channel. See also Power Control Bit.

Power-Down Registration - An autonomous registration method in which the mobile station registers on power-down.

Power Up Function - A method by which the mobile station increases its output power to support location services.

Power-Up Registration - An autonomous registration method in which the mobile station registers on power-up.

Preamble - See Access Channel Preamble and Traffic Channel Preamble.

Primary CDMA Channel - A pre-assigned channel in a CDMA Cellular System used by the mobile station for initial acquisition. See also Secondary CDMA Channel.

Primary Paging Channel (CDMA) - The default code channel (code channel 1) assigned for paging on a CDMA Channel.

Primary Traffic - The main traffic stream carried between the mobile station and the base station on the Traffic Channel. See also Secondary Traffic and Signaling Traffic.

Primitive - An atomic, well-defined method of transferring data and control information between two adjacent layers and sublayers. Conventionally represented as a function invocation with the data and/or control information as parameters.

Private Long Code - The long code characterized by the private long code mask. See also Long Code.

Private Long Code Mask - The long code mask used to form the private long code. See also Public Long Code Mask and Long Code.

Private Neighbor Set - The set of pilots associated with the private system base stations that are probable candidates for an idle handoff. See also Active Set, Neighbor Set, Remaining Set, and CDMA Tiered Services.

Protocol Data Unit - Encapsulated data communicated between peer layers on the mobile station and base station. Unless specified otherwise, in this document PDU refers to the Layer 3 protocol data unit transferred at the interface between layer 3 and layer 2.

Protocol Stack - Conceptual model of the layered architecture for communication protocols (see Layering) in which layers within a station are represented in the order of their numeric designation and requiring that transferred data be processed sequentially by each layer, in the order of their representation. Graphically, the “stack” is drawn vertically, with the layer having the lowest numeric designation at the base.

Public Long Code - The long code characterized by the public long code mask.

Public Long Code Mask. The long code mask used to form the public long code. The mask contains a permutation of the bits of the ESN, and also includes the channel number when used for a Supplemental Code Channel. See also Private Long Code Mask and Long Code.

Punctured Code - An error-correcting code generated from another error-correcting code by deleting (i.e., puncturing) code symbols from the coder output.

QPCH – See Quick Paging Channel.

Quick Paging - A feature that permits mobile stations to further conserve battery power beyond the savings achieved by slotted mode operation. See also Paging Indicator and Configuration Change Indicator.

Quick Paging Chip Bit - Number of PN chips per Quick Paging Channel bit. For Spreading Rate 1, Quick Paging_Chip_Bit is equal to $256 \times v$ where v equals 1 when the data rate is 4800 bps and v equals 2 when the data rate is 2400 bps. For Spreading Rate 3, Quick Paging_Chip_Bit is equal to $768 \times v$ where v equals 1 when the data rate is 4800 bps and v equals 2 when the data rate is 2400 bps.

Quick Paging Channel (QPCH) - An uncoded, on-off-keyed (OOK) spread spectrum signal sent by base stations to inform slotted mode mobile stations, operating in the idle state, whether to monitor the Paging Channel. See also Quick Paging, Paging Indicator, and Configuration Change Indicator.

Quick Paging Channel Slot - An 80 ms interval on the Quick Paging Channel. See also Paging Indicator and Configuration Change Indicator.

Quick Repeats - Additional transmissions of identical copies of a message within a short interval to increase the probability that the message is received correctly.

r-csch - Reverse common signaling logical channel.

r-dsch - Reverse dedicated signaling logical channel.

Radio Configuration - A set of Forward Traffic Channel and Reverse Traffic Channel transmission formats that are characterized by physical layer parameters such as transmission rates, modulation characteristics and spreading rate.

Radio Configuration Class - A group of radio configurations. All radio configurations, for the Forward Traffic Channel and the Reverse Traffic Channel, are divided into three classes by the types of pre-spreading symbols (BPSK and QPSK) and spreading rates. RC Class 1 consists of RC 1 and RC 2 for the Forward Traffic Channel and the Reverse Traffic Channel. RC Class 2 consists of RC 3 and RC 4 of the Reverse Traffic Channel, and RC 3, RC 4 and RC 5 of the Forward Traffic Channel. RC Class 3 consists of RC 5 and RC 6 of the Reverse Traffic Channel, and RC 6, RC 7, RC 8, and RC 9 of the Forward Traffic Channel.

RANDU – Unique Random Variable.

RC - See Radio configuration.

r-csch – Reverse Common Signaling (logical) Channel.

r-dsch – Reverse Dedicated Signaling (Logical) Channel.

Registration - The process by which a mobile station identifies its location and parameters to a base station.

Registration Zone - A collection of one or more base stations treated as a unit when determining whether a mobile station should perform zone-based registration. See also User Zone, with which it should not be confused.

Release - A process that the mobile station and base station use to inform each other of call disconnect.

Remaining Set - The set of all allowable pilot offsets as determined by PILOT_INC, excluding the pilot offsets of the pilots in the Active Set, Candidate Set, and Neighbor Set. See also Active Set, Candidate Set, and Neighbor Set.

Request - A layer 3 message generated by either the mobile station or the base station to retrieve information, ask for service, or command an action.

Response - A layer 3 message generated as a result of another message, typically a request.

Reverse CDMA Channel - The CDMA Channel from the mobile station to the base station. From the base station's perspective, the Reverse CDMA Channel is the sum of all mobile station transmissions on a CDMA frequency assignment.

Reverse Dedicated Control Channel - - A portion of a Reverse Traffic Channel that can carry a combination of primary data, secondary data, signaling, and power control information.

Reverse Fundamental Code Channel - A portion of a Reverse Traffic Channel that can carry a combination of primary data, secondary data, signaling, and power control information.

Reverse Pilot Channel - A non-data-bearing direct-sequence spread spectrum signal transmitted by each CDMA mobile station whenever the Enhanced Access Channel, Reverse Common Control Channel, or Reverse Traffic Channel is enabled. The Reverse Pilot Channel allows a base station to acquire the timing of the Reverse CDMA Channel and provides a phase

reference for coherent demodulation. The Reverse Pilot Channel may be transmitted either continuously or in gated mode.

Reverse Supplemental Channel - An optional portion of a Reverse Traffic Channel (Radio Configurations 3 and above) that operates in conjunction with a Fundamental Channel and or the Dedicated Control Channel in that Traffic Channel, and (optionally) with other Supplemental Channels to provide higher data rate services.

Reverse Supplemental Code Channel - An optional portion of a Reverse Traffic Channel (Radio Configurations 1 and 2) that operates in conjunction with a Fundamental Channel in that Traffic Channel, and (optionally) with other Supplemental Code Channels to provide higher data rate services.

Reverse Traffic Channel. A Traffic Channel on which data and signaling are transmitted from a mobile station to a base station. The Reverse Traffic Channel is composed of one Reverse Fundamental Code Channel and zero to seven Reverse Supplemental Code Channels, zero to two Reverse Supplemental Channels, and zero or one Reverse Dedicated Control Channel

R-FCH – Reverse Fundamental Channel.

RLP – Radio Link Protocol.

Roamer - A mobile station operating in a cellular system (or network) other than the one from which service was subscribed. See also Foreign NID Roamer and Foreign SID Roamer.

R-PICH – Reverse Pilot Channel.

SCM – Station Class Mark.

SCR – Service Configuration Record.

SDU - See Service Data Unit.

Search Window - The range of PN sequence offsets that a mobile station searches for a pilot.

Search Window Offset - PN sequence offset used by the mobile station to position the search window when searching for a pilot.

Secondary CDMA Channel - A pre-assigned channel in a CDMA Cellular System used by the mobile station for initial acquisition. See also Primary CDMA Channel.

Secondary Traffic - An additional traffic stream that can be carried between the mobile station and the base station on the Traffic Channel. See also Primary Traffic and Signaling Traffic.

Semi-Permanent Memory - Power-off does not affect the information. Also known as non-volatile memory.

Service Access Point - Conceptual point at the interface between two adjacent layers where services are provided to the upper layer and data and protocol information is exchanged between layers.

Service Configuration - The common attributes used by the mobile station and the base station to build and interpret Traffic Channel frames. A service configuration consists of Forward and Reverse Traffic Channel multiplex options, Forward and Reverse Traffic Channel transmission rates, and service option connections. Service Configuration is signaled via the *Service*

Configuration information record and the Non-Negotiable Service Configuration information record.

Service Data Unit - Data transferred between adjacent layers in the protocol stack. Unless specified otherwise in this document SDU refers to the Layer 3 service data unit being transferred to/from Layer 2.

Service Negotiation - The procedures used by the mobile station and base station to establish a service configuration. See also Service Option Negotiation.

Service Option - A service compatibility of the system. Service options may be applications such as voice, data, or facsimile. See (IR 1).

Service Option Connection - A particular instance or session in which the service defined by a service option is used. Associated with a service option connection are a reference, which is used for uniquely identifying the service option connection, a service option, which specifies the particular type of service in use, a Forward Traffic Channel traffic type, which specifies what type of Forward Traffic Channel traffic is used to support the service option connection, and a Reverse Traffic Channel traffic type, which specifies what type of Reverse Traffic Channel traffic is used by the service option connection.

Service Option Connection Reference - A designator used by the base station and mobile station to uniquely identify a particular service option connection.

Service Option Negotiation - The procedures used by the mobile station and base station to establish a service configuration. Service option negotiation is similar to service negotiation, but allows less flexibility for specifying the attributes of the service configuration. See also Service Negotiation.

Service Redirection - The process by which the base station alters the system selection made by a mobile station. It can be used temporarily during maintenance and testing to divert subscribers to an alternate system.

Serving Frequency - The CDMA frequency on which a mobile station is currently communicating with one or more base stations.

Shared Secret Data (SSD) - A 128-bit pattern stored in the mobile station (in semi-permanent memory) and known by the base station. SSD is a concatenation of two 64-bit subsets: SSD_A, which is used to support the authentication procedures, and SSD_B, which serves as one of the inputs to the process generating the encryption mask and private long code.

SID - See System Identification.

Signaling Traffic - Control messages that are carried between the mobile station and the base station on the Traffic Channel. See also Primary Traffic and Secondary Traffic.

Slotted Mode - An operation mode of the mobile station in which the mobile station monitors only selected slots on the Paging Channel.

SMS – Short Message Service.

SO – Service Option.

Soft Handoff - A handoff occurring while the mobile station is in the *Mobile Station Control on the Traffic Channel State*. This handoff is characterized by commencing communications with a new base station on the same CDMA frequency assignment before terminating communications with the old base station. See Hard Handoff.

sps - Symbols per second.

SSD - See Shared Secret Data.

Status Information - The following status information is used to describe mobile station operation when using the analog system:

- **Serving-System Status.** Indicates whether a mobile station is tuned to channels associated with System A or System B.
- **First Registration ID Status.** A status variable used by the mobile station in association with its processing of received Registration ID messages.
- **First Location Area ID Status.** A status variable used by the mobile station in association with its processing of received Location Area ID messages.
- **Location Registration ID Status.** A status variable used by the mobile station in association with its processing of power-up registrations and location-based registrations.
- **First Idle ID Status.** A status variable used by the mobile station in association with its processing of the Idle Task.
- **Local Control Status.** Indicates whether a mobile station must respond to local control messages.
- **Roam Status.** Indicates whether a mobile station is in its home system.
- **Termination Status.** Indicates whether a mobile station must terminate the call when it is on an analog voice channel.
- **Update Protocol Capability Status.** Indicates whether the mobile station should report its protocol capability to the serving system.

STS – Space Time Spreading.

Supplemental_Chip_Bit - The number of PN chips per Supplemental Code Channel bit, equal to 128 for Radio configuration 1 and 85.33.. for Radio configuration 2.

Supplemental Code Channel - An optional portion of a Traffic Channel (Forward or Reverse) which operates in conjunction with a Fundamental Channel in that Traffic Channel, and (optionally) with other Supplemental Code Channels to provide higher data rate services. On this channel a combination of primary data, secondary data, or both (but never signaling information) are transmitted.

Supplemental Data Block - A data block that is transmitted by the mobile station/base station in a 20 ms time interval on a Supplemental Code Channel.

Supplemental E_c - Average energy per PN chip for one Forward Supplemental Code Channel.

Supplemental $\frac{E_c}{I_{or}}$ - The ratio of the average transmit energy per PN chip for one Forward Supplemental to the total transmit power spectral density.

Supplemental RLP Frame - An RLP frame carried in a supplemental data block.

Symbol - See Code Symbol and Modulation Symbol.

Sync Channel - Code channel 32 in the Forward CDMA Channel, which transports the synchronization message to the mobile station.

Sync_Chip_Bit - Number of PN chips per Sync Channel bit, equal to 1024.

Sync Channel Superframe - An 80 ms interval consisting of three Sync Channel frames (each 26.666.. ms in length).

Sync E_c - Average energy per PN chip for the Sync Channel.

Sync $\frac{E_c}{I_{or}}$ - The ratio of the average transmit energy per PN chip for the Sync Channel to the total transmit power spectral density.

System. A system is a cellular telephone service or personal communications service that covers a geographic area such as a city, metropolitan region, county, or group of counties. See also Network.

System Time - The time reference used by the system. System Time is synchronous to UTC time (except for leap seconds) and uses the same time origin as GPS time. All base stations use the same System Time (within a small error). Mobile stations use the same System Time, offset by the propagation delay from the base station to the mobile station. See also Universal Coordinated Time.

Target Frequency - The CDMA frequency assignment to which the base station directs a mobile station in a handoff using an *Extended Handoff Direction Message*, a *General Handoff Direction Message*, or a *Universal Handoff Direction Message*.

TD – Transmit Diversity.

TDSO – Test Data Service Option.

Temporary Memory - Information is lost when power is gone. Also known as volatile memory.

Timer-Based Registration - A registration method in which the mobile station registers whenever a counter reaches a predetermined value. The counter is incremented an average of once per 80 ms period.

Time Reference - A reference established by the mobile station that is synchronous with the earliest arriving multipath component used for demodulation.

TMSI - See Temporary Mobile Station Identity.

TMSI Zone - The administrative zone that allows the TMSI to be reused. The TMSI_CODE has to be unique within a TMSI zone but may be reused in a different TMSI zone. The TMSI zone is identified by the field TMSI_ZONE.

Traffic Channel - A communication path between a mobile station and a base station used for user and signaling traffic. The term Traffic Channel implies a Forward Traffic Channel and Reverse Traffic Channel pair. See also Forward Traffic Channel and Reverse Traffic Channel.

Traffic Channel Preamble - A sequence of all-zero frames that is sent by the mobile station on the Reverse Traffic Channel as an aid to Traffic Channel acquisition.

Traffic_Chip_Bit - The number of PN chips per Traffic Channel bit, equal to $1228800/r_b$ for Spreading Rate 1 and $3686400/r_b$ for Spreading Rate 3, where r_b is the data rate.

Traffic E_c - Average energy per PN chip for the Forward Fundamental Channel. For the case when the power control sub-channel is assumed to be transmitted at the same power level used for the 9600 bps or 14400 bps data rate, the following equations apply: For Rate Set 1, it is equal to $\frac{11}{11+v}$ x (total Forward Fundamental Channel energy per PN chip), where v equals 1 for 9600 bps, v equals 2 for 4800 bps, v equals 4 for 2400 bps, and v equals 8 for 1200 bps traffic data rate. For Rate Set 2, it is equal to $\frac{23}{23+v}$ x (total Forward Fundamental Channel energy per PN chip), where v equals 1 for 14400 bps, v equals 2 for 7200 bps, v equals 4 for 3600 bps, and v equals 8 for 1800 bps traffic data rate. The total Forward Fundamental Channel is comprised of traffic data and a power control sub-channel.

**Traffic E_c
Ior** - The ratio of the average transmit energy per PN chip for the Forward Traffic Channel to the total transmit power spectral density.

TSB – Technical Service Bulletin.

UHDM – *Universal Handoff Direction Message*.

Unassured Mode - Mode of delivery that does not guarantee that a PDU will be delivered to the peer. The LAC entity at the receiver does not acknowledge a PDU sent in unassured mode.

Unique Challenge-Response Procedure - An exchange of information between a mobile station and a base station for the purpose of confirming the mobile station's identity. The procedure is initiated by the base station and is characterized by the use of a challenge- specific random number (i.e., RANDU) instead of the random variable broadcast globally (RAND).

Upper Layers - General reference to Layer 3 and the layers above it.

User Zone - An area within which CDMA Tiered Services may be provided. It may correspond to an RF coverage area, or it may be established independent of RF topology. User Zones are classified as broadcast versus mobile-specific, and as active versus passive. See Broadcast User Zone, Mobile-Specific User Zone, Active User Zone, and Passive User Zone. See also Registration Zone, with which it should not be confused.

User Zone Registration - An autonomous registration method in which the mobile station registers when it selects an active user zone while in the Idle State. See also Zone-Based Registration, with which it should not be confused.

User Zone Exit parameter - A parameter used by the mobile station to determine if it should exit a User Zone.

UTC - Universal Temps Coordoné. Universal Coordinated Time.

Valid Power Control Bit - A valid power control bit is sent on the Forward Traffic Channel in the second power control group following the corresponding Reverse Traffic Channel power control group which was not gated off and in which the signal strength was estimated. See 3.1.3.1.10 of [1].

Upper Layers - General reference to Layer 3 and the layers above it.

VMN – Voice Mail Notification.

Voice Privacy - The process by which user voice transmitted over a CDMA Traffic Channel is afforded a modest degree of protection against eavesdropping over the air.

Walsh Chip - The shortest identifiable component of a Walsh function. There are 2N Walsh chips in one Walsh function where N is the order of the Walsh function. On the Forward CDMA Channel, one Walsh chip equals 1/1.2288 MHz, or 813.802 ns. On the Reverse CDMA Channel, one Walsh chip equals 4/1.2288 MHz, or 3.255 μ s.

Walsh Function - One of 2N time orthogonal binary functions (note that the functions are orthogonal after mapping '0' to 1 and '1' to -1).

WLL – Wireless Local Loop.

Zone-Based Registration - An autonomous registration method in which the mobile station registers whenever it enters a zone that is not in the mobile station's zone list. See also User Zone Registration, with which it should not be confused.

Zone Timer - A timer used by the mobile station to remove outdated entries from its list of zones in which it has previously registered.

μ s - Microsecond (10^{-6} second).

Normative Document References

The following documents contain provisions, which through reference in this text, constitute provisions of this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. ANSI and TIA maintain registers of currently valid national standards published by them.

1. 3GPP2 C.S0002-E, *Physical Layer Standard for cdma2000® Spread Spectrum Systems*, .
2. 3GPP2 C.S0003-E, *Medium Access Control (MAC) Standard for cdma2000® Spread Spectrum Systems*.
3. 3GPP2 C.S0004-E, *Signaling Link Access Control (LAC) Standard for cdma2000® Spread Spectrum Systems*.
4. 3GPP2 C.S0005-E, *Upper Layer (Layer 3) Signaling Standard for cdma2000® Spread Spectrum Systems*, 2002.
5. 3GPP2 C.S0010-C, *Recommended Minimum Performance Standards for cdma2000® Spread Spectrum Base Stations*.
6. 3GPP2 C.S0011-C, *Recommended Minimum Performance Standards for cdma2000® Spread*

- Spectrum Mobile Stations.*
7. 3GPP2 C.S0026-A, *Test Data Service Option (TDSO) for cdma2000® Spread Spectrum Systems.*
 8. 3GPP2 C.S0025-A, *Markov Service Option (MSO) for cdma2000® Spread Spectrum Systems.*
Editor's Note: The above document is a work in progress and should not be referenced unless and until it is approved and published. Until such time as this Editor's Note is removed, the inclusion of the above document is for informational purposes only.
 9. 3GPP2 C.S0013-A, *Loopback Service Options (LSO) for cdma2000® Spread Spectrum Systems.*
 10. Reserved
 11. Reserved
 12. 3GPP2 C.S0014-D, *Enhanced Variable Rate Codec, Speech Service Option 3 for Wideband Spread Spectrum Digital Systems*
 13. Reserved.
 14. Reserved
 15. Reserved
 16. Reserved
 17. Reserved
 18. Reserved
 19. 3GPP2 C.S0020-A, *High Rate Speech Service Option 17 for Wideband Spread Spectrum Communications Systems.*
 20. *TTY Forum. Seeking Solutions to TTY/TDD Through Wireless Digital Systems. TTY/TDD FORUM-13.*
 21. *TIA/EIA/95B Mobile Station-Base Station Compatibility Standard for Dual-Mode Wideband Spread Spectrum Cellular Systems*
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Informative Document References

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- IR 2. 3GPP2 S.R0006-0 *Wireless Features Description*

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1 Miscellaneous Air Interface Test

1.1 Pilot PN Offset

1.1.1 Mobile Station Test

1.1.1.1 Definition

This test verifies the mobile station is able to determine PN offset of the base station. This test will be performed for the following Pilot PN offsets: 304, 511, and 0.

1.1.1.2 Traceability (See [4]):

2.6.6.2.4 Pilot PN Phase

1.1.1.3 Call Flow Example(s)

None

1.1.1.4 Method of Measurement

- a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).
- b. Set pilot PN sequence offset increment (i.e. PILOT_INC) to 1.
- c. At the base station, set Pilot PN offset to 304.
- d. Verify that the mobile station detects and acquires the base station.
- e. Repeat steps c and d using Pilot PN offset of 511.
- f. Repeat steps c and d using Pilot PN offset of 0.

1.1.1.5 Minimum Standard

The mobile station shall comply with the requirements in step d.

1.1.2 Base Station Test

1.2 Mobile Station Processing of MIN_P_REV

1.2.1 Mobile Station Test

1.2.1.1 Definition

This test verifies the mobile station shall not access the CDMA system if the mobile station's protocol revision (MOB_P_REVp) is less than the minimum protocol revision permitted to access the CDMA system (MIN_P_REV).

- 1 1.2.1.2 Traceability (See [4]):
- 2 2.6.1.3 *Sync Channel Acquisition Substate*
- 3 3.4.1 *Access Channel*
- 4

- 5 1.2.1.3 Call Flow Example(s)
- 6 None

7 1.2.1.4 Method of Measurement

- 8 a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).
- 9 b. Configure the base station to send values for P_REV and MIN_P_REV in the *Sync*
- 10 *Channel Message* greater than the value of MOB_P_REVp in the mobile station.
- 11 c. Power on the mobile station.
- 12 d. Verify that the mobile station does not indicate CDMA service is available.
- 13 e. Attempt to set up a mobile station originated call.
- 14 f. Verify that the mobile station does not send any messages on the CDMA Access
- 15 Channel or Enhanced Access channel.

16 1.2.1.5 Minimum Standard

17 The mobile station shall comply with the requirements in steps d and f.
18

19 1.2.2 Base Station Test

20 None

21 1.3 Enhanced Access Testing

22 This section covers the Basic Access Mode (BA mode). The BA mode involves the operation of
23 the Enhanced Access Channel (EACH).

24 1.3.1 Mobile Station Test

25 1.3.1.1 Support of the Basic Access Mode

26 1.3.1.1.1 Definition

27 This test verifies that the mobile station supports the BA mode and the mobile station shall be
28 able to access the system on the EACH using all the EACH rate and frame duration combinations
29 that are supported by the base station. Also, the EACH slot duration of 20 ms are tested. This test
30 also verifies that if the message transmission time is longer than the maximum transmission time
31 allowed by the base station, the mobile station shall not transmit any access probes.

32 1.3.1.1.2 Traceability (See [2]):

33 2.2.1.1.2.1.6 *Enhanced Access Channel Procedures*

- 1 2.2.1.1.2.2.4 *Enhanced Access Channel Procedures*
 2 2.2.1.1.2.2.5 *Common Assignment Channel Procedures*
 3 2.2.1.1.2.3.4 *Enhanced Access Channel Procedures*
 4 *Common Assignment Channel Procedures*

5
 6 (See [4]):

7
 8 2.6.2.2.15 *Enhanced Access Parameters Message*

9 1.3.1.1.3 **Call Flow Diagram**

10 None

11 1.3.1.1.4 **Method of Measurement**

- 12 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
 13 b. Configure the base station to set the fields of the *Enhanced Access Parameters*
 14 *Message* as follows:

Field	Value
NUM_MODE_SELECTION_ENTRIES	0 (only one access mode specified)
ACCESS_MODE	'000' (Basic Access Mode)
ACCESS_MODE_MIN_DURATION	0 (0 seconds)
ACCESS_MODE_MAX_DURATION	1023 (5.115 seconds maximum message duration)
NUM_MODE_PARAM_REC	0 (only Basic Access Mode specific parameter records)
APPLICABLE_MODES	1 (parameters are for Basic Access Mode)
EACH_PREAMBLE_ENABLED	1 (preamble is enabled)
EACH_PREAMBLE_NUM_FRAC	3 (20 ms long preamble)
EACH_PREAMBLE_FRAC_DURATION	3 (5 ms fractional duration)
EACH_PREAMBLE_OFF_DURATION	0 (preamble not gated)
EACH_PREAMBLE_ADD_DURATION	0 (preamble not gated)
EACH_SLOT	15 (20 ms)
EACH_SLOT_OFFSET1	0
EACH_SLOT_OFFSET2	0
NUM_EACH_BA	1
EACH_BA_RATES_SUPPORTED	Set RATE_SIZE_1 to '1' and the rest of the subfields to '0'.

15

16 **Table 1.3.1.1.4-1 EACH and RCCCH Data Rate and Frame Size**

17

18

Subfield	Length (bits)	Subfield Description
RATE_SIZE_1	1	9600 bps, 20 ms frame size
RATE_SIZE_2	1	19200 bps, 20 ms frame size

RATE_SIZE_3	1	19200 bps, 10 ms frame size
RATE_SIZE_4	1	38400 bps, 20 ms frame size
RATE_SIZE_5	1	38400 bps, 10 ms frame size
RATE_SIZE_6	1	38400 bps, 5 ms frame size
RESERVED	2	Reserved

- 1 c. Make a mobile station originated call.
- 2 d. Verify user data in both directions.
- 3 e. Set RATE_SIZE_2 subfield corresponding to EACH_BA_RATES_SUPPORTED to '1'
- 4 and the other subfields to '0' (see Table 1.3.1.1.4-1) and repeat steps b and d.
- 5 f. Set RATE_SIZE_4 subfield corresponding to EACH_BA_RATES_SUPPORTED to '1'
- 6 and the other subfields to '0' (see Table 1.3.1.1.4-1) and repeat steps b and d.
- 7 g. Repeat step b and c with ACCESS_MODE_MAX_DURATION set to 1 (5 ms) and
- 8 RATE_SIZE_1 subfield corresponding to EACH_BA_RATES_SUPPORTED set to 1
- 9 (9600 bps) and the other subfields set to '0'.
- 10 h. Verify that the mobile station does not transmit any access probes.
- 11 i. Repeat steps b and d with ACCESS_MODE_MAX_DURATION set to 80 (400 ms)
- 12 and RATE_SIZE_1 subfield corresponding to EACH_BA_RATES_SUPPORTED set
- 13 to 1 (9600 bps) and the other subfields set to '0'.

14 **1.3.1.1.5 Minimum Standard**

15 The mobile station shall comply with the requirements in steps d and h.

17 **1.3.1.2 TA Timer for Basic Access Mode**

18 **1.3.1.2.1 Definition**

19 This test verifies the mobile station shall correctly process the *Enhanced Access Parameters*

20 *Message* for Basic Access Mode. In addition, it also verifies the proper operation of the TA timer.

21 **1.3.1.2.2 Traceability (See [3]):**

22 *2.1.1.2.2.2 Requirement for Transmission and Retransmission Procedures*

23 (See [4]):

24 *2.6.2.2.15 Enhanced Access Parameters Message*

25 *2.6.3.1.1 Access Attempts*

26 *3.7.2.3.2.33 Enhanced Access Parameters Message*

28 **1.3.1.2.3 Call Flow Diagram**

29 None

30 **1.3.1.2.4 Method of Measurement**

- 31 a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).

- 1 b. Set forward link parameters as specified in Table 1.3.1.2.4-1, and *Enhanced Access*
2 *Parameters Message* as specified in Table 1.3.1.2.4-2, for Scenario 1.

3

Table 1.3.1.2.4-1 Test Parameters

Parameter	Units	Scenario 1	Scenario 2	Scenario 3
Forward Link Power I _{or}	dBm/1.23 MHz	-74	-74	-74
Pilot E _c /I _{or}	DB	-7	-7	-11

- 4 c. Ensure that the mobile station has been previously registered, and then disable all
5 forms of registration (to ensure that the registration access probes do not interfere
6 with the test).
- 7 d. Disable the reverse link to allow the mobile station to exhaust all its access probes.
8 This may be accomplished by instructing the base station not to acknowledge the
9 probes.
- 10 e. Make a mobile station-originated Call, and verify that the mobile station uses the
11 access parameters specified in Table 1.3.1.2.4-2.
- 12 f. Make a mobile station-terminated call, and verify that the mobile station uses access
13 parameters specified in Table 1.3.1.2.4-2.
- 14 g. Repeat steps b through f for Scenario 2 and Scenario 3 as shown in Tables
15 1.3.1.2.4-1 and 1.3.1.2.4-2.

16

Table 1.3.1.2.4-2 Parameters in Enhanced Access Parameters Message

Parameter	Scenario 1	Scenario 2	Scenario 3
ACCESS_MODE	'000'	'000'	'000'
EACH_NUM_STEP	7	3	7
EACH_PWR_STEP	1	3	0
EACH_INIT_PWR	0	-6	4
EACH_NOM_PWR	0	0	0
ACC_TMO	4	7	1
MAX_REQ_SEQ	2	1	1
MAX_RSP_SEQ	1	2	1

17 1.3.1.2.5 Minimum Standard

- 18 The mobile station shall comply with the requirements in steps e and f.

1 **1.3.2 Base Station Test**

2 None

3 **1.4 SYNC Channel Support**

4 **1.4.1 Mobile Station Test**

5 1.4.1.1 Definition

6 This test verifies that the mobile station is able to respond correctly to the new fields of *SYNC*
 7 *Channel Message* sent by the base station if any, tune to appropriate CDMA channel and acquire
 8 the system successfully.

9 1.4.1.2 Traceability (See [4]):

10 2.6.1.3 *Sync Channel Acquisition Substate*

11 3.7.2.3.2.26 *Sync channel message*

12 1.4.1.3 Call Flow Diagram

13 None

14 1.4.1.4 Method of Measurement

15 Case 1: MS (not capable of TD, or not capable of QPCH or RC>2)

16 Case 1.1: BS (P_REV<6)

- 17 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
- 18 PILOT_INC to 1.
- 19 b. At the base station, Set Pilot PN offset to a certain value.
- 20 c. Verify that the mobile station acquires the Pilot channel correctly.
- 21 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 22 according to case 1.1 in Table 1.4.1.4-1.
- 23 e. Verify that the mobile station stays on CDMA Channel 1.
- 24 f. Make a Mobile-To-Land voice call and verify audio in both directions.
- 25 g. End the call.

26

27

Table 1.4.1.4-1 Frequency Allocation

	Case 1.1	Case 1.2	Case 1.3	Case 1.4	Case 1.5
CDMA_FREQ	1	1	1	1	1
EXT_CDMA_FREQ	N/A	2	2	2	2
SR1_CDMA_FREQ_NON_TD	N/A	N/A	3	N/A	3
SR1_CDMA_FREQ_TD	N/A	N/A	N/A	4	4 ²

² This is a pseudo frequency, no corresponding channel elements are needed.

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2 Case 1.2: BS (P_REV=6 or P_REV>6, not capable of Non-TD BCCH or TD)

3 a. Configure the base station to P_REV=6, and connect the base station to the mobile
4 station as shown in [Annex A Figure 2](#). Set PILOT_INC to 1.

5 b. At the base station, Set Pilot PN offset to a certain value.

6 c. Verify that the mobile station acquires the Pilot channel correctly.

7 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
8 according to case 1.2 in Table 1.4.1.4-1.

9 e. Verify that the mobile station tunes to CDMA Channel 1.

10 f. Make a Mobile-Originated voice call and verify audio in both directions.

11 g. End the call.

12 h. Configure the base station to P_REV=7 and disable BCCH of any form (TD or Non
13 TD), repeat step a to g.

14

15 Case 1.3: BS (P_REV=7, capable of Non-TD BCCH but not TD)

16 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
17 PILOT_INC to 1.

18 b. At the base station, Set Pilot PN offset to a certain value.

19 c. Verify that the mobile station acquires the Pilot channel correctly.

20 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
21 according to case 1.3 in Table 1.4.1.4-1.

22 e. Verify that the mobile station tunes to CDMA Channel 3.

23 f. Make a Mobile-Originated voice call and verify audio in both directions.

24 g. End the call.

25

26 Case 1.4: BS (P_REV=7, capable of TD but not Non-TD BCCH)

27 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
28 PILOT_INC to 1.

29 b. At the base station, Set Pilot PN offset to a certain value.

30 c. Verify that the mobile station acquires the Pilot channel correctly.

31 d. Instruct the base station to send a *Sync Channel Message* frequency allocation
32 according to case 1.4 in Table 1.4.1.4-1.

33 e. Verify that the mobile station tunes to CDMA Channel 1.

34 f. Make a Mobile-Originated voice call and verify audio in both directions.

35 g. End the call.

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Case 1.5: BS (P_REV=7, capable of Non-TD BCCH and TD)

- a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set PILOT_INC to 1.
- b. At the base station, Set Pilot PN offset to a certain value.
- c. Verify that the mobile station acquires the Pilot channel correctly.
- d. Instruct the base station to send a *Sync Channel Message* with frequency allocation according to case 1.5 in Table 1.4.1.4-1.
- e. Verify that the mobile station tunes to CDMA Channel 3.
- f. Make a Mobile-Originated voice call and verify audio in both directions.
- g. End the call.

Case 2: MS (not capable of TD, but capable of QPCH or RC>2)

Case 2.1: BS (P_REV<6)

- a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set PILOT_INC to 1.
- b. At the base station, Set Pilot PN offset to a certain value.
- c. Verify that the mobile station acquires the Pilot channel correctly.
- d. Instruct the base station to send a *Sync Channel Message* with frequency allocation according to case 2.1 in Table 1.4.1.4-2.
- e. Verify that the mobile station stays on CDMA Channel 1.
- f. Make a Mobile-Originated voice call and verify audio in both directions.
- g. End the call.

Table 1.4.1.4-2 Frequency Allocation

	Case 2.1	Case 2.2	Case 2.3	Case 2.4	Case 2.5
CDMA_FREQ	1	1	1	1	1
EXT_CDMA_FREQ	N/A	2	2	2	2
SR1_CDMA_FREQ_NON_TD	N/A	N/A	3	N/A	3
SR1_CDMA_FREQ_TD	N/A	N/A	N/A	4	4 ³

Case 2.2: BS (P_REV=6 or P_REV>6, not capable of Non-TD BCCH or TD)

- a. Configure the base station to P_REV=6, and Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set PILOT_INC to 1.
- b. At the base station, Set Pilot PN offset to a certain value.
- c. Verify that the mobile station acquires the Pilot channel correctly.

³ This is a pseudo frequency, no corresponding channel elements are needed.

- 1 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 2 according to case 2.2 in Table 1.4.1.4-2.
- 3 e. Verify that the mobile station tunes to CDMA Channel 2.
- 4 f. Make a Mobile-Originated voice call and verify audio in both directions.
- 5 g. End the call.
- 6 h. Configure the base station to P_REV=7 and disable BCCH of any form (TD or Non
- 7 TD), repeat step a to g.

8

9

10 Case 2.3: BS (P_REV=7, capable of Non-TD BCCH but not TD)

- 11 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
- 12 PILOT_INC to 1.
- 13 b. At the base station, Set Pilot PN offset to a certain value.
- 14 c. Verify that the mobile station acquires the Pilot channel correctly.
- 15 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 16 according to case 2.3 in Table 1.4.1.4-2.
- 17 e. Verify that the mobile station tunes to CDMA Channel 3.
- 18 f. Make a Mobile-Originated voice call and verify audio in both directions.
- 19 g. End the call.

20

21 Case 2.4: BS (P_REV=7, capable of TD but not Non-TD BCCH)

- 22 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
- 23 PILOT_INC to 1.
- 24 b. At the base station, Set Pilot PN offset to a certain value.
- 25 c. Verify that the mobile station acquires the Pilot channel correctly.
- 26 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 27 according to case 2.4 in Table 1.4.1.4-2.
- 28 e. Verify that the mobile station tunes to CDMA Channel 2.
- 29 f. Make a Mobile-Originated voice call and verify audio in both directions.
- 30 g. End the call.

31

32 Case 2.5: BS (P_REV=7, capable of Non-TD BCCH and TD)

- 33 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
- 34 PILOT_INC to 1.
- 35 b. At the base station, Set Pilot PN offset to a certain value.

- 1 c. Verify that the mobile station acquires the Pilot channel correctly.
- 2 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 3 according to case 2.5 in Table 1.4.1.4-2.
- 4 e. Verify that the mobile station tunes to CDMA Channel 3.
- 5 f. Make a Mobile-Originated voice call and verify audio in both directions.
- 6 g. End the call.

7 Case 3: MS (capable of TD and QPCH or RC>2)

8 Case 3.1: BS (P_REV<6)

- 9 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
- 10 PILOT_INC to 1.
- 11 b. At the base station, Set Pilot PN offset to a certain value.
- 12 c. Verify that the mobile station acquires the Pilot channel correctly.
- 13 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 14 according to case 3.1 in Table 1.4.1.4-3.
- 15 e. Verify that the mobile station stays on CDMA Channel 1.
- 16 f. Make a Mobile-Originated voice call and verify audio in both directions.
- 17 g. End the call.

Table 1.4.1.4-3 Frequency Allocation

	Case 3.1	Case 3.2	Case 3.3	Case 3.4	Case 3.5	Case 3.6	Case 3.7
CDMA_FREQ	1	1	1	1	1	1 ⁴	1
EXT_CDMA_FREQ	N/A	2	2	2	2	2	2
SR1_CDMA_FREQ_NON_TD	N/A	N/A	3	N/A	N/A	3	3
SR1_CDMA_FREQ_TD	N/A	N/A	N/A	4	4	4	4 (no available radio resource)

19 Case 3.2: BS (P_REV=6 or P_REV>6, not capable of Non-TD BCCH or TD)

- 20 a. Configure the base station to P_REV=6, and Connect the base station to the mobile
- 21 station as shown in [Annex A Figure 2](#). Set PILOT_INC to 1.
- 22 b. At the base station, Set Pilot PN offset to a certain value.
- 23 c. Verify that the mobile station acquires the Pilot channel correctly.
- 24 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 25 according to case 3.2 in Table 1.4.1.4-3.
- 26 e. Verify that the mobile station tunes to CDMA Channel 2.
- 27 f. Make a Mobile-Originated voice call and verify audio in both directions.

⁴ This is a pseudo frequency, no corresponding channel elements are needed.

- 1 g. End the call.
- 2 h. Configure the base station to P_REV=7 and disable BCCH of any form (TD or Non
- 3 TD), repeat step a to g.

4

5 Case 3.3: BS (P_REV=7, capable of Non-TD BCCH but not TD)

- 6 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
- 7 PILOT_INC to 1.
- 8 b. At the base station, Set Pilot PN offset to a certain value.
- 9 c. Verify that the mobile station acquires the Pilot channel correctly.
- 10 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 11 according to case 3.3 in Table 1.1.4.1.4-3.
- 12 e. Verify that the mobile station tunes to CDMA Channel 3.
- 13 f. Make a Mobile-Originated voice call and verify audio in both directions.
- 14 g. End the call.

15

16 Case 3.4: BS (P_REV=7, capable of TD (with the same TD mode as MS), but not Non-TD BCCH)

- 17 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
- 18 PILOT_INC to 1.
- 19 b. At the base station, Set Pilot PN offset to a certain value.
- 20 c. Verify that the mobile station acquires the Pilot channel correctly.
- 21 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 22 according to case 3.4 in Table 1.4.1.4-3.
- 23 e. Verify that the mobile station tunes to CDMA Channel 4.
- 24 f. Make a Mobile-Originated voice call and verify audio in both directions.
- 25 g. End the call.

26

27 Case 3.5: BS (P_REV=7, capable of TD (with different TD mode as MS), but not Non-TD BCCH)

- 28 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
- 29 PILOT_INC to 1.
- 30 b. At the base station, Set Pilot PN offset to a certain value.
- 31 c. Verify that the mobile station acquires the Pilot channel correctly.
- 32 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
- 33 according to case 3.5 in Table 1.4.1.4-3.
- 34 e. Verify that the mobile station tunes to CDMA Channel 2.
- 35 f. Make a Mobile-Originated voice call and verify audio in both directions.

1 g. End the call.

2

3 Case 3.6: BS (P_REV=7, capable of Non-TD BCCH and TD with the same TD mode as MS)

4 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
5 PILOT_INC to 1.

6 b. At the base station, Set Pilot PN offset to a certain value.

7 c. Verify that the mobile station acquires the Pilot channel correctly.

8 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
9 according to case 3.6 in Table 1.4.1.4-3.

10 e. Verify that the mobile station tunes to CDMA Channel 4.

11 f. Make a Mobile-Originated voice call and verify audio in both directions.

12 g. End the call.

13

14 Case 3.7: BS (P_REV=7, capable of Non-TD BCCH and TD with a different TD mode as MS)

15 a. Connect the base station to the mobile station as shown in [Annex A Figure 2](#). Set
16 PILOT_INC to 1.

17 b. At the base station, Set Pilot PN offset to a certain value.

18 c. Verify that the mobile station acquires the Pilot channel correctly.

19 d. Instruct the base station to send a *Sync Channel Message* with frequency allocation
20 according to case 3.7 in Table 1.1.4.1.4-3.

21 e. Verify that the mobile station tunes to CDMA Channel 3.

22 f. Make a Mobile-Originated voice call and verify audio in both directions.

23 g. End the call.

24 For backward compatibility, MOB_P_REV=6

25 Case 1: MS (MOB_P_REV = 6, neither QPCH nor RC > 2 is supported)

26

27 Case 1.1: BS (P_REV<6)

28 a. Connect the base station to the mobile station as shown in Figure 1.10.2-1. Set
29 PILOT_INC to 1.

30 b. At the base station, Set Pilot PN offset to a certain value.

31 c. Configure the base station to send a *Sync Channel Message* with CDMA_FREQ set
32 to CDMA Channel 1.

33 d. Verify that the mobile station stays on CDMA channel 1.

34 e. Set up a mobile station originated voice call and verify audio in both directions.

35 f. End the call.

1

2 Case 1.2 BS (P_REV=6, neither QPCH nor RC>2 is supported)

- 3 a. Connect the base station to the mobile station as shown in Figure 1.10.2-1. Set
4 PILOT_INC to 1.
- 5 b. At the base station, Set Pilot PN offset to an arbitrary value.
- 6 c. Configure the base station to send a *Sync Channel Message* with CDMA_FREQ
7 set to CDMA Channel 1 and EXT_CDMA_FREQ set to CDMA Channel 2 (a
8 different frequency than CDMA channel 1).
- 9 d. Verify that the mobile station stays on CDMA channel 1.
- 10 e. Set up a mobile station originated voice call and verify audio in both directions.
- 11 f. End the call.

12

13 Case 1.3: BS (P_REV=6, QPCH or RC>2 (or both) is supported)

- 14 a. Connect the base station to the mobile station as shown in Figure 1.10.2-1. Set
15 PILOT_INC to 1.
- 16 b. At the base station, Set Pilot PN offset to an arbitrary value.
- 17 c. Configure the base station to send a *Sync Channel Message* with CDMA_FREQ
18 set to CDMA Channel 1 and EXT_CDMA_FREQ set to CDMA Channel 2 (a
19 different frequency than CDMA channel 1).
- 20 d. Verify that the mobile station stays on CDMA channel 1.
- 21 e. Set up a mobile station originated voice call and verify audio in both directions.
- 22 f. End the call.

23

24 Case 2: MS (MOB_P_REV = 6, either QPCH or RC>2 (or both) is supported)

25

26 Case 2.1: BS (P_REV<6)

- 27 a. Connect the base station to the mobile station as shown in Figure 1.10.2-1. Set
28 PILOT_INC to 1.
- 29 b. At the base station, Set Pilot PN offset to an arbitrary value.
- 30 c. Configure the base station to send a *Sync Channel Message* with CDMA_FREQ
31 set to CDMA Channel 1.
- 32 d. Verify that the mobile station stays on CDMA channel 1.
- 33 e. Set up a mobile station originated voice call and verify audio in both directions.
- 34 f. End the call.

35

1 Case 2.2 BS (P_REV=6, neither QPCH nor RC>2 is supported)

- 2 a. Connect the base station to the mobile station as shown in Figure 1.10.2-1. Set
- 3 PILOT_INC to 1.
- 4 b. At the base station, Set Pilot PN offset to an arbitrary value.
- 5 c. Configure the base station to send a Sync Channel Message with CDMA_FREQ
- 6 set to CDMA Channel 1 and EXT_CDMA_FREQ set to CDMA Channel 2 (a
- 7 different frequency than CDMA channel 1).
- 8 d. Verify that the mobile station stays on CDMA channel 2.
- 9 e. Set up a mobile station originated voice call and verify audio in both directions.
- 10 f. End the call.

11

12 Case 2.3 BS (P_REV=6, QPCH or RC>2 is supported)

- 13 a. Connect the base station to the mobile station as shown in Figure 1.10.2-1. Set
- 14 PILOT_INC to 1.
- 15 b. At the base station, Set Pilot PN offset to an arbitrary value.
- 16 c. Configure the base station to send a Sync Channel Message with CDMA_FREQ
- 17 set to CDMA Channel 1 and EXT_CDMA_FREQ set to CDMA Channel 2 (a
- 18 frequency where QPCH or RC>2 is supported - whichever feature is supported
- 19 by the mobile station).
- 20 d. Verify that the mobile station tunes to CDMA channel 2 and acquire the system.
- 21 e. Set up a mobile station originated voice call and verify audio in both directions.
- 22 f. End the call.

23

24 1.4.1.5 Minimum Standard

25 The mobile station shall comply with the requirements in steps c and e.

26 1.4.2 Base Station Test

27 N/A.

28 1.5 Hashing F-CCCH, F-CCCH slot

29 1.5.1 Mobile Station Test

30 1.5.1.1 Definition

31 This test checks the ability to set and detect hashed F-CCCHs and F-CCCH Slots. The IMSI's
32 effect on hashed F-CCCH and Slot is also checked.

- 1 1.5.1.2 Traceability (See [4]):
- 2 2.6.7.1 Hash Function
- 3 3.6.2.1.2 Common Channel Determination
- 4 3.6.2.1.3 Paging Slot Determination
- 5 1.5.1.3 Call Flow Diagram
- 6 None
- 7 1.5.1.4 Methods of Measurement
- 8 1.5.1.4.1 F-CCCH Number Hashing
- 9 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#), and
- 10 configure the base station system with multiple F-CCCHs (maximum seven) in *MC-*
- 11 *RR Parameters Message*.
- 12 b. Send a *Registration Request Order* from the base station on the correct F-CCCH and
- 13 verify that the mobile station responds with a *Registration Message*.
- 14 c. Change the number of F-CCCHs so that a (correct) hashing operation selects a
- 15 different F-CCCH number assignment, and repeat steps a and b.
- 16 1.5.1.4.2 F-CCCH Slot Number Hashing
- 17 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#), configure
- 18 the base station system with slotted mode capability.
- 19 b. Send a *Registration Request Order* from the base station on the correct F-CCCH Slot
- 20 and verify that the mobile station responds with a *Registration Message*.
- 21 c. Change the IMSI of the MS, so that a (correct) hashing operation selects a different
- 22 F-CCCH Slot number assignment then repeat steps a and b.
- 23 1.5.1.5 Minimum Standard
- 24 For all tests, the mobile station shall hash to the correct configuration.
- 25 **1.5.2 Base Station Test**
- 26 1.5.2.1 Definition
- 27 This test checks the ability to set and detect hashed F-CCCHs and F-CCCH Slots. The IMSI's
- 28 effect on hashed F-CCCH and Slot is also checked.
- 29 1.5.2.2 Traceability (See [4]):
- 30 2.6.7.1 Hash Function
- 31 3.6.2.1.2 Common Channel Determination
- 32 3.6.2.1.3 Paging Slot Determination
- 33 1.5.2.3 Call Flow Diagram
- 34 None

1 1.5.2.4 Methods of Measurement

2 1.5.2.4.1 F-CCCH Number Hashing

3 Case 1: MS (MOB_P_REV=7)

- 4 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#), and
5 configure the base station system with a multiple F-CCCHs (maximum seven) in *MC-*
6 *RR Parameters Message*.
- 7 b. Send a *Registration Message* from the mobile station, then make a Mobile-
8 Terminated voice call, and verify that the base station has paged the mobile on the
9 correct F-CCCH.
- 10 c. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
11 different F-CCCH number assignment, and repeat steps a and b.

12 Case 2: MS (MOB_P_REV<7)

- 13 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#), and
14 configure the base station system with a mix of multiple F-PCHs and F-CCCHs
15 (maximum seven) in *System Parameters Message* and *MC-RR Parameters*
16 *Message*.
- 17 b. Send a *Registration Message* from the mobile station, then make a Mobile-
18 Terminated voice call, and verify that the base station has paged the mobile station
19 on F-PCH.

20 1.5.2.4.2 F-CCCH Slot Number Hashing

- 21 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#), configure
22 the base station system with slotted mode capability, and verify the mobile station
23 goes into slotted mode.
- 24 b. Send a *Registration Message* from the mobile station. Make a Mobile-Terminated
25 voice call, and verify that the base station has paged the mobile station on the correct
26 F-CCCH slot.
- 27 c. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
28 different F-CCCH Slot number assignment, and repeat steps a and b.

29 1.5.2.5 Minimum Standard

30 For all tests, the base station shall hash to the correct configuration.

31

32 **1.6 CDMA Channel Hashing on F-PCH**

33 **1.6.1 Mobile Station Test**

34 1.6.1.1 Definition

35 This test checks the mobile station's ability to do CDMA Channel hashing based on different
36 capability sets to select appropriate CDMA Channel and associated PCH.

1 1.6.1.2 Traceability (See [4]):

- 2 2.6.2.2 *Response to Overhead Information Operation*
 3 2.6.2.2.12.1 *Extended CDMA Channel List Message on Paging Channel*
 4 2.6.2.2.12.2 *Extended CDMA Channel List Message on Primary Broadcast Control Channel*
 5 2.6.7.1 *Hash Function*
 6 3.6.2.1.1 *CDMA Channel Determination*
 7 3.7.2.3.2.28 *Extended CDMA Channel List Message*

8 1.6.1.3 Call Flow Diagram

9 None

10 1.6.1.4 Methods of Measurement

11 Case 1: MS (not capable of QPCH (or RC>2))

12 Case 1.1: BS (P_REV<6)

- 13 a. Turn off all forms of autonomous registration at the base station.
 14 b. Connect the base station and the mobile station as shown in [Annex A Figure 2](#), and
 15 configure the base station for multiple channel assignment capability. Ensure that
 16 there is one Paging Channel on each CDMA Channel.
 17 c. Ensure 3 CDMA Channels are included in the *CDMA Channel List Message*.
 18 d. Send a *Registration Request Order* from the base station on the correct CDMA
 19 channel based on the mobile station's IMSI and verify that the mobile station
 20 responds with a *Registration Message*.
 21 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
 22 different CDMA channel number assignment, and repeat steps a to d.

23 Case 1.2: BS (P_REV>=6, incapable of BCCH and QPCH (or RC>2) with *Extended CDMA*
 24 *Channel List Message* sent)

25

- 26 a. Turn off all forms of autonomous registration at the base station.
 27 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
 28 configure the base station with 1 Paging Channel on each of the 3 CDMA channels.
 29 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0',
 30 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.
 31 d. Send a *Registration Request Order* from the base station on the correct CDMA
 32 channel based on the mobile station's IMSI and verify that the mobile station
 33 responds with a *Registration Message*.
 34 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
 35 different CDMA channel number assignment, and repeat steps a to d.

36

37 Case 1.3: BS (P_REV>=6, incapable of BCCH, capable of QPCH (or RC>2) with *Extended*
 38 *CDMA Channel List Message* sent)

- 1 a. Turn off all forms of autonomous registration at the base station.
- 2 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
- 3 configure the base station with 1 Paging Channel on each of the 3 CDMA channels.
- 4 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1',
- 5 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure
- 6 RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.
- 7 d. Send a *Registration Request Order* from the base station on the correct CDMA
- 8 channel based on the mobile station's IMSI and verify that the mobile station
- 9 responds with a *Registration Message*.
- 10 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 11 different CDMA channel number assignment, and repeat steps a to d.

12

13 Case 2: MS (MOB_P_REV=7, capable of QPCH or RC>2)

14 Case 2.1: BS (P_REV<6)

- 15 a. Turn off all forms of autonomous registration at the base station.
- 16 b. Connect the base station and the mobile station as shown in [Annex A Figure 2](#), and
- 17 configure the base station for multiple channel assignment capability. Ensure that
- 18 there is one Paging channel on each CDMA Channel.
- 19 c. Ensure 3 CDMA Channels are included in *CDMA Channel List Message*.
- 20 d. Send a *Registration Request Order* from the base station on the correct CDMA
- 21 channel based on the mobile station's IMSI and verify that the mobile station
- 22 responds with a *Registration Message*.
- 23 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 24 different CDMA channel number assignment, and repeat steps a to d.

25

26 Case 2.2: BS (P_REV>=6, incapable of BCCH and QPCH or RC>2 with *Extended CDMA*

27 *Channel List Message* sent)

- 28 a. Turn off all forms of autonomous registration at the base station.
- 29 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
- 30 configure the base station with 1 Paging Channel on each of the 3 CDMA channels.
- 31 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0',
- 32 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.
- 33 d. Send a *Registration Request Order* from the base station on the correct CDMA
- 34 channel based on the mobile station's IMSI and verify that the mobile station
- 35 responds with a *Registration Message*.
- 36 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 37 different CDMA channel number assignment, and repeat steps a to d.

38

- 1 Case 2.3: BS (P_REV>=6, incapable of BCCH, capable of QPCH (or RC>2) with *Extended*
 2 *CDMA Channel List Message* sent)
- 3 a. Turn off all forms of autonomous registration at the base station.
 - 4 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
 5 configure the base station with 1 Paging Channel on each of the 3 CDMA channels.
 - 6 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1',
 7 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure
 8 RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.
 - 9 d. Send a *Registration Request Order* from the base station on the correct CDMA
 10 channel based on the mobile station's IMSI and verify that the mobile station
 11 responds with a *Registration Message*.
 - 12 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
 13 different CDMA channel number assignment, and repeat steps a to d.

14 1.6.1.5 Minimum Standard

15 For all tests, the mobile station shall comply with the requirements in step d

16 1.6.2 Base Station Test

17 1.6.2.1 Definition

18 This test checks the base station's ability to do CDMA Channel hashing based on different
 19 capability sets to select appropriate CDMA Channels and associated PCHs.

20 1.6.2.2 Traceability (See [4]):

- 21 2.6.2.2 *Response to Overhead Information Operation*
- 22 2.6.2.2.12.1 *Extended CDMA Channel List Message on Paging Channel*
- 23 2.6.7.1 *Hash Function*
- 24 3.6.2.1.1 *CDMA Channel Determination*
- 25 3.7.2.3.2.28 *Extended CDMA Channel List Message*

26 1.6.2.3 Call Flow Example(s)

27 None

28 1.6.2.4 Methods of Measurement

29 Case 1: BS (incapable of BCCH and QPCH (or RC>2) with *Extended CDMA Channel List*
 30 *Message* sent)

31 Case 1.1: MS (MOB_P_REV=7, not capable of QPCH (or RC>2))

- 32 a. Turn off all forms of autonomous registration at the base station.
- 33 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
 34 configure the base station with 1 Paging Channel on each of the 8 CDMA channels.

- 1 c. Provision the system so that *Extended CDMA Channel List Message* is sent with
2 RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
3 base station.
- 4 d. Send a *Registration Message* from the mobile station, then make a Mobile-
5 Terminated voice call, and verify audio in both directions.
- 6 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
7 different CDMA channel number assignment, and repeat steps a to d.

8

9 Case 1.2: MS (MOB_P_REV=7, capable of QPCH (or RC>2))

- 10 a. Turn off all forms of autonomous registration at the base station.
- 11 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
12 configure the base station with 1 Paging Channel on each of the 3 CDMA channels.
- 13 c. Provision the system so that *Extended CDMA Channel List Message* is sent with
14 RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
15 base station.
- 16 d. Send a *Registration Message* from the mobile station, then make a Mobile-
17 Terminated voice call, and verify audio in both directions.
- 18 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
19 different CDMA channel number assignment, and repeat steps a to d.

20

21 Case 2: BS (incapable of BCCH, capable of QPCH (or RC>2) with *Extended CDMA Channel List*
22 *Message* sent)

23 Case 2.1: MS (MOB_P_REV=7, not capable of QPCH (or RC>2))

- 24 a. Turn off all forms of autonomous registration at the base station.
- 25 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
26 configure the base station with 1 Paging Channel on each of the 3 CDMA channels.
- 27 c. Provision the system so that *Extended CDMA Channel List Message* is sent with
28 RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
29 base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.
- 30 d. Send a *Registration Message* from the mobile station, then make a Mobile-
31 Terminated voice call, and verify audio in both directions.
- 32 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
33 different CDMA channel number assignment, and repeat steps a to d.

34

35 Case 2.2: MS (MOB_P_REV=7, capable of QPCH (or RC>2))

- 36 a. Turn off all forms of autonomous registration at the base station.
- 37 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
38 configure the base station with 1 Paging Channel on each of the 3 CDMA channels.

- 1 c. Provision the system so that *Extended CDMA Channel List Message* is sent with
 2 RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
 3 base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.
- 4 d. Send a *Registration Message* from the mobile station, then make a Mobile-
 5 Terminated voice call, and verify audio in both directions.
- 6 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
 7 different CDMA channel number assignment, and repeat steps a to d.

8 1.6.2.5 Minimum Standard

9 For all tests, the base station shall comply with the requirements in step d.
 10

11 1.7 CDMA Channel Hashing on F-BCCH

12 1.7.1 Mobile Station Test

13 Applicability: BS capable of supporting TD (STS) and QPCH (RC>2).

14 1.7.1.1 Definition

15 This test checks the mobile station's ability to do CDMA Channel (frequency) hashing based on
 16 different capability sets to select appropriate CDMA Channels and associated primary BCCHs.

17 1.7.1.2 Traceability (See [4]):

18 2.6.2.1.5 *Primary Broadcast Control Channel Monitoring*

19 2.6.2.2 *Response to Overhead Information Operation*

20 2.6.2.2.12.2 *Extended CDMA Channel List Message On Primary Broadcast Control Channel*

21 2.6.7.1 *Hash Function*

22 3.6.2.1.1 *CDMA Channel Determination*

23 3.7.2.3.2.28 *Extended CDMA Channel List Message*

24 1.7.1.3 Call Flow Example(s)

25 None

26 1.7.1.4 Method of Measurement

27 Case 1: MS (not capable of either TD or QPCH (RC>2))

28

29 Case 1.1: BS (without TD and QPCH (or RC>2))

- 30 a. Turn off all forms of autonomous registration at the base station.
- 31 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
 32 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 33 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0',
 34 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

- 1 d. Send a *Registration Request Order* from the base station and verify that the mobile
2 station responds with a *Registration Message*.
- 3 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
4 different CDMA channel number assignment, and repeat steps a to d.

5

6 Case 1.2: BS (without TD (STS) but with QPCH (or RC>2))

- 7 a. Turn off all forms of autonomous registration at the base station.
- 8 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
9 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 10 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1',
11 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure
12 RC_QPCH_HASH_IND is set to '1' for freq 1 and 2
- 13 d. Send a *Registration Request Order* from the base station and verify the mobile
14 station responds with a *Registration Message*.
- 15 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
16 different CDMA channel number assignment, and repeat steps a to d.

17

18 Case 1.3: BS (with TD (STS) and QPCH (or RC>2))

- 19 a. Turn off all forms of autonomous registration at the base station.
- 20 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
21 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 22 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1',
23 TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure
24 TD_HASH_IND is set to '1' for frequency 1 and RC_QPCH_HASH_IND is set to '1'
25 for frequency 1 and 2.
- 26 d. Send a *Registration Request Order* from the base station and verify that the mobile
27 station responds with a *Registration Message*.
- 28 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
29 different CDMA channel number assignment, and repeat steps a to d.

30

31 Case 2: MS (not capable of TD (STS) but capable of QPCH (or RC>2))

32 Case 2.1: BS (without TD (STS) and QPCH (or RC>2))

- 33 a. Turn off all forms of autonomous registration at the base station.
- 34 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
35 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 36 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0',
37 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

- 1 d. Send a *Registration Request Order* from the base station and verify that the mobile
 2 station responds with a *Registration Message*.
- 3 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
 4 different CDMA channel number assignment, and repeat steps a to d.

5

6 Case 2.2: BS (without TD (STS) but with QPCH (or RC>2))

- 7 a. Turn off all forms of autonomous registration at the base station.
- 8 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
 9 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 10 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1',
 11 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure
 12 RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.
- 13 d. Send a *Registration Request Order* from the base station and verify that the mobile
 14 station responds with a *Registration Message*.
- 15 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
 16 different CDMA channel number assignment, and repeat steps a to d.

17

18 Case 2.3: BS (with TD (STS) and QPCH (or RC>2))

- 19 a. Turn off all forms of autonomous registration at the base station.
- 20 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
 21 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 22 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1',
 23 TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure
 24 TD_HASH_IND is set to '1' for frequency 1 and RC_QPCH_HASH_IND is set to '1'
 25 for frequency 1,2 and 3.
- 26 d. Send a *Registration Request Order* from the base station and verify that the mobile
 27 station responds with a *Registration Message*.
- 28 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
 29 different CDMA channel number assignment, and repeat steps a to d.

30

31 Case 3: MS (capable of both TD (STS) and QPCH (or RC>2))

32 Case 3.1: BS (without TD (STS) and QPCH (or RC>2))

- 33 a. Turn off all forms of autonomous registration at the base station.
- 34 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#), and
 35 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 36 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0',
 37 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

- 1 d. Send a *Registration Request Order* from the base station and verify that the mobile
2 station responds with a *Registration Message*.
- 3 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
4 different CDMA channel number assignment, and repeat steps a to d.

5

6 Case 3.2: BS (without TD (STS) but with QPCH (or RC>2))

- 7 a. Turn off all forms of autonomous registration at the base station.
- 8 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
9 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 10 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1',
11 TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure
12 RC_QPCH_HASH_IND is set to '1' for frequency 1 and 2.
- 13 d. Send a *Registration Request Order* from the base station and verify that the mobile
14 station responds with a *Registration Message*.
- 15 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
16 different CDMA channel number assignment, and repeat steps a to d.

17

18 Case 3.3: BS (with TD (STS) and QPCH (or RC>2))

- 19 a. Turn off all forms of autonomous registration at the base station.
- 20 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
21 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 22 c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1',
23 TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure
24 TD_HASH_IND is set to '1' for frequency 1 and 2, RC_QPCH_HASH_IND is set to '1'
25 for all the frequencies.
- 26 d. Send a *Registration Request Order* from the base station and verify that the mobile
27 station responds with a *Registration Message*.
- 28 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
29 different CDMA channel number assignment, and repeat steps a to d.

30 1.7.1.5 Minimum Standard

31 The mobile station shall comply with the requirement in step d.

32 1.7.2 Base Station Test

33 Prerequisite:

34 BS (P_REV>6) is capable of supporting TD (STS) and QPCH (or RC>2).

35 1.7.2.1 Definition

36 This test checks the base station's ability to do CDMA Channel (frequency) hashing based on
37 different capability sets to select appropriate CDMA Channels and associated primary BCCHs.

1 1.7.2.2 Traceability IS-2000.5-A-2

2 2.6.2.1.5 *Primary Broadcast Control Channel Monitoring*

3 2.6.2.2 *Response to Overhead Information Operation*

4 2.6.2.2.12.2 *Extended CDMA Channel List Message On Primary Broadcast Control Channel*

5 2.6.7.1 *Hash Function*

6 3.6.2.1.1 *CDMA Channel Determination*

7 3.7.2.3.2.28 *Extended CDMA Channel List Message*

8 1.7.2.3 Call Flow Example(s)

9 None

10 1.7.2.4 Method of Measurement

11 Case 1: Configure the base station to operate without TD and QPCH (RC>2)

12 Case 1.1: MS (not capable of either TD or QPCH (RC>2))

- 13 a. Turn off all forms of autonomous registration at the base station.
- 14 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
- 15 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 16 c. Configure the system so that *Extended CDMA Channel List Message* is sent with
- 17 RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
- 18 base station.
- 19 d. Send a *Registration Message* from the mobile station, then make a Mobile-
- 20 Terminated voice call, and verify audio in both directions.
- 21 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 22 different CDMA channel number assignment, and repeat steps a to d.

23

24 Case 1.2: MS (not capable of TD (STS) but capable of QPCH (RC>2))

- 25 a. Turn off all forms of autonomous registration at the base station.
- 26 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
- 27 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 28 c. Configure the system so that *Extended CDMA Channel List Message* is sent with
- 29 RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
- 30 base station.
- 31 d. Send a *Registration Message* from the mobile station, then make a Mobile-
- 32 Terminated voice call, and verify audio in both directions.
- 33 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 34 different CDMA channel number assignment, and repeat steps a to d.

35

36 Case 1.3: MS (capable of both TD (STS) and QPCH (RC>2))

- 37 a. Turn off all forms of autonomous registration at the base station.

- 1 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
- 2 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 3 c. Configure the system so that *Extended CDMA Channel List Message* is sent with
- 4 RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
- 5 base station.
- 6 d. Send a *Registration Message* from the mobile station, then make a Mobile-
- 7 Terminated voice call, and verify audio in both directions.
- 8 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 9 different CDMA channel number assignment, and repeat steps a to d.

10

11 Case 2: Configure the base station to operate without TD (STS) but with QPCH (RC>2)

12

Case 2.1: MS (not capable of either TD or QPCH (RC>2))

13

- a. Turn off all forms of autonomous registration at the base station.
- 14 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
- 15 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 16 c. Configure the system so that *Extended CDMA Channel List Message* is sent with
- 17 RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
- 18 base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2
- 19 d. Send a *Registration Message* from the mobile station, then make a Mobile-
- 20 Terminated voice call, and verify audio in both directions.
- 21 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 22 different CDMA channel number assignment, and repeat steps a to d.

23

24

Case 2.2: MS (not capable of TD (STS) but capable of QPCH (RC>2))

25

- a. Turn off all forms of autonomous registration at the base station.
- 26 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
- 27 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 28 c. Configure the system so that *Extended CDMA Channel List Message* is sent with
- 29 RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
- 30 base station.
- 31 d. Send a *Registration Message* from the mobile station, then make a Mobile-
- 32 Terminated voice call, and verify audio in both directions.
- 33 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 34 different CDMA channel number assignment, and repeat steps a to d.

35

36

Case 2.3: MS (capable of both TD (STS) and QPCH (RC>2))

37

- a. Turn off all forms of autonomous registration at the base station.

- 1 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
2 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 3 c. Configure the system so that *Extended CDMA Channel List Message* is sent with
4 RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the
5 base station and make sure RC_QPCH_HASH_IND is set to '1' for frequency 1 and
6 2.
- 7 d. Send a *Registration Message* from the mobile station, then make a Mobile-
8 Terminated voice call, and verify audio in both directions.
- 9 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
10 different CDMA channel number assignment, and repeat steps a to d.

11

12 Case 3: Configure the base station to operate with TD (STS) and QPCH (RC>2)

13 Case 3.1: MS (not capable of either TD or QPCH (RC>2))

- 14 a. Turn off all forms of autonomous registration at the base station.
- 15 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
16 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 17 c. Configure the system so that *Extended CDMA Channel List Message* is sent with
18 RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the
19 base station and make sure TD_HASH_IND is set to '1' for frequency 1 and
20 RC_QPCH_HASH_IND is set to '1' for frequency 1 and 2.
- 21 d. Send a *Registration Message* from the mobile station, then make a Mobile-
22 Terminated voice call, and verify audio in both directions.
- 23 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
24 different CDMA channel number assignment, and repeat steps a to d.

25

26 Case 3.2: MS (not capable of TD (STS) but capable of QPCH (RC>2))

- 27 a. Turn off all forms of autonomous registration at the base station.
- 28 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
29 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 30 c. Configure the system so that *Extended CDMA Channel List Message* is sent with
31 RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the
32 base station and make sure TD_HASH_IND is set to '1' for frequency 1 and
33 RC_QPCH_HASH_IND is set to '1' for frequency 1,2 and 3.
- 34 d. Send a *Registration Message* from the mobile station, then make a Mobile-
35 Terminated voice call, and verify audio in both directions.
- 36 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
37 different CDMA channel number assignment, and repeat steps a to d.

38

39 Case 3.3: MS (capable of both TD (STS) and QPCH (RC>2))

- 1 a. Turn off all forms of autonomous registration at the base station.
- 2 b. Connect the base station and mobile station as shown in [Annex A Figure 2](#) and
- 3 configure the base station with 1 primary BCCH on each of the 3 CDMA channels.
- 4 c. Configure the system so that the *Extended CDMA Channel List Message* is sent with
- 5 RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the
- 6 base station and make sure TD_HASH_IND is set to '1' for frequency 1 and 2,
- 7 RC_QPCH_HASH_IND is set to '1' for all the frequencies.
- 8 d. Send a *Registration Message* from the mobile station, then make a Mobile-
- 9 Terminated voice call, and verify audio in both directions.
- 10 e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a
- 11 different CDMA channel number assignment, and repeat steps a to d.

12 1.7.2.5 Minimum Standard

13 The base station shall comply with the requirement in step d.

14 1.8 F-CCCH SUPPORT

15 1.8.1 Mobile Station Test

16 1.8.1.1 Definition

17 This test checks the mobile station's ability to process messages (L2 ACK, *Extended Channel*
18 *Assignment Message*) sent over F-CCCH correctly.

19 1.8.1.2 Traceability (See [4]):

20 2.6.2.1.1 *Forward Channel Monitoring Procedures*

21 2.6.2.1.1.4 *Common Channel Supervision*

22 2.6.3.1.8 *Paging Channel and Forward Common Control Channel Monitoring*

23 1.8.1.3 Call Flow Example(s)

24 None

25 1.8.1.4 Method of Measurement

- 26 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 27 b. Instruct the mobile station originate a voice call.
- 28 c. Instruct the base station to respond with a Layer 2 ACK and *Extended Channel*
- 29 *Assignment Message* over F-CCCH.
- 30 d. Verify that the mobile station can set up the traffic channel for this voice call correctly.

31 1.8.1.5 Minimum Standard

32 The mobile station shall comply with the requirements in step d.

1 **1.8.2 Base Station Test**

2 N/A.

3 **1.9 Data Burst sent on the F-CCCH or F-PCH.**

4 **1.9.1 Mobile Station Test**

5 1.9.1.1 Definition

6 This test verifies that a *Data Burst message* can be sent to a mobile station in the Mobile Station
7 Idle State. The mobile station is capable of receiving short messages, and the short message
8 feature for the mobile station is activated. Transport Layer messages shall enable the Bearer
9 Reply Option.

10

11 1.9.1.2 Traceability (See [4]):

12 2.7.1.3.2.3 *Data Burst Message*

13 1.9.1.3 Call Flow Example(s)

14 None

15 1.9.1.4 Method of Measurement

- 16 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 17 b. Delete all outstanding short messages in the network for the mobile station.
- 18 c. Create a short message in the Message Center for the mobile station. Ensure that
19 the short message length is less than the maximum allowed size on the paging
20 channel or F-CCCH so that it can be sent to the mobile station on the Paging
21 Channel or F-CCCH .
- 22 d. Power on the mobile station and wait until it is in the Mobile Station Idle State.
- 23 e. Instruct the network to send the short message to the mobile station on F-PCH.
24 Verify the base station sends a *Data Burst Message* to the mobile station with the
25 following fields set as follows:

Field	Value
MSG_NUMBER	1 ('00000001')
BURST_TYPE	3 ('000011')
NUM_MSGS	1 ('00000001')
NUM_FIELDS	Greater than 0

- 26 f. Upon receiving the *Data Burst Message* at the mobile station, verify that the
27 following:
- 28 1. The mobile station alerts the user for the incoming short message and
29 correctly displays the received short message.
- 30 2. The mobile station transmits an Access Channel *Data Burst Message* to

1 acknowledge the short message and indicating no error (i.e. contains a
 2 'Cause Codes' parameter having ERROR_CLASS = '00').

3 g. Repeat steps a to f, but replace F-PCH with F-CCCH in step e.

4 **1.9.1.5 Minimum Standard**

5 The mobile station shall comply with the requirement in step f.

6 **1.9.2 Base Station Test**

7 **1.9.2.1 Definition**

8 This test verifies that a short message can be sent to a mobile station in the Mobile Station Idle
 9 State. The mobile station is capable of receiving short messages, and the short message feature
 10 for the mobile station is activated. Transport Layer messages shall enable the Bearer Reply
 11 Option.

12 **1.9.2.2 Traceability (See [4]):**

13 3.7.3.3.2.4 *Data Burst Message*
 14

15 **1.9.2.3 Call Flow Example(s)**

16 None

17 **1.9.2.4 Method of Measurement**

- 18 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 19 b. Delete all outstanding short messages in the network for the mobile station.
- 20 c. Create a short message in the Message Center for the mobile station. Ensure that
 21 the short message length is less than the maximum allowed size on the paging
 22 channel or F-CCCH so that it can be sent to the mobile station on the Paging
 23 Channel or F-CCCH .
- 24 d. Power on the mobile station and wait until it is in the Mobile Station Idle State.
- 25 e. If F-PCH is supported, instruct the network to send the short message to the mobile
 26 station on F-PCH. Verify that the base station sends a *Data Burst Message* to the
 27 mobile station with the following fields set as follows:

Field	Value
MSG_NUMBER	1 ('00000001')
BURST_TYPE	3 ('000011')
NUM_MSGS	1 ('00000001')
NUM_FIELDS	Greater than 0

- 28 f. Upon receiving the *Data Burst Message* at the mobile station, verify the following:
 29 1. The content of the short message is correct
 30 2. The network marks the message as sent upon receipt of the Access
 31 Channel *Data Burst Message* to acknowledge the short message

1 indicating no error (i.e. contains a 'Cause Codes' parameter having
2 ERROR_CLASS = '00').

3 g. Repeat steps a to f, but replace F-PCH with F-CCCH in step e.

4 1.9.2.5 Minimum Standard

5 The base atation shall compy with the requirement in step e.
6

7 **1.10 Quick Paging Channel CCI**

8 **1.10.1 Mobile Station Test**

9 1.10.1.1 Definition

10 For mobile stations that support the Quick Paging Channel, this test will verify that a mobile
11 station using the Quick Paging Channel 'configuration change indicator' (CCI) will update its
12 overhead information when the CCI bit is set to on.

13 1.10.1.2 Traceability (See [4]):

14 2.6.2.1.1.3 *Slotted Mode Requirements*

15 2.6.2.1.2 *Quick Paging Channel Monitoring Procedures*

16 2.6.2.1.4 *Idle handoff*

17 2.6.7.1 *Hash Function*

18 3.6.2.5 *Quick Paging Channel Processing*

19 3.7.2.3.2.13 *Extended System Parameters Message*

20 3.7.2.3.2.14 *Extended Neighbor List Message*

21 1.10.1.3 Call Flow Example(s)

22 None

23 1.10.1.4 Method of Measurement

24 a. Connect two base stations to the mobile station as shown in [Annex A Figure 2](#), with
25 the ability to transition either base station power I_{or} 5 dB above the other, to induce
26 an idle handoff from one to the other and back again.

27 1. The Forward Channel from base station 1 has an arbitrary pilot PN offset
28 index P1 and is called Channel 1.

29 2. The Forward Channel from base station 2 has an arbitrary pilot PN offset
30 index P2 and called Channel 2.

31 b. Set the *Extended System Parameters Message* in both base stations as specified in
32 Table 1.10.1.4-1.

33 **Table 1.10.1.4-1 Test Parameters for *Extended System Parameters Message***

Fields	Values
QPCH_SUPPORTED	'1' (QPCH is supported)
NUM_QPCH	'01' (Number of the QPCH)

QPCH_RATE (indicator rate)	'0' (QPCH indicator rate is 4800 bps)
QPCH_POWER_LEVEL_PAGE	'101' (same as pilot channel)
QPCH_CCI_SUPPORTED	'1' [configuration change indicators supported]
QPCH_POWER_LEVEL_CONFIG	'101' (same as pilot channel)

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7

- c. Set NGHBR_PN for the *Extended Neighbor List Message*, *Neighbor List Message* or *General Neighbor List Message* in both base stations to include the other base station PN.
- d. Set the Paging Channel data rate for Channels 1 and 2 to 4800 bps.
- e. Set up Channel 1 and Channel 2 per Table 1.10.1.4-2.

Table 1.10.1.4-2. Test Parameters for Slotted Mode idle handoff

Parameter	Unit	Channel 1	Channel 2
\hat{I}_{or}/I_{OC}	dB	0	-5
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7	-7
$\frac{\text{Quick Paging } E_c}{I_{or}}$	dB	-7	-7
I_{oc}	dBm/1.23 MHz	-75	

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- f. Slowly (over a period of several seconds, but not more than $T_{31m} = 600$ seconds round trip) transpose power levels of channel 1 and 2. That is, raise Channel 2 power by 5 dB (to $\hat{I}_{or}/I_{OC} = 0$ dB), and lower Channel 1 power by 5 dB (to $\hat{I}_{or}/I_{OC} = -5$ dB). This should provoke an idle handoff from Channel 1 to Channel 2.
- g. Verify that the mobile station has performed an idle handoff to Channel 2.
- h. While the mobile station is idle on Channel 2, instruct the base station #1 to modify an overhead message, thus causing the CCI bits on Channel 1 Quick Paging Channel to be set to ON.
- i. Cause an idle handoff from Channel 2 to Channel 1.
- j. Verify that the mobile station does not go to slotted mode until it has updated its overhead configuration.
- k. Repeat steps a through i with the QPCH_RATE (indicator rate) set to 1 (9600 rate).

21 **1.10.1.5 Minimum Standard**

22 The mobile station shall comply with the requirement in step j.

23 **1.10.2 Base Station Test Case**

24 None

1 **1.11 Quick Paging Channel with Paging Indicator**

2 **1.11.1 Mobile Station Test**

3 1.11.1.1 Definition

4 For mobile stations that support the Quick Paging Channel, this test will verify the following:

- 5 • The mobile station will hash to the right Quick Paging indicator positions.
- 6 • The mobile station will monitor the following F-CCCH Slot if the Quick Paging Indicators are set to ON by the base station.
- 7
- 8 • The mobile station will not monitor the following F-CCCH Slot if the Quick Paging Indicators are set to OFF by the base station.
- 9

10 1.11.1.2 Traceability (See [4]):

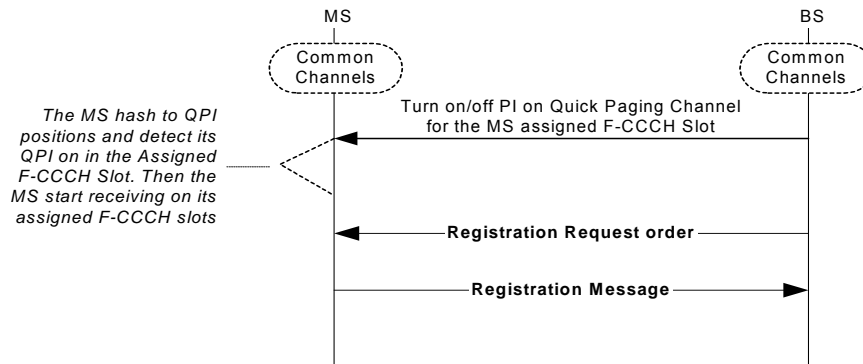
11 2.6.2.1.2 Quick Paging Channel Monitoring Procedures.

12 2.6.7.1 Hash Function

13 2.7.1.3.2.1 Registration Message

14 3.7.2.3.2.13 Extended System Parameters Message

15 1.11.1.3 Call Flow Example(s)



16
17

18 1.11.1.4 Method of Measurement

- 19 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 20 b. Set the values in the *MC-RR Parameters Message* as follows:

Fields	Values
QPCH_SUPPORTED	'1' (QPCH is supported)
NUM_QPCH	'01' (Number of the QPCH)
QPCH_RATE	'0' (QPCH indicator rate is 4800 bps)
QPCH_POWER_LEVEL_PAGE	'101' (same as pilot channel)

- 21 c. Set the corresponding Quick Paging Indicators corresponding to the mobile station
- 22 Forward Common Control Channel slot to ON, and those for all other slots to OFF.

- 1 d. Send a *Registration Request Order* from the base station at expected Forward
- 2 Common Control Channel slot on the Forward Common Control Channel, and verify
- 3 that the mobile station responds with a *Registration Message*.
- 4 e. Repeat steps b through d with the QPCH_RATE set to 1 (9600 bps).
- 5 f. Repeat steps b through d using the Paging Channel.

6 1.11.1.5 Minimum Standard

7 The mobile station shall comply with the requirements in step d.

8 **1.11.2 Base Station test**

9 None

10 **1.12 Status Request Message Processing**

11 **1.12.1 Mobile Station Test**

12 1.12.1.1 Definition

13 This test verifies that that mobile station responds to the *Status Request Message* correctly.

14 1.12.1.2 Traceability (See [4]):

- 15 2.6.3.5 *Mobile Station Origination Attempt Substate*
- 16 2.6.4.1.2 *Service Configuration and Negotiation*
- 17 2.6.4.1.14 *Processing the Service Configuration Record*
- 18 2.6.4.1.15 *Processing the Non-Negotiable Service Configuration Record*
- 19 2.6.4.2 *Traffic Channel Initialization Substate*
- 20 2.7.1.3.2.4 *Origination Message*
- 21 2.7.1.3.2.5 *Page Response Message*
- 22 2.7.1.3.2.10 *Extended Status Response Message*
- 23 2.7.2.3.2.14 *Service Connect Completion Message*
- 24 2.7.2.3.2.16 *Status Response Message*
- 25 3.6.3.5 *Response to Origination Message*
- 26 3.6.4.1.2 *Service Configuration and Negotiation*
- 27 3.7.2.3.2.15 *Status Request Message*
- 28 3.7.2.3.2.21 *Extended Channel Assignment Message*
- 29 3.7.3.3.2.20 *Service Connect Message*
- 30 3.7.5.7 *Service Configuration*
- 31 3.7.5.20 *Non-Negotiable Service Configuration*

32 1.12.1.3 Call Flow Example(s)

33 None

34 1.12.1.4 Method of Measurement

- 35 a. Ensure the mobile station is operating in the *Idle State*.

- 1 b. Instruct the base station to send a *Status Request Message* with on the f-csch to
2 request one or more of the information records listed in section 2.7.4 of [4].
- 3 c. Verify the following:
- 4 1. If P_REV_IN_USE is greater than 3:
- 5 a) The mobile station sends an *Extended Status Response Message*
6 with the appropriate band class, operating mode, and information
7 record; or
- 8 b) The mobile station sends a *Mobile Station Reject Order* with ORDQ
9 = 6 if the mobile station does not support the band class and/or
10 operating mode specified in the *Status Request Message*; or
- 11 c) The mobile station sends a *Mobile Station Reject Order* with ORDQ
12 = 8 if the information record would exceed the allowable length or
- 13 d) The mobile station sends a *Mobile Station Reject Order* with ORDQ
14 = 9 if the information record is not supported for the specified band
15 class and operating mode.
- 16 2. If P_REV_IN_USE is less than or equal to 3:
- 17 a) The mobile station sends a *Status Response Message* with the
18 appropriate band class, operating mode, and information record; or
- 19 b) The mobile station sends a *Mobile Station Reject Order* with ORDQ
20 = 6 if the mobile station does not support the band class and/or
21 operating mode specified in the *Status Request Message*; or
- 22 c) The mobile station sends a *Mobile Station Reject Order* with ORDQ
23 = 8 if the information record would exceed the allowable length.
- 24 d) The mobile station sends a *Mobile Station Reject Order* with ORDQ
25 = 9 if the information record is not supported for the specified band
26 class and operating mode.
- 27 d. Set up a mobile originated call.
- 28 e. Instruct the base station to send a *Status Request Message* on the f-dsch to request
29 one or more of the information records listed in section 2.7.4 of [4].
- 30 f. Verify the following:
- 31 1. The mobile station sends a *Status Response Message* with the
32 appropriate band class, operating mode, and information record; or
- 33 2. The mobile station sends a *Mobile Station Reject Order* with ORDQ = 6 if
34 the mobile station does not support the band class and/or operating
35 mode specified in the *Status Request Message*.
- 36 3. The mobile station sends a *Mobile Station Reject Order* with ORDQ = 9 if
37 the information record is not supported for the specified band class and
38 operating mode.

- 1 g. Repeat steps a through f for all information records.
- 2 1.12.1.5 Minimum Standard
- 3 The mobile station shall comply with steps c, and f.
- 4 **1.12.2 Base Station Test**
- 5 None

1 **2 Basic Call processing**

2 **2.1 Forward Radio Link Failure**

3

4 **2.1.1 Mobile Station Test**

5

6 **2.1.1.1 Definition**

7 This tests mobile station's response to a loss of the forward RF link beginning at 4 points in
 8 mobile station originated call set up and conversation.

9

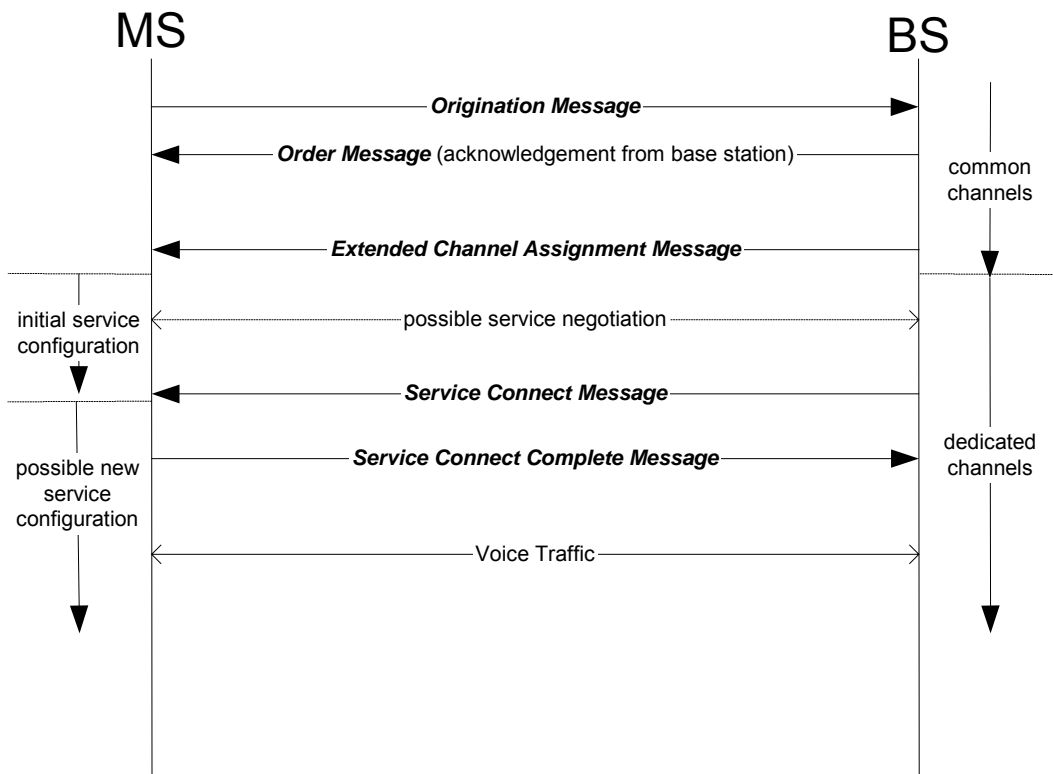
10 **2.1.1.2 Traceability (See [4]):**

11 2.6.2.1.1.4 *Common Channel Supervision*

12 2.6.4.1.8 *Forward Traffic Channel Supervision*

13

14 **2.1.1.3 Call Flow Diagram**



15

1 **2.1.1.4 Method of Measurement**

- 2 a. Configure a test setup with a connection of a single base station and the mobile
 3 station to allow the forward radio link to be abruptly attenuated, or interfered with,
 4 enough to cause continuous loss of all forward frames, as shown in Annex A Figure 6
 5 b. Configure the setup for good RF links.
 6 c. Allow the mobile station to come to the idle state on the base station.
 7 d. Attempt a mobile station originated call.
 8 e. Abruptly cause loss of the forward RF link beginning in Test 1 in table 2.1.1.4-1.

9 **Table 2.1.1.4-1 – Intervals for Forward Radio Link Failure Tests**

Test ID	Interval
1	After sending at least one <i>Origination Message</i> but before receiving acknowledgement from the base station
2	After receiving base station acknowledgement of <i>Origination Message</i> but before receiving an <i>Extended Channel Assignment Message</i>
3	After receiving an <i>Extended Channel Assignment Message</i> but before receiving a <i>Service Connect Message</i>
4	After sending <i>Service Connect Completion Message</i> (in <i>Conversation State</i>)

- 10
 11 f. Restore the normal RF link after a minimum of 15 seconds for test ID 1, 2 and 3 and
 12 25 seconds for test ID 4.
 13 g. Verify that the call has ended.
 14 h. Verify that the mobile station returns to the idle state on the base station.
 15 i. Repeat steps b through h for intervals in Tests 2 through 4 in Table 2.1.1.4-1

17 **2.1.1.5 Minimum Standard**

18 The mobile station shall comply with the requirements in steps g and h.

20 **2.1.2 Base Station Test**

21 None

23 **2.2 Test Service Options**

24 **2.2.1 Mobile Station Test**

25 **2.2.1.1 Definition**

26 This tests mobile station's operation of Test Service Options 2, 9, 32, 54, 55, 32798, 32799.

27

1 2.2.1.2 Traceability (See [4], [8] and [9]):

2 2.6.4.1.2 *Service Configuration and Negotiation*

3 2.6.4.1.3 3.6.4.1.2 *Service Configuration and Negotiation*

4 2.2.1.3 Call Flow Diagram

5 None

6

7 2.2.1.4 Method of Measurement

8 a. Allow the mobile station to come to the idle state on the base station.

9 b. For each test service option supported by the mobile station, set up a mobile station
10 originated call for each of the Test Service Options in Table 2.2.1.4-1.

11

Table 2.2.1.4-1 – Test Service Options

Service Option	Description
2	Mobile Station Rate Set 1 Loopback Service Option
9	Mobile Station Rate Set 2 Loopback Service Option
55	Loopback Service Option (LSO)
32798	Mobile Station Rate Set 1 Markov Service Option
32799	Mobile Station Rate Set 2 Markov Service Option
54	Markov Service Option (MSO)
32	TDSO

12

13 c. Verify that the test calls are completed successfully.

14 d. Repeat steps a through c, but in step b make mobile station terminated calls.

15 2.2.1.5 Minimum Standard

16 The mobile station shall comply with the requirements in steps c and d.

17

18 **2.2.2 Base Station Test**

19 None

20

1 **2.3 Busy Tone**

2 **2.3.1 Mobile Station Test**

3 2.3.1.1 Definition

4 This tests for mobile station response to a *Flash with Information Message* with a busy tone
5 Signal info record.

6 2.3.1.2 Traceability (See [4]):

7 2.6.4.4 Release Substate

8 3.6.4.3 Traffic Channel Substate

9 3.7.5 Information Records

10 Table 3.7.5.5-3 Tone Signals

11 2.3.1.3 Call Flow Diagram

12 None

13 2.3.1.4 Method of Measurement

14 a. Allow the mobile station to come to the idle state on the base station.

15

16 b. Attempt a mobile station originated call, and cause the base station to send a called-
17 party-busy indication as a *Flash with Information Message* with the Signal info record
18 below:

19

Field	Value
Information Record Type	'00000101' (Signal)
SIGNAL_TYPE	'00' (Tone Signal)
SIGNAL	'000110' (Busy tone on: a 480 Hz tone added to a 620 Hz tone repeated in a 500 ms on, 500 ms off cycle)

20

21 c. Verify that the mobile station indicates called-party-busy, e. g. the mobile station
22 plays the busy tone in the earpiece.

23

24 2.3.1.5 Minimum Standard

25 The mobile station shall comply with the requirements in step c.

26 **2.3.2 Base Station Test**

27 None

1 **2.4 Mobile station Response to *Reorder Order***

2 **2.4.1 Mobile Station Test**

3 2.4.1.1 Definition

4 This test verifies the mobile station gives a 'call origination cancelled' indication in response to a
5 *Reorder Order* received during a call origination. Note that the mobile station may attempt an
6 implementation specific number of originations before indicating 'call origination cancelled' to the
7 user.

8 2.4.1.2 Traceability (See [4]):

9 *Table 3.7.4-1 Order and Order Qualification Codes*

10 *3.6.2.3 Mobile Station Directed Messages, Reorder Order*

11 *Table 3.7.5.5-3 Tone Signals, Network congestion (reorder) tone on: a 480 Hz tone added to a*
12 *620 Hz tone repeated in a 250 ms on, 250 ms off cycle*

13 *Table 3.7.5.5-3 Tone Signals, Abbreviated network congestion (reorder): a 480 Hz tone added to*
14 *a 620 Hz tone repeated in a 250 ms on, 250 ms off cycle for four seconds*

15 *3.6.3.5 Response to Origination Message*

16 *3.6.2.3 Mobile Station Directed Messages*

17 2.4.1.3 Call Flow Diagram

18 None

19 2.4.1.4 Method of Measurement

- 20 a. Allow the mobile station come to the idle state on the base station.
- 21 b. Attempt a mobile station originated call.
- 22 c. Instruct the base station to send a *Reorder Order* instead of a channel assignment,
23 as a base station might do in a blocking situation where all traffic channel resources
24 are unavailable.
- 25 d. Repeat step c for each *Origination message* received by the base station.
- 26 e. Verify the mobile station plays a 'call origination cancelled' indication after an
27 implementation specific number of origination attempts have been completed.
- 28 f. Verify that the mobile station returns to the idle state on the base station.

29 2.4.1.5 Minimum Standard

30 The mobile station shall comply with the requirements in steps e and f.

31

32 **2.4.2 Base Station Test**

33 None

1 **2.5 Slot Cycle Index**

2 **2.5.1 Mobile Station Test**

3 2.5.1.1 Definition

4 This test verifies the mobile station response to the base station MAX_SLOT_CYCLE_INDEX
5 setting for various settings of mobile station SLOT_CYCLE_INDEXp.

6 2.5.1.2 Traceability (See [4]):

7 2.6.2.1.1 Forward Channel Monitoring Procedures

8 3.6.2.1.3 Paging Slot Determination

9 3.6.2.3 Mobile Station Directed Messages

10 2.7.1.3.2.1 Registration Message

11 2.7.1.3.2.4 Origination Message

12 2.7.1.3.2.5 Page Response Message

13 2.7.4.7 Terminal Information

14 2.5.1.3 Call Flow Diagram

15 None

16 2.5.1.4 Method of Measurement

- 17 a. Configure the mobile station internal setting of SLOT_CYCLE_INDEXp and also base
18 station *System Parameter Message* setting *MC-RR Parameters Message* of
19 MAX_SLOT_CYCLE_INDEX in the first row in table 2.5.1.4-1.

20 **Table 2.5.1.4-1 – Mobile and Base Station Settings for Slot Cycle Index Test**

Test_ID	MAX_SLOT_CYCLE_I NDEX (base station)	SLOT_CYCLE_I NDEXp (mobile station)	Slot Cycle Index Used	Slot Cycle Length, seconds
1	2	0	0	1.28
2	2	1	1	2.56
3	2	2	2	5.12
4	2	3	2	5.12
5	3	3	3	10.14

21

- 22 b. Allow the mobile station to come to the idle state in slotted mode on the base station.

- 23 c. Examine the occasions when the mobile station briefly wakes up to read the Paging
24 Channel, and verify that it occurs on the interval of the Slot Cycle Length in table
25 2.5.1.4-1. This can be done using a diagnostic monitor, which logs (timestamps)
26 Paging Channel messages in the waking moments, or with a battery current monitor
27 that indicates the awakened state by increased draw.

- 28 d. Make a mobile station terminated call by paging the mobile station in the appropriate
29 paging slot, and verify that it completes successfully.

- 30 e. Repeat steps a through d for each of the Test ID combinations in Table 2.5.1.4-1.

- 1 f. Repeat steps a to e with following modification: Replace Paging Channel with F-
2 CCCH.

3 2.5.1.5 Minimum Standard

4 The mobile station shall comply with requirements in steps c and d.

5 2.5.2 Base Station Test

6 None

7 2.6 MSID, MCC, and IMSI

8 2.6.1 Mobile Station Test

9 2.6.1.1 Definition

10 These tests verify that some protocol of the Mobile Station Identifier number (MSID or MSIN),
11 Mobile Country Code (MCC), and International Mobile Station Identity (IMSI). Mobile response to
12 three instances of base station PREF_MSID_TYPE are checked when the MCC and IMSI_11_12
13 of the mobile station and base station match, do not match or are wildcard values. For MS
14 equipped with R-UIM, ESN shall be replaced by R-UIM ID if the Removable UIM_ID_Usage
15 Indicator is set to '1'.

16 2.6.1.2 Traceability (See [4]):

17 *3.7.2.3.2.13 Extended System Parameters Message*

18 *2.6.2.2.5 Extended System Parameters Message*

19 *2.6.2.3 Mobile Station Page Match Operation*

20 *2.3.1 Mobile Station Identification Number*

21 *2.3.1.1 Encoding of IMSI_M_S and IMSI_T_S 11*

22 *Table 3.7.2.3.2.13-1. Preferred MSID Types*

23 *3.6.2.2 Overhead Information*

24 (See [3]):

25 *2.1.1.3.1.1 Definition of Addressing Fields*

26 *2.1.1.3.1.3 Requirements for Setting IMSI Class and IMSI Class-specific Subfield Parameters*

27 (See [23]):

28 *3.4.32 EF_USGIND (Removable UIM_ID Usage Indicator)*

29 2.6.1.3 Call Flow Diagram

30 None

31 2.6.1.4 Method of Measurement

32 Note: For mobile station equipped with R-UIM and with Removable UIM_ID_Usage
33 Indicator = '1', replace ESN with UIM_ID in all the steps below.

- 34 a. For each step below, set USE_TMSI = '0' in the base station *Extended System*
35 *Parameters Message* or *ANSI-41 System Parameters Message*. Also program either

- 1 the mobile station or the base station for the values of MCC and IMSI_11_12, to
2 achieve the matching or non-matching conditions indicated.
- 3 b. PREF_MSID_TYPE = '00'. Configure the base station *Extended System Parameters*
4 *Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = '00'.
5 Make a mobile station originated call and a mobile station terminated call. Verify that
6 the mobile station sets MSID_TYPE = '000' and sends IMSI_S and ESN in the
7 *Origination Message* and *Page Response Message*.
- 8 c. PREF_MSID_TYPE = '10', matching MCC and matching IMSI_11_12. Configure the
9 base station *Extended System Parameters Message* or *ANSI-41 System Parameters*
10 *Message* with PREF_MSID_TYPE = '10'. Verify the values of both MCC and
11 IMSI_11_12 are the same (match) in the mobile station and base station. Make a
12 mobile station originated call and a mobile station terminated call. Verify that the
13 mobile station sets MSID_TYPE = '010' and sends IMSI_S (does not send MCC and
14 IMSI_11_12) in the *Origination Message* and *Page Response Message*.
- 15 d. PREF_MSID_TYPE = '10', non-matching MCC and matching IMSI_11_12. Configure
16 the base station *Extended System Parameters Message* or *ANSI-41 System*
17 *Parameters Message* with PREF_MSID_TYPE = '10'. Verify that the values of
18 IMSI_11_12 are the same (match) in the mobile station and base station, but the
19 values of MCC are different (don't match). Make a mobile station originated call and a
20 mobile station terminated call. Verify that the mobile station sets MSID_TYPE = '010'
21 and sends MCC and IMSI_S (does not send IMSI_11_12) in the *Origination Message*
22 and *Page Response Message*.
- 23 e. PREF_MSID_TYPE = '10', matching MCC and non-matching IMSI_11_12. Configure
24 the base station *Extended System Parameters Message* or *ANSI-41 System*
25 *Parameters Message* with PREF_MSID_TYPE = '10'. Verify that the values of MCC
26 are the same (match) in the mobile station and base station, but the values of
27 IMSI_11_12 are different (don't match). Make a mobile station originated call and a
28 mobile station terminated call. Verify that the mobile station sets MSID_TYPE = '010'
29 and sends IMSI_11_12 and IMSI_S (does not send MCC) in the *Origination Message*
30 and *Page Response Message*.
- 31 f. PREF_MSID_TYPE = '10', non-matching MCC and non-matching IMSI_11_12.
32 Configure the base station *Extended System Parameters Message* or *ANSI-41*
33 *System Parameters Message* with PREF_MSID_TYPE = '10'. Verify that the values
34 of both MCC and IMSI_11_12 are different in the mobile station and base station
35 (neither matches). Make a mobile station originated call and a mobile station
36 terminated call. Verify that the mobile station sets MSID_TYPE = '010' and sends
37 MCC, IMSI_11_12 and IMSI_S in the *Origination Message* and *Page Response*
38 *Message*.
- 39 g. PREF_MSID_TYPE = '10', wildcard MCC and wildcard IMSI_11_12. Configure the
40 base station *Extended System Parameters Message* or *ANSI-41 System Parameters*
41 *Message* with the following fields:
42

1 h.

Field	Value
PREF_MSID_TYPE	'10'
MCC	'1111111111' (wildcard)
IMSI_11_12	'1111111' (wildcard)

- 2 i. Make a mobile station originated call and a mobile station terminated call. Verify that
 3 the mobile station sets MSID_TYPE = '010' and sends IMSI_S (but does not send
 4 MCC and IMSI_11_12) in the *Origination Message* and *Page Response Message*.
- 5 j. PREF_MSID_TYPE = '11', matching MCC and matching IMSI_11_12. Configure the
 6 base station *Extended System Parameters Message* or *ANSI-41 System Parameters*
 7 *Message* with PREF_MSID_TYPE = '11'. Verify that the values of both MCC and
 8 IMSI_11_12 are the same in the mobile station and base station (both match). Make
 9 a mobile station originated call and a mobile station terminated call. Verify that the
 10 mobile station sets MSID_TYPE = '011' and sends IMSI_S and ESN (does not send
 11 MCC and IMSI_11_12) in the *Origination Message* or *Page Response Message*.
- 12 k. PREF_MSID_TYPE = '11', non-matching MCC and matching IMSI_11_12. Configure
 13 the base station *Extended System Parameters Message* or *ANSI-41 System*
 14 *Parameters Message* with PREF_MSID_TYPE = '11'. Verify that the values of
 15 IMSI_11_12 are the same in the mobile station and base station (match), but the
 16 values of MCC are different (don't match). Make a mobile station originated call and a
 17 mobile station terminated call. Verify that the mobile station sets MSID_TYPE = '011'
 18 and sends MCC and IMSI_S and ESN (does not send IMSI_11_12) in the *Origination*
 19 *Message* and *Page Response Message*.
- 20 l. PREF_MSID_TYPE = '11', matching MCC and non-matching IMSI_11_12. Configure
 21 the base station *Extended System Parameters Message* or *ANSI-41 System*
 22 *Parameters Message* with PREF_MSID_TYPE = '11'. Verify that the values of MCC
 23 are the same in the mobile station and base station (match), but the values of
 24 IMSI_11_12 are different (don't match). Make a mobile station originated call and a
 25 mobile station terminated call. Verify that the mobile station sets MSID_TYPE = '011'
 26 and sends IMSI_11_12, IMSI_S and ESN (does not send MCC) in the *Origination*
 27 *Message* and *Page Response Message*.
- 28 m. PREF_MSID_TYPE = '11', non-matching MCC and non-matching IMSI_11_12.
 29 Configure the base station *Extended System Parameters Message* or *ANSI-41*
 30 *System Parameters Message* with PREF_MSID_TYPE = '11'. Verify that the values
 31 of both MCC and IMSI_11_12 are different in the mobile station and base station.
 32 Make a mobile station originated call and a mobile station terminated call. Verify that
 33 the mobile station sets MSID_TYPE = '011' and sends MCC, IMSI_11_12 and
 34 IMSI_S and ESN in the *Origination Message* and *Page Response Message*.
- 35 n. PREF_MSID_TYPE = '11', wildcard MCC and wildcard IMSI_11_12. Configure the
 36 base station *Extended System Parameters Message* or *ANSI-41 System Parameters*
 37 *Message* with the following fields:

38

Field	Value
PREF_MSID_TYPE	'11'
MCC	'1111111111' (wildcard)
IMSI_11_12	'11111111' (wildcard)

1

- 2 o. Make a mobile station originated call and a mobile station terminated call. Verify that
 3 the mobile station sets MSID_TYPE = '011' and sends IMSI_S and ESN (but does
 4 not send MCC and IMSI_11_12) in the *Origination Message* and *Page Response*
 5 *Message*.

6

7 2.6.1.5 Minimum Standard

8 The mobile station shall comply with requirements in steps b through n.

9

10 **2.6.2 Base Station Test**

11 None

12 **2.7 TMSI Assignment and Expiration**

13 **2.7.1 Mobile Station Test**

14 2.7.1.1 Definition

15 This is a test for basic TMSI (Temporary Mobile Station Identity) operation. The mobile station
 16 uses the TMSI in place of its MSIN (also known as MSID) for the duration of a base station TMSI
 17 assignment. After the TMSI has expired, the mobile station reverts back to using its MSIN.

18 2.7.1.2 Traceability (See [4]):

19 *2.3.15 Temporary Mobile Station Identity*

20 *2.6.3.1.6 Full-TMSI Timer*

21 *2.6.5.5.2.5 Full-TMSI Timer Expiration*

22 *2.7.1.3.2.8 TMSI Assignment Completion Message*

23 *2.7.2.3.2.17 TMSI Assignment Completion Message*

24 *3.7.2.3.2.19 TMSI Assignment Message*

25 *3.7.3.3.2.22 TMSI Assignment Message*

26 *Figure 2.3.15-1. TMSI Zone Example*

27 *Full TMSI combination of TMSI_ZONE and TMSI_CODE. The full TMSI is a globally unique*
 28 *address for the mobile station.*

29 *TMSI Zone administrative zone that allows the TMSI to be reused.*

30 *DELETE_FOR_TMSI A storage variable in the mobile station that indicates whether the mobile*
 31 *station should delete its current TMSI if the TMSI was assigned in a different TMSI*

32 *zoneTMSI_ZONE TMSI zone number of the base station*

1 2.7.1.3 Call Flow Diagram

2 None

3 2.7.1.4 Method of Measurement

4

5 a. Configure the base station *Extended System Parameters Message* with fields as
6 follows:

7

Field	Value
PREF_MSID_TYPE	'10'
USE_TMSI	'1'

8

9 b. Allow the mobile station to come to the idle state on the base station.

10 c. Instruct the base station to send a *TMSI Assignment Message* to the mobile station
11 with a specific expiration time in field TMSI_EXP_TIME, the System Time in the units
12 of $80 \text{ ms} \times 2^{12}$ when the TMSI is to expire (approx. 5 minutes minimum).

13 d. Verify that the mobile station responds with a *TMSI Assignment Completion Message*
14 within T 56m (= .2) seconds.

15 e. Make a mobile station originated call.

16 f. Verify that the call completes successfully, and the *Origination Message* includes the
17 assigned TMSI in place of the IMSI.

18 g. End the call.

19 h. Cause the base station to attempt a mobile station terminated call using TMSI.

20 i. Verify that the call completes successfully, and the *Page Response Message*
21 includes the assigned TMSI in place of its IMSI.

22 j. End the call.

23 k. Wait for the TMSI timer to expire.

24 l. Make a mobile station originated call.

25 m. Verify that the call completes successfully, and the *Origination Message* includes the
26 IMSI (not the TMSI).

27 n. End the call.

28 o. Cause the base station to attempt a mobile station terminated call using IMSI.

29 p. Verify that the call completes successfully.

30 q. Cause the base station to attempt a mobile station terminated call using TMSI.

31 r. Verify that the mobile station does not respond to the page.

- 1 s. Repeat steps a through r but substitute the *ANSI-41 System Parameters Message* in
2 place of the *Extended System Parameters Message* in step a.

3

4 2.7.1.5 Minimum Standard

5 The mobile station shall comply with the requirements in steps d, f, i, m, p, and r.

6

7 **2.7.2 Base Station Test**

8 **2.8 DTMF**

9 **2.8.1 Mobile Station Test**

10 2.8.1.1 Definition

11 This is a test for Dual-Tone Multifrequency, or DTMF sent or received by the mobile station,
12 including *Send Burst DTMF Message* and Continuous DTMF Tone Order.

13 2.8.1.2 Traceability (See [4]):

14 2.7.2.3.2.7 *Send Burst DTMF Message*

15 2.7.2.3.2.1 *Continuous DTMF Tone Order*

16 3.7.3.3.2.9 *Send Burst DTMF Message*

17 Table 2.7.1.3.2.4-4 *Representation of DTMF Digits*

18 Table 2.7.2.3.2.7-1 *Recommended DTMF Pulse Width*

19 Table 2.7.2.3.2.7-2 *Recommended Minimum Inter-digit Interval*

20 Table 3.7.4-1 *Order and Order Qual Codes Used on the f-csch and the f-dsch*

21 Table 2.7.2.3-1 *Messages on r-dsch*

22 2.8.1.3 Call Flow Diagram

23 None

24 2.8.1.4 Method of Measurement

- 25 a. Configure the mobile station for short DTMF tones, i. e. the mobile station will send
26 individual *Send Burst DTMF Message* in response to individual key presses while in
27 a call.
- 28 b. Allow the mobile station to come to the idle state on the base station, and set up a
29 voice call.
- 30 c. Mobile station sends individual DTMF digits. While the call is in progress, make
31 single presses of each of the mobile station buttons 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *, and #
32 in sequence.
- 33 d. Verify that the mobile station sends 12 *Send Burst DTMF Messages*, one for each
34 digit in step c, with fields as indicated below:

35

Field	Value
NUM_DIGITS	'00000001'
DIGIT _i	DIGIT code corresponding to the button
DTMF_ON_LENGTH	A valid value
DTMF_OFF_LENGTH	A valid value

1

2

3

e. Verify that the mobile station received an acknowledgement from the base station for each *Send Burst DTMF Message* before it sent another.

4

5

6

f. Mobile station sends string of DTMF digits. While the call is still in progress, cause the mobile station to send the string of DTMF digits "1234567890*#" and verify that the mobile station sends a *Send Burst DTMF Message* with fields as indicated below:

7

Field	Value
NUM_DIGITS	'00001100' (12 digits)
DIGIT _i (12 occurrences)	12 DTMF digit codes representing "1234567890*#"
DTMF_ON_LENGTH	valid value
DTMF_OFF_LENGTH	valid value

8

9

10

g. Verify that the mobile station receives an acknowledgement from the base station for the *Send Burst DTMF Message*.

11

h. End the call.

12

13

14

i. Mobile station sends a *Continuous DTMF Tone Order*. If available, configure the mobile station to send *Continuous DTMF Tone Order* in response to key presses while a call.

15

16

17

j. Set up another voice call, and while the call is in progress, press and hold any one of the mobile station buttons (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, #, or *) for approximately 5 seconds.

18

19

k. Verify that the mobile station sends a *Continuous DTMF Tone Order (Start)* with the following fields:

20

Order Code, ORDER	'011001' (DTMF order)
Order Qualification Code, ORDQ	'0000nnnn', where 'nnnn' is the DTMF code for the button pressed

21

22

23

l. Verify that the mobile station sends a *Continuous DTMF Tone Order (Stop)* with the following fields, within approximately 5 seconds of the start Order:

24

Order Code, ORDER	'011001' (DTMF order)
Order Qualification Code, ORDQ	'11111111' (Stop)

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- m. Verify that the mobile station received acknowledgement from the base station for both *Continuous DTMF Tone Orders* it sent.
- n. Mobile station receives individual DTMF digits. Couple the mobile station receive audio to a DTMF decoder/analyzer that will display DTMF tones played by the mobile station.
- o. While a call is in progress, cause the base station to send 12 separate *Send Burst DTMF Messages*, one each for DTMF digits 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *, and #, with the same message fields from step d.
- p. Verify that the mobile station sends an acknowledgement to the base station for each *Send Burst DTMF Message* received.
- q. Verify that the mobile station's DTMF decoder/analyzer indicates that each DTMF tone was decoded correctly, and verify that the duration of the tones correspond to the *DTMF_ON_LENGTH* sent by the base station.
- r. Mobile station Receives String of DTMF Digits. While the call is still in progress, cause the base station to send a *Send Burst DTMF Message* for the string of DTMF digits "0123456789*#", with the following fields:

Field	Value
NUM_DIGITS	'00001100' (12 DTMF digits)
DIGIT _i (12 occurrences)	12 DTMF digit codes representing "1234567890*#"
DTMF_ON_LENGTH	'000' (95 ms)
DTMF_OFF_LENGTH	'000' = (60 ms)

- s. Verify that the mobile station sends an acknowledgement to the base station for the *Send Burst DTMF Message* it received.
- t. Verify that the mobile station DTMF decoder/analyzer indicates that each DTMF tone in the string was decoded correctly, and verify that the duration and spacing of the tones correspond to the *DTMF_ON_LENGTH* and *DTMF_OFF_LENGTH* sent in the *Send Burst DTMF Message* by the base station.
- u. Mobile station receives *Continuous DTMF Tone Order*. While in a call, cause the base station to send a *Continuous DTMF Tone Order (Start)* with the following fields:

Order Code, ORDER	'011001' (DTMF order)
Order Qualification Code, ORDQ	'0000nnnn', where 'nnnn' is the DTMF code

- v. Within approximately 5 seconds of sending the Start order, cause the base station to send *Continuous DTMF Tone Order (Stop)* with the following fields:

Order Code, ORDER	'011001' (DTMF order)
Order Qualification Code, ORDQ	'11111111' (Stop)

1

2 w. Verify that the mobile station sends an acknowledgement of both *Continuous DTMF*
3 *Tone Orders received*.

4 x. Verify that the mobile station DTMF decoder/analyzer indicates the tone was
5 decoded correctly, and verify that the duration of the tone was approximately 5
6 seconds.

7 2.8.1.5 Minimum Standard

8 The mobile station shall comply with the requirements in steps d, e, f, g, k, l, m, p, q, s, t, w, and
9 x.

10 2.8.2 Base Station Test

11 None

12 2.9 Initial Service Configuration and Negotiation

13 2.9.1 Mobile Station Test

14 2.9.1.1 Definition

15 This test verifies that the initial service configuration in effect at the mobile station is according to
16 the value specified via the GRANTED_MODE field of the *Extended Channel Assignment*
17 *Message*.

18 2.9.1.2 Traceability (See [4]):

19

20 2.6.4.1.2 *MS Service Configuration and Negotiation procedures*

21 2.6.4.1.14 *Processing the Service Configuration Record*

22 2.6.4.1.15 *Processing the Non-Negotiable Service Configuration Record*

23 2.6.4.2 *Traffic Channel Initialization Substate*

24 2.7.1.3.2.4 *Origination Message*

25 2.7.1.3.2.5 *Page Response Message*

26 2.7.2.3.2.12 *(MS) Service Request Message*

27 2.7.2.3.2.13 *(MS) Service Response Message*

28 2.7.2.3.2.14 *(MS) Service Connect Completion Message*

29 2.7.4.18 *Service Configuration information record*

30 3.6.4.1.2 *BS Service Configuration and Negotiation procedures*

31 3.7.2.3.2.21 *Extended Channel Assignment Message*

32 3.7.3.3.2.18 *(BS) Service Request Message*

33 3.7.3.3.2.19 *(BS) Service Response Message*

34 3.7.3.3.2.20 *(BS) Service Connect Message*

35 3.7.3.3.2.31 *General Handoff Direction Message*

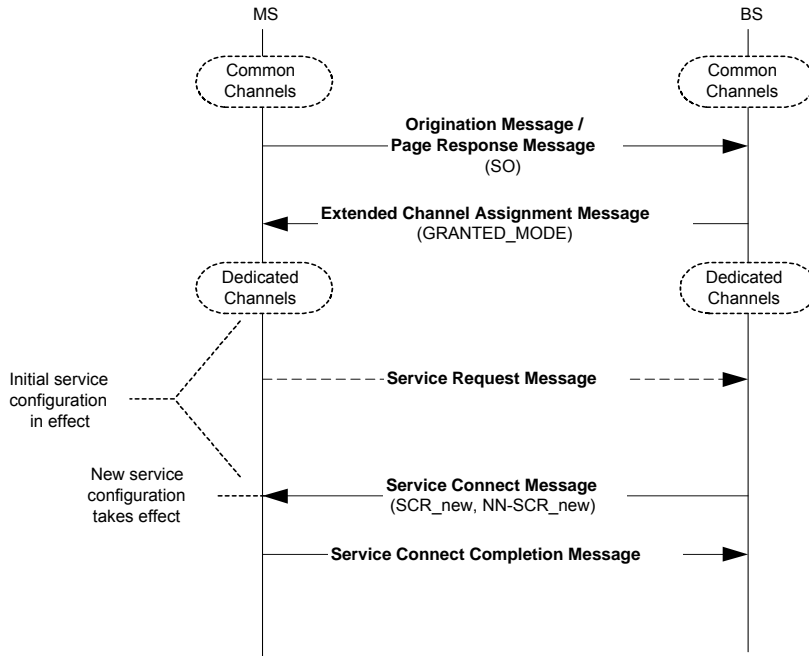
36 3.7.3.3.2.36 *Universal Handoff Direction Message*

- 1 3.7.5.7 (BS) Service Configuration information record
- 2 3.7.5.20 (BS) Non-Negotiable Service Configuration information record

3

4 2.9.1.3 Call Flow Example(s)

5



6

7 2.9.1.4 Method of Measurement

- 8 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 9 b. Initiate a mobile station originated call.
- 10 c. Upon receiving an *Origination Message*, configure the base station to send an
- 11 *Extended Channel Assignment Message* to the mobile station, with the following
- 12 fields set as follows:

13

Field	Value
ASSIGN_MODE	'000' or '100'
GRANTED_MODE	'00'
DEFAULT_CONFIG	'000', '001', or '100'

14

- 15 d. Upon establishing dedicated channels, instruct the base station to send a *Service*
- 16 *Connect Message*, with a valid and acceptable *Service Configuration Information*
- 17 *Record* (SCR) and *Non-Negotiable Service Configuration Information Record* (NN-
- 18 SCR) to the mobile station. The parameters of SCR and NN-SCR should be set
- 19 based on the known capabilities of the mobile station under test, such that it is

1 guaranteed the mobile station will accept the service configuration specified by these
2 two information records.

3 e. Verify the following:

- 4 1. Prior to the new service configuration sent in the *Service Connect*
5 *Message* takes effect, verify the following:
 - 6 a) The service configuration in use is the one jointly specified by the
7 DEFAULT_CONFIG value sent in the *Extended Channel Assignment*
8 *Message* and the default Non-Negotiable part of the service
9 configuration parameters specified in the Traffic Channel Initialization
10 substate.
 - 11 2. When the new service configuration sent in the *Service Connect*
12 *Message* takes effect, verify the following:
 - 13 a) The service configuration in use is the one specified by SCR and
14 NN-SCR in the *Service Connect Message* sent by the base station.
15 This can be verified by instructing the base station to send a *Status*
16 *Request Message* to retrieve the service configuration in use at the
17 mobile station.
 - 18 b) Verify user traffic (Ex. Audio) on both directions.
 - 19 3. The base station receives a *Service Connect Completion Message* from
20 the mobile station.

21 f. Repeat steps a through d, but with the following modifications:

- 22 1. In step c, instruct the base station to send an *Extended Channel*
23 *Assignment Message* to the mobile station, with the following fields set
24 as follows:

Field	Value
ASSIGN_MODE	'000' or '100'
GRANTED_MODE	'01'

26
27 g. Verify the following:

- 28 1. Prior to the new service configuration sent in the *Service Connect*
29 *Message* takes effect, verify the following:
 - 30 a) The service configuration in use is the one jointly specified by the
31 default multiplex option that is derived from the radio configuration
32 corresponding to Table 3.7.2.3.2.21-7 and the default Non-
33 Negotiable part of the service configuration parameters specified in
34 the Traffic Channel Initialization substate.
 - 35 2. When the new service configuration sent in the *Service Connect*
36 *Message* takes effect, verify the following:

- 1 a) The service configuration in use is the one specified by SCR and
- 2 NN-SCR in the *Service Connect Message* sent by the base station.
- 3 This can be verified by instructing the base station to send a *Status*
- 4 *Request Message* to retrieve the service configuration in use at the
- 5 mobile station.
- 6 b) Verify user traffic (Ex. Audio) on both directions.
- 7 3. The base station receives a *Service Connect Completion Message* from
- 8 the mobile station.

9 h. Repeat steps a through d, but with the following modifications:

- 10 1. In step c, instruct the base station to send an *Extended Channel*
- 11 *Assignment Message* to the mobile station, with the following fields set
- 12 as follows:

Field	Value
ASSIGN_MODE	'000' or '100'
GRANTED_MODE	'10'

13

14 i. Verify the following:

- 15 1. Prior to the new service configuration sent in the *Service Connect*
- 16 *Message* takes effect, verify the following:
- 17 a) The service configuration in use is the one jointly specified by the
- 18 default multiplex option that is derived from the radio configuration
- 19 corresponding to Table 3.7.2.3.2.21-7 and the default Non-
- 20 Negotiable part of the service configuration parameters specified in
- 21 the Traffic Channel Initialization substate.
- 22 2. When the new service configuration sent in the *Service Connect*
- 23 *Message* takes effect, verify the following:
- 24 a) The service configuration in use is the one specified by SCR and
- 25 NN-SCR in the *Service Connect Message* sent by the base station.
- 26 This can be verified by instructing the base station to send a *Status*
- 27 *Request Message* to retrieve the service configuration in use at the
- 28 mobile station.
- 29 b) Verify user traffic (Ex. Audio) on both directions.
- 30 3. The base station receives a *Service Connect Completion Message* from
- 31 the mobile station.
- 32 4. The mobile station does not send a *Service Request Message* to the
- 33 base station prior to the *Service Connect Message* is received from the
- 34 base station.

35 j. Repeat steps a through i, but with following modifications -

- 1 1. Replace all the occurrences of *Service Connect Message* by *General*
- 2 *Handoff Direction Message*.
- 3 2. Replace all the occurrences of *Service Connect Completion Message* by
- 4 *Extended Handoff Completion Message*.
- 5 k. Repeat steps a through i, but with following modifications -
- 6 1. Replace all the occurrences of *Service Connect Message* by *Universal*
- 7 *Handoff Direction Message*.
- 8 2. Replace all the occurrences of *Service Connect Completion Message* by
- 9 *Extended Handoff Completion Message*.
- 10 l. Repeat steps a through k for mobile station terminated calls. In this case, *Origination*
- 11 *Message* is replaced by *Page Response Message*.

12

13 2.9.1.5 Minimum Standard

14 The mobile station shall comply with the requirements in steps e, g and i.

15 **2.9.2 Base Station Test**

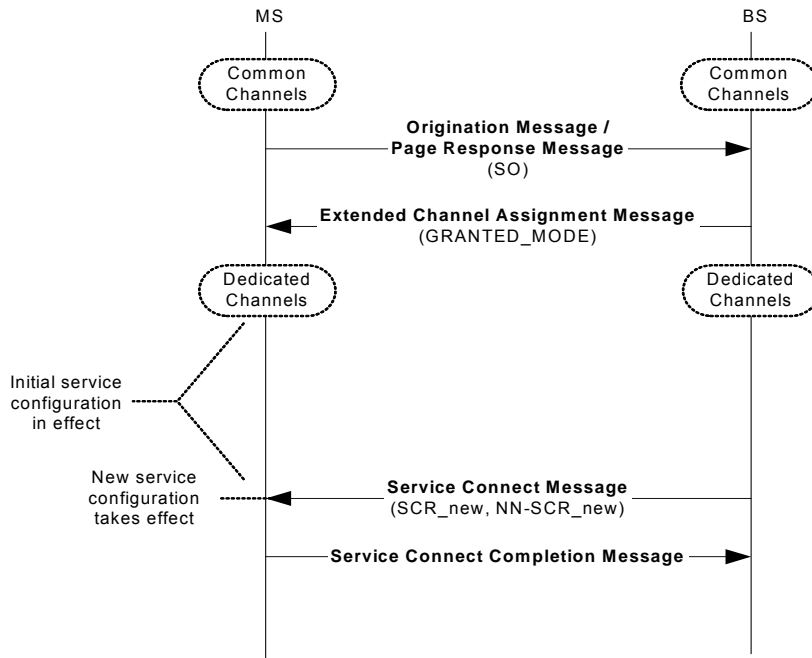
16 2.9.2.1 Definition

17 This test verifies that the initial service configuration in effect at the base station is according to
18 the value specified via the GRANTED_MODE field of the *Extended Channel Assignment*
19 *Message*.

20 2.9.2.2 Traceability

21 See 2.9.1.2

1 2.9.2.3 Call Flow Example(s)



2

3 Figure 2.26.2.3-1 Call Flow Example for Initial Service Configuration and Negotiation

4

5 2.9.2.4 Method of Measurement

6

a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).

7

b. Initiate a mobile station originated call. Instruct the mobile station not to include SYNC_ID field in the *Origination Message*.

8

9

c. Verify that the base station, upon receiving an *Origination Message*, sends an *Extended Channel Assignment Message* to the mobile station. Verify that the base station, when dedicated channels are established, sends one of the following messages with a valid *Service Configuration Information Record (SCR)* and *Non-Negotiable Service Configuration Information Record (NN-SCR)* to the mobile station:

10

11

12

13

1. *Service Connect Message*
2. *General Handoff Direction Message*
3. *Universal Handoff Direction Message*

14

15

16

d. Instruct the mobile station to accept the service configuration and send a *Service Connect Completion Message* at action time specified by the base station in the message specifying service configuration.

17

18

19

e. Verify the following:

20

21

1. Prior to the new service configuration sent in the *Service Connect Message/General Handoff Direction Message/Universal Handoff Direction Message* takes effect, verify the following:

22

23

- 1 a) If GRANTED_MODE in step c is set to '00', the service configuration
 2 in use is the one jointly specified by the DEFAULT_CONFIG value
 3 sent in the *Extended Channel Assignment Message* and the default
 4 Non-Negotiable part of the service configuration parameters
 5 specified in the Traffic Channel Initialization substate.
- 6 b) If GRANTED_MODE in step c is set to '01' or '10', the service
 7 configuration in use is the one jointly specified by the default
 8 multiplex option that is derived from the radio configuration
 9 corresponding to Table 3.7.2.3.2.21-7 and the default Non-
 10 Negotiable part of the service configuration parameters specified in
 11 the Traffic Channel Initialization substate.
- 12 2. When the new service configuration sent in the *Service Connect*
 13 *Message/General Handoff Direction Message/Universal Handoff*
 14 *Direction Message* takes effect, verify the following:
- 15 a) The service configuration in use is the one specified by SCR and
 16 NN-SCR in the *Service Connect Message/General Handoff Direction*
 17 *Message/Universal Handoff Direction Message* sent by the base
 18 station.
- 19 b) Verify user traffic (Ex. Audio) on both directions.
- 20 f. Repeat steps a through e for mobile station terminated calls. In this case, *Origination*
 21 *Message* is replaced by *Page Response Message*.
- 22 g. Repeat steps a through e for various values of the service option and radio
 23 configuration preference (forward/reverse) requested by the mobile station either in
 24 the *Origination Message* or *Page Response Message*.

25 2.9.2.5 Minimum Standard

26 The base station shall comply with the requirements in steps c and e.
 27

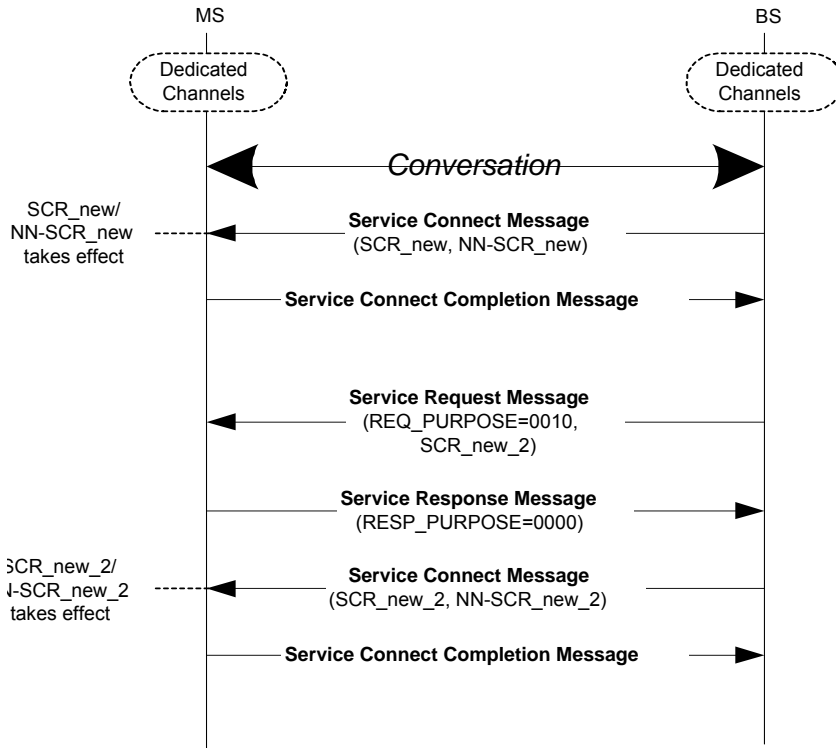
28 **2.10 Base Station/Mobile Station Requested Service Negotiation** 29 **(Successful Scenarios)**

30 **2.10.1 Mobile Station Test**

31 2.10.1.1 Definition

32 This test verifies that the mobile station can process base station request for a valid new service
 33 configuration during traffic channel operation via service negotiation procedures and this new
 34 configuration takes effect upon being accepted by the mobile station. It also verifies that the
 35 mobile station can process a *Service Connect Message* from the base station, without involving
 36 *Service Request Message/Service Response Message* sequence, and new configuration takes
 37 effect upon being accepted by the mobile station.

- 1 2.10.1.2 Traceability
- 2 See 2.9.1.2
- 3 2.10.1.3 Call Flow Example(s)
- 4



- 5
- 6
- 7

8 2.10.1.4 Method of Measurement

- 9 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 10 b. Set up a mobile station terminated call. Verify user traffic (Ex. Audio) on both
- 11 directions.
- 12 c. Instruct the base station to send a *Service Connect Message* to the mobile station
- 13 with a valid and acceptable SCR/NN-SCR.
- 14 d. Verify the following:
 - 15 1. The base station receives a *Service Connect Completion Message* from
 - 16 the mobile station.
 - 17 2. When the new service configuration takes effect, verify user traffic (Ex.
 - 18 Audio) on both directions.

- 1 e. Instruct the base station to initiate service negotiation by sending a *Service Request*
2 *Message* with REQ_PURPOSE set to '0010', proposing a valid and acceptable
3 service configuration to the mobile station.
- 4 f. Verify that, upon receiving the *Service Request Message*, the mobile station sends a
5 *Service Response Message* with RESP_PURPOSE set to one of the following –
- 6 1. '0000' to accept this service configuration.
7 2. '0001' to reject this service configuration
8 3. '0010' to propose a different service configuration
- 9 g. If mobile station sends *Service Response Message* with RESP_PURPOSE set to
10 '0000' or '0010' in step f above, instruct the base station to accept this service
11 configuration by sending a *Service Connect Message* to the mobile station with the
12 accepted SCR and a valid and acceptable NN-SCR.
- 13 h. Verify the following:
- 14 1. The base station receives a *Service Connect Completion Message* from
15 the mobile station.
- 16 2. When the new service configuration takes effect, verify user traffic (Ex.
17 Audio) on both directions.
- 18 3. If mobile station sends *Service Response Message* with
19 RESP_PURPOSE set to '0001' in step f above, verify following:
- 20 a) The base station does not receive a *Service Connect Completion*
21 *Message* from the mobile station.
- 22 b) The service configuration previously in use continues to be in effect
23 and user traffic continues without any interruptions.
- 24 i. Repeat steps a through h, but with following modifications -
- 25 1. Replace all the occurrences of *Service Connect Message* by *General*
26 *Handoff Direction Message*.
- 27 2. Replace all the occurrences of *Service Connect Completion Message* by
28 *Extended Handoff Completion Message*.
- 29 j. Repeat steps a through h, but with following modifications –
- 30 1. Replace all the occurrences of *Service Connect Message* by *Universal*
31 *Handoff Direction Message*.
- 32 2. Replace all the occurrences of *Service Connect Completion Message* by
33 *Extended Handoff Completion Message*.

34 2.10.1.5 Minimum Standard

35 The mobile station shall comply with the requirements in steps d, f and h.

1 **2.10.2 Base Station Test**

2 2.10.2.1 Definition

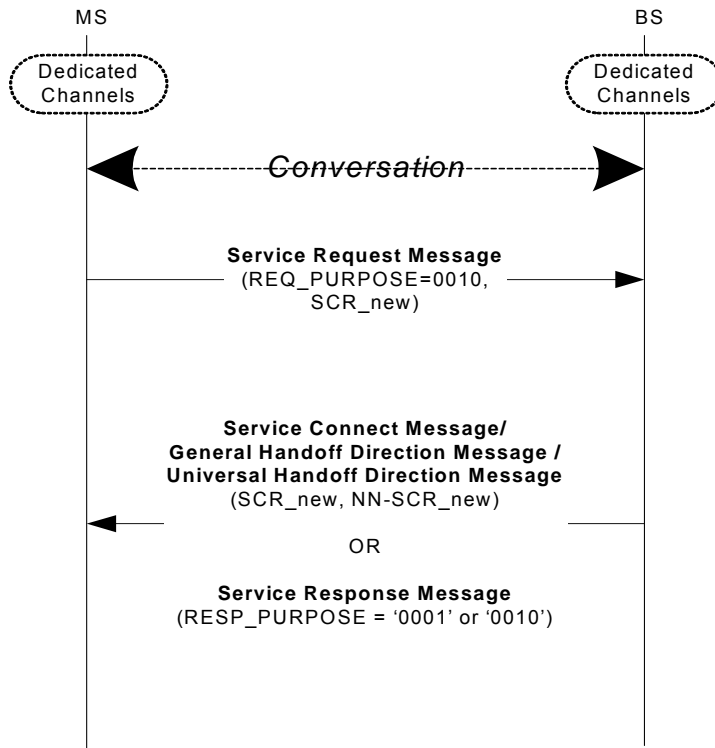
3 This test verifies that the base station can process mobile station initiated service negotiation
 4 procedures and this new configuration takes effect upon being accepted by the base station

5 2.10.2.2 Traceability

6 See 2.9.1.2

7 2.10.2.3 Call Flow Example(s)

8



9

10

11

12 2.10.2.4 Method of Measurement

- 13 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 14 b. Set up a mobile station terminated call. Instruct the mobile station not to include
 15 SYNC_ID field in the *Page Response Message*. Verify user traffic (Ex. Audio) on both
 16 directions.
- 17 c. Instruct the mobile station to initiate service negotiation by sending a *Service*
 18 *Request Message* with REQ_PURPOSE set to '0010', proposing a valid and
 19 acceptable service configuration to the base station.

- 1 d. Verify that, upon receiving the *Service Request Message*, the base station sends one
2 of the following messages –
- 3 1. *Service Connect Message*
 - 4 2. *General Handoff Direction Message* (with SCR and/or NN-SCR)
 - 5 3. *Universal Handoff Direction Message* (with SCR and/or NN-SCR)
 - 6 4. *Service Response Message* with RESP_PURPOSE set to one of the
7 following –
 - 8 a) '0001' to reject this service configuration
 - 9 b) '0010' to propose a different service configuration
- 10 e. If base station sends *Service Connect Message* in step d above, instruct the mobile
11 station to accept this service configuration and send a *Service Connect Completion*
12 *Message* to the base station at the action time associated with the message sent in
13 step d.
- 14 f. Verify that when the new service configuration takes effect there is user traffic (Ex.
15 Audio) in both directions.
- 16 g. If base station sends *General Handoff Direction Message/Universal Handoff Direction*
17 *Message* in step d above, instruct the mobile station to accept this service
18 configuration and send a *Extended Handoff Completion Message* to the base station
19 at the action time associated with the message sent in step d.
- 20 h. Verify that when the new service configuration takes effect there is user traffic (Ex.
21 Audio) in both directions.
- 22 i. If base station sends *Service Response Message* with RESP_PURPOSE set to
23 '0001' in step d above, verify following: The service configuration previously in use
24 continues to be in effect and user traffic continues without any interruptions.
- 25 j. If base station sends *Service Response Message* with RESP_PURPOSE set to
26 '0010' in step d above, instruct the mobile station to send *Service Request Message*
27 with RESP_PURPOSE set to '0001' to reject the service configuration. Verify that the
28 service configuration previously in use continues to be in effect and user traffic
29 continues without any interruptions.

30

31 2.10.2.5 Minimum Standard

32 The base station shall comply with the requirements in steps d, f, h and j.

33

34 2.11 Reject Scenarios during Service Negotiation

35 2.11.1 Mobile Station Test

36 None

1 **2.11.2 Base Station Test**

2 2.11.2.1 Definition

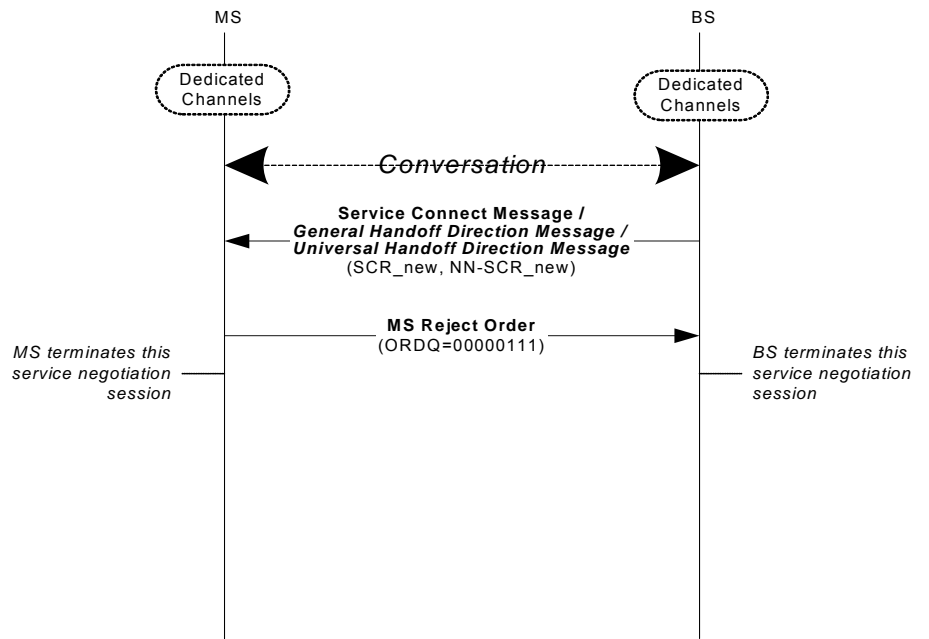
3 This test verifies that the base station keeps using previously in use service configuration, when
 4 mobile station rejects a service configuration specified by the base station.

5 2.11.2.2 Traceability

6 See 2.9.1.2

7 2.11.2.3 Call Flow Example(s)

8



9 2.11.2.4
 10 Method of Measurement

- 11 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 12 b. Set up a mobile station originated call. Instruct the mobile station not to include
- 13 SYNC_ID field in the *Origination Message*.
- 14 c. When the base station sends a *Service Connect Message/General Handoff Direction*
- 15 *Message* (with SCR and/or NN-SCR)/*Universal Handoff Direction Message* (with
- 16 SCR and/or NN-SCR) to the mobile station, instruct the mobile station to send a
- 17 *Mobile Station Reject Order* with ORDQ set to '00000111'.
- 18 d. Verify the following:
 - 19 1. The base station does not send a *Service Connect Message/General*
 - 20 *Handoff Direction Message/Universal Handoff Direction Message* to the

- 1 mobile station with the same SERV_CON_SEQ sent in the rejected
 2 *Service Connect Message/General Handoff Direction Message/Universal*
 3 *Handoff Direction Message.*
- 4 2. The service configuration previously in use continues to be in effect and
 5 user traffic continues without any interruptions.
- 6 e. Disconnect previous call. Set up a mobile station originated call.
- 7 f. If the base station sends a *Service Request Message* with REQ_PURPOSE field set
 8 to '0010' to the mobile station, instruct the mobile station to reject the proposed
 9 service configuration by sending a *Service Response Message* with
 10 RESP_PURPOSE field set to '0001' and verify the following:
- 11 1. The base station does not send a *Service Request Message* to the
 12 mobile station with the same SERV_REQ_SEQ sent in the rejected
 13 *Service Request Message.*
- 14 2. The service configuration previously in use continues to be in effect and
 15 user traffic continues without any interruptions.

16 2.11.2.5 Minimum Standard

17 The base station shall comply with the requirements in steps d and f.

18 **2.12 SCR without NN-SCR and NN-SCR without SCR in General** 19 ***Handoff Direction Message and Universal Handoff Direction*** 20 ***Message***

21 **2.12.1 Mobile Station Test**

22 2.12.1.1 Definition

23 This test verifies that the mobile station can process partial service configuration information
 24 (SCR alone or NN-SCR alone) sent in the *General Handoff Direction Message /Universal Handoff*
 25 *Direction Message* and the expected service configuration takes effect.

26 2.12.1.2 Traceability

27 See 2.9.1.2

28 2.12.1.3 Call Flow Example(s)

29 None

30 2.12.1.4 Method of Measurement

- 31 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 32 b. Set up a mobile station originated call. Verify user traffic (Ex. Audio) on both
 33 directions.

- 1 c. Instruct the base station to send a *General Handoff Direction Message* to the mobile
2 station with a valid and acceptable SCR included (SCR_INCLUDED=1) and not
3 including a NN-SCR (NNSCR_INCLUDED=0) in the message.
- 4 d. Once the new service configuration takes effect, verify the following:
- 5 1. The part of the service configuration specified by the new SCR takes
6 effect.
- 7 2. The part of the service configuration specified by the NN-SCR remains
8 unchanged.
- 9 3. Verify user traffic (Ex. Audio) on both directions.
- 10 e. Instruct the base station to send a *General Handoff Direction Message* to the mobile
11 station with a valid and acceptable NN-SCR included (NNSCR_INCLUDED=1) and
12 not including a SCR (SCR_INCLUDED=0) in the message.
- 13 f. Once the new service configuration takes effect, verify the following:
- 14 1. The part of the service configuration specified by the new NN-SCR takes
15 effect.
- 16 2. The part of the service configuration specified by the SCR remains
17 unchanged.
- 18 3. Verify user traffic (Ex. Audio) on both directions.
- 19 g. Repeat steps a through f with the following modifications: Instead of sending a
20 *General Handoff Direction Message*, instruct the base station to send a *Universal*
21 *Handoff Direction Message*.
- 22 h. Verify that all the outcomes are identical to the case when the *General Handoff*
23 *Direction Message* was sent.

24 2.12.1.5 Minimum Standard

25 The mobile station shall comply with the requirements in steps d, f and h.

26 2.12.2 Base Station Test

27 None

28 2.13 Service Negotiation Involving Partial SCR and/or Partial NN- 29 SCR

30 2.13.1 Mobile Station Test

31 2.13.1.1 Definition

32 This test verifies that the mobile station can carry out the service negotiation with only a partial
33 SCR and/or partial NN-SCR and the expected service configuration takes effect.

1 2.13.1.2 Traceability

2 See 2.9.1.2

3 2.13.1.3 Call Flow Example(s)

4 None

5 2.13.1.4 Method of Measurement

- 6 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 7 b. Set up a call. Verify user traffic (Ex. Audio) on both directions.
- 8 c. Instruct the base station to initiate service negotiation to change only a subset of
 9 service configuration parameters, by sending a *Service Request Message* with
 10 REQ_PURPOSE set to '0010' to the mobile station to propose a new service
 11 configuration. The service configuration parameters not to be changed should not be
 12 included in the SCR (Ex. If DCCH related parameters are not to be changed, then
 13 DCCH_CC_INCL should be set to '0' and FOR_DCCH_RC, REV_DCCH_RC, and
 14 DCCH_FRAME_SIZE will not be included). The parameters of SCR should be set
 15 based on the known capabilities of the mobile station under test, such that it is
 16 guaranteed the mobile station will accept the service configuration specified by the
 17 SCR.
- 18 d. Verify that upon receiving the *Service Request Message*, the mobile station sends a
 19 *Service Response Message* with RESP_PURPOSE set to '0000'.
- 20 e. Upon receiving the *Service Response Message*, instruct the base station to send a
 21 *Service Connect Message* with a SCR (as per step c above) and an NN-SCR that
 22 only includes a subset of parameters.
- 23 f. Verify the following:
- 24 1. The base station receives a *Service Connect Completion Message* from
 25 the mobile station.
 - 26 2. When the new service configuration takes effect, verify that for those
 27 service configuration parameters not included in the final SCR (Ex.
 28 DCCH_CC_INCL=0) and NN-SCR sent by the base station, their
 29 previously in use value continues to be in effect.
 - 30 3. When the new service configuration takes effect, verify that for those
 31 service configuration parameters included in the final SCR and NN-SCR
 32 sent by the base station, their new values as specified in *Service*
 33 *Connect Message* are in use.
 - 34 4. Verify user traffic (Ex. Audio) on both directions.
- 35 g. Repeat steps c through f for various combinations of subset of SCR and NN-SCR
 36 parameters.
- 37 h. Repeat steps a through g, but with following modifications -
- 38 1. Replace all the occurrences of *Service Connect Message* by *General*

- 1 *Handoff Direction Message.*
- 2 2. Replace all the occurrences of *Service Connect Completion Message* by
- 3 *Extended Handoff Completion Message.*
- 4 i. Repeat steps a through g, but with following modifications -
- 5 1. Replace all the occurrences of *Service Connect Message* by *Universal*
- 6 *Handoff Direction Message.*
- 7 2. Replace all the occurrences of *Service Connect Completion Message* by
- 8 *Extended Handoff Completion Message.*

9

10 2.13.1.5 Minimum Standard

11 The mobile station shall comply with the requirements in steps d and f.

12 2.13.2 Base Station Test

13 2.13.2.1 Definition

14 This test verifies that the base station can carry out the service negotiation with only a partial

15 SCR and the expected service configuration takes effect.

16 2.13.2.2 Traceability

17 See 2.9.1.2

18 2.13.2.3 Call Flow Example(s)

19 None

20 2.13.2.4 Method of Measurement

- 21 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 22 b. Set up a call. Verify user traffic (Ex. Audio) on both directions.
- 23 c. Instruct the mobile station to initiate service negotiation to change only a subset of
- 24 service configuration parameters, by sending a *Service Request Message* with
- 25 REQ_PURPOSE set to '0010' to the base station to propose a new service
- 26 configuration. The service configuration parameters not to be changed should not be
- 27 included in the SCR (Ex. If DCCH related parameters are not to be changed, then
- 28 DCCH_CC_INCL should be set to '0' and FOR_DCCH_RC, REV_DCCH_RC, and
- 29 DCCH_FRAME_SIZE will not be included). The parameters of SCR should be set
- 30 based on the known capabilities of the base station under test, such that it is
- 31 guaranteed the base station will accept the service configuration specified by the
- 32 SCR.
- 33 d. If the base station accepts the service configuration proposed by the mobile station in
- 34 step c, verify the following:
- 35 1. When the new service configuration takes effect, verify that for those
- 36 service configuration parameters not included in the final SCR (Ex.

- 1 DCCH_CC_INCL=0) sent by the base station their previously in use
 2 value continues to be in effect.
- 3 2. When the new service configuration takes effect, verify that for those
 4 service configuration parameters included in the final SCR sent by the
 5 base station, their new values as specified in *Service Connect Message*
 6 are in use.
- 7 3. If the base station does not include all the parameters in NN-SCR, then
 8 when the new service configuration takes effect, verify that for those
 9 parameters not included in the final NN-SCR their previously in use value
 10 continues to be in effect.
- 11 4. If the base station does not include all the parameters in NN-SCR, then
 12 when the new service configuration takes effect, verify that for those
 13 service configuration parameters included in the final NN-SCR sent by
 14 the base station, their new values as specified in *Service Connect*
 15 *Message* are in use.
- 16 5. Verify user traffic (Ex. Audio) on both directions.
- 17 e. Repeat steps c through d for various combinations of subset of SCR parameters.

18 2.13.2.5 Minimum Standard

19 The base station shall comply with the requirements in step d.
 20

21 **2.14 Release Order on the Access Channel**

22 **2.14.1 Mobile Station Test**

23 2.14.1.1 Definition

24 This test verifies the mobile can send a *Release Order* on the Access Channel during call
 25 origination before a dedicated channel has been assigned.
 26

27 2.14.1.2 Traceability (See [4]):

28 *3.6.3 Access Channel Processing*

29 *3.6.3.4 Response to Orders*

30 *2.6.3 System Access State*

31 *2.6.3.1.4 System Access State Exit Procedures*

32 *2.6.3.5 Mobile Station Origination Attempt Substate*

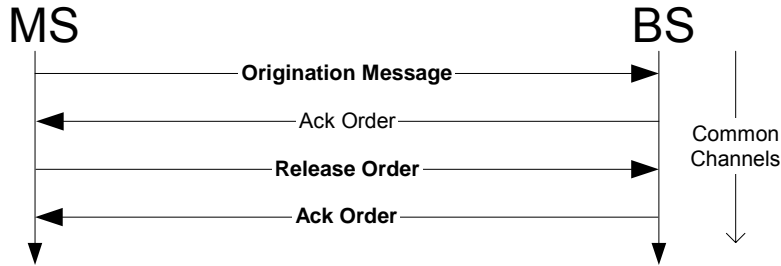
33

34 (See [3]):

35 *2.1.1.2.2.1 Overview of Transmission and Retransmission Procedures*

36

1 2.14.1.3 Call Flow Diagram



2

3 2.14.1.4 Method of Measurement

- 4 a. Allow the mobile station come to the idle state on the base station.
- 5 b. Configure the Base Station to not send an *Extended Channel Assignment Message*.
- 6 c. Attempt a mobile station originated call.
- 7 d. Shortly after the mobile station has received acknowledgement of its *Origination*
- 8 *Message*, press the mobile station END key, or otherwise terminate the call attempt
- 9 from the mobile station side before dedicated channels are assigned.
- 10 e. Verify that the mobile station sends a *Release Order* (normal release) on the Access
- 11 Channel in assured mode requiring confirmation of delivery, aborts the call attempt,
- 12 returns to the idle state on the base station.

13 2.14.1.5 Minimum Standard

14 The mobile station shall comply with the requirements in step e.

15

16 **2.14.2 Base Station Test**

17 None

18

19 **2.15 Service Configuration and Negotiation Using Stored**
 20 **Service Configuration**

21

22 Applicability: All systems with P_REV_IN_USE of 7 or higher.

23 **2.15.1 Mobile Station Test**

24 2.15.1.1 Definition

25 This test verifies that the mobile station can propose to use stored service configuration using
 26 SYNC_ID in the Service Configuration and Negotiation process.

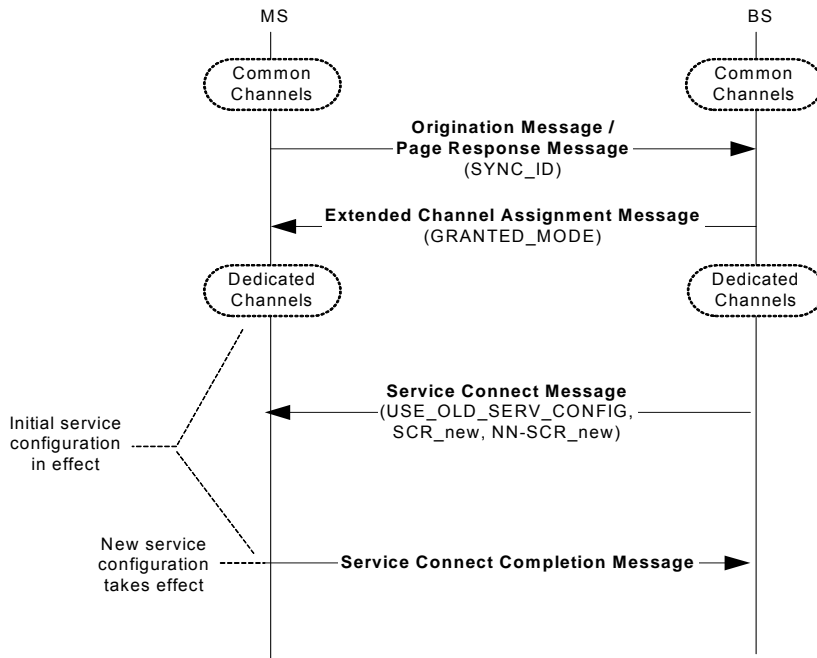
27

1 Note – This test assumes that mobile station under test stores old service configuration with
 2 corresponding SYNC_ID and uses SYNC_ID during call set up. If mobile station does not use
 3 SYNC_ID in call Set up, then skip this test.

4 2.15.1.2 Traceability (See [4]):

5 2.6.2.2.5 *Extended System Parameters Message*
 6 2.6.2.2.14.1 *Stored Parameters*
 7 2.6.2.5 *Mobile Station Origination Operation*
 8 2.6.3.3 *Page Response Substate*
 9 2.6.3.5 *Mobile Station Origination Attempt Substate*
 10 2.6.4.1.2 *(MS) Service Configuration and Negotiation (procedures)*
 11 2.6.4.1.12 *Processing the Service Configuration Record*
 12 2.6.4.1.13 *Processing the Non-Negotiable Service Configuration Record*
 13 *Traffic Channel Initialization Substate*
 14 2.6.4.4 *Release Substate*
 15 2.6.6.2.5 *Handoff Messages*
 16 2.6.6.2.5.1 *Processing of Forward Traffic Channel Handoff Messages*
 17 2.7.1.3.2.4 *Origination Message*
 18 2.7.1.3.2.5 *Page Response Message*
 19 2.7.2.3.2.12 *(MS) Service Request Message*
 20 2.7.2.3.2.13 *(MS) Service Response Message*
 21 2.7.2.3.2.14 *(MS) Service Connect Completion Message*
 22 2.7.4.18 *(MS) Service Configuration (information record)*
 23 *(BS) Service Configuration and Negotiation (procedures)*
 24 3.7.2.3.2.13 *Extended System Parameters Message*
 25 *Extended Channel Assignment Message*
 26 3.7.2.3.2.31 *MC-RR Parameters Message*
 27 3.7.3.3.2.18 *(BS) Service Request Message*
 28 3.7.3.3.2.19 *(BS) Service Response Message*
 29 3.7.3.3.2.20 *(BS) Service Connect Message*
 30 3.7.3.3.2.31 *General Handoff Direction Message*
 31 3.7.3.3.2.36 *Universal Handoff Direction Message*
 32 3.7.5.7 *(BS) Service Configuration (information record)*
 33 3.7.5.20 *(BS) Non-Negotiable Service Configuration (information record)*
 34

1 2.15.1.3 Call Flow Example(s)



2

3 2.15.1.4 Method of Measurement

4 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#). Instruct
 5 the base station to set USE_SYNC_ID field to '1' in *Extended System Parameters*
 6 *Message* and *MC-RR Parameters Message*.

7 1. Identify a type of call for which the mobile station would use SYNC_ID
 8 when the same type of call is originated again. Initiate a mobile station
 9 originated call with this call type. Instruct the base station to include
 10 SYNC_ID field in the *Service Connect Message* sent to the mobile
 11 station. Once the service configuration sent in the *Service Connect*
 12 *Message* has taken effect, disconnect the call.

13 2. Initiate a mobile station originated call with same call type as above.
 14 Verify that mobile station includes SYNC_ID field in the *Origination*
 15 *Message*.

16 b. Upon receiving an *Origination Message*, configure the base station to send an
 17 *Extended Channel Assignment Message* to the mobile station, with the following
 18 fields set as follows:

Field	Value
ASSIGN_MODE	'000' or '100'
GRANTED_MODE	'10'
DEFAULT_CONFIG	'000', '001', or '100'

19 c. Upon establishing dedicated channels, instruct the base station to send *Service*
 20 *Connect Message* to the mobile station, with the USE_OLD_SERV_CONFIG field set

- 1 to '00'. The base station shall include valid and acceptable *Service Configuration*
2 *Information Record (SCR)* and *Non-Negotiable Service Configuration Information*
3 *Record (NN-SCR)* in the *Service Connect Message*. The parameters of SCR and
4 NN-SCR should be set based on the known capabilities of the mobile station under
5 test, such that it is guaranteed the mobile station will accept the service configuration
6 specified by these two information records. Ensure that the new service configuration
7 is different from the stored one.
- 8 d. Verify the following:
- 9 1. When the new service configuration specified in the *Service Connect*
10 *Message* takes effect, verify the following:
 - 11 a) The service configuration in use is the one specified by SCR and
12 NN-SCR in the *Service Connect Message* sent by the base station.
13 This can be verified by instructing the base station to send a *Status*
14 *Request Message* to retrieve the service configuration in use at the
15 mobile station.
 - 16 b) Verify user traffic (Ex. Audio) on both directions.
 - 17 2. The base station receives a *Service Connect Completion Message* from
18 the mobile station.
- 19 e. Repeat steps a through c, but with the following modifications:
- 20 1. In step c, instruct the base station to send *Service Connect Message* to
21 the mobile station, with the USE_OLD_SERV_CONFIG field set to '01'.
- 22 f. Verify the following:
- 23 1. When the new service configuration specified in the *Service Connect*
24 *Message* takes effect, verify the following:
 - 25 a) The service configuration in use is the stored service configuration
26 corresponding to the SYNC_ID included by the mobile station in the
27 *Origination Message*. This can be verified by instructing the base
28 station to send a *Status Request Message* to retrieve the service
29 configuration in use at the mobile station.
 - 30 b) Verify user traffic (Ex. Audio) on both directions.
 - 31 2. The base station receives a *Service Connect Completion Message* from
32 the mobile station.
- 33 g. Repeat steps a through c, but with the following modifications:
- 34 1. In step c, instruct the base station to send *Service Connect Message* to
35 the mobile station, with the USE_OLD_SERV_CONFIG field set to '10'.
36 The base station shall include valid and acceptable *Service*
37 *Configuration Information Record (SCR)* and *Non-Negotiable Service*
38 *Configuration Information Record (NN-SCR)* in the *Service Connect*
39 *Message*. In the SCR and NN-SCR, do not include some of the
40 parameters in the stored service configuration corresponding to

1 SYNC_ID. The parameters of SCR and NN-SCR should be set based on
 2 the known capabilities of the mobile station under test, such that it is
 3 guaranteed the mobile station will accept the stored service configuration
 4 corresponding to SYNC_ID included by mobile station in *Origination*
 5 *Message*, with modifications specified by SCR and NN-SCR.

6 h. Verify the following:

7 1. When the new service configuration specified in the *Service Connect*
 8 *Message* takes effect, verify the following:

9 a) The service configuration in use is the stored configuration
 10 corresponding to the SYNC_ID included by the mobile station in the
 11 *Origination Message*, with modifications specified by SCR and NN-
 12 SCR in the *Service Connect Message*. This can be verified by
 13 instructing the base station to send a *Status Request Message* to
 14 retrieve the service configuration in use at the mobile station.

15 b) Verify user traffic (Ex. Audio) on both directions.

16 2. The base station receives a *Service Connect Completion Message* from
 17 the mobile station.

18 i. Repeat steps a through c, but with the following modifications:

19 1. In step a, instruct the base station to set USE_SYNC_ID field to '0' in
 20 *Extended System Parameters Message* and *MC-RR Parameters*
 21 *Message*.

22 j. Verify that the mobile station does not include SYNC_ID field in the *Origination*
 23 *Message*.

24 k. Change SID, NID signaled in the *Extended System Parameters Message* and *MC-*
 25 *RR Parameters Message* from base station one at a time. Make sure to use values of
 26 SID/NID such that the mobile station has not previously visited the base station
 27 corresponding to the new values of SID/NID. Repeat steps a through c.

28 l. Verify that the mobile station does not include SYNC_ID field in the *Origination*
 29 *Message*

30 m. Repeat steps a through l for mobile station terminated calls. In this case, *Origination*
 31 *Message* is replaced by *Page Response Message*.

32 2.15.1.5 Minimum Standard

33 The mobile station shall comply with the requirements in steps d, f, h, j and l.
 34

35 2.15.2 Base Station Test

36 2.15.2.1 Definition

37 This test verifies that in the Service Configuration and Negotiation process the base station can
 38 accept the stored service configuration proposed by mobile station using SYNC_ID.

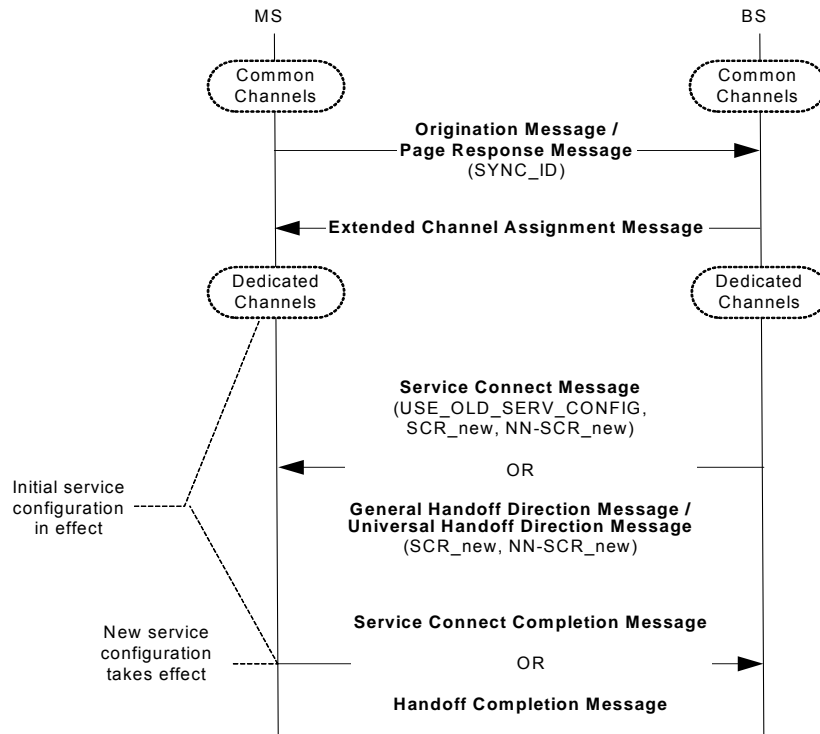
1

2 Note – This test assumes that base station under test stores old service configuration with
 3 corresponding SYNC_ID. If the base station does not set USE_SYNC_ID field to '1' in *Extended*
 4 *System Parameters Message* and/or *MC-RR Parameters Message*, then skip this test.

5 2.15.2.2 Traceability

6 See 2.15.2.2

7 2.15.2.3 Call Flow Example(s)



8

9 2.15.2.4 Method of Measurement

- 10 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#). Verify
 11 that the base station sets USE_SYNC_ID field to '1' in *Extended System Parameters*
 12 *Message* and/or *MC-RR Parameters Message*.
- 13 1. Identify a type of call for which the base station would allocate SYNC_ID
 14 in the *Service Connect Message/General Handoff Direction*
 15 *Message/Universal Handoff Direction Message*. Instruct the mobile
 16 station to initiate a call with this call type.
 - 17 2. Verify that the base station does include SYNC_ID field in the *Service*
 18 *Connect Message/General Handoff Direction Message/Universal*
 19 *Handoff Direction Message* sent to the mobile station.
 - 20 3. Once the service configuration sent in the *Service Connect*
 21 *Message/General Handoff Direction Message/Universal Handoff*
 22 *Direction Message* has taken effect, disconnect the call.

- 1 b. Instruct the mobile station to originate a call with same call type as in step b above,
2 with a SYNC_ID field value set to the SYNC_ID assigned by base station in step b
3 above in the *Origination Message*.
- 4 c. Upon establishing dedicated channels, verify that the base station sends one of the
5 following message –
- 6 d. *Service Connect Message/General Handoff Direction Message* (SCR and NNSCR
7 included) /*Universal Handoff Direction Message* (SCR and NNSCR included).
- 8 e. When the new service configuration specified in the *Service Connect*
9 *Message/General Handoff Direction Message/Universal Handoff Direction Message*
10 takes effect, verify the following:
- 11 1. If the base station sends *Service Connect Message* with
12 USE_OLD_SERV_CONFIG field set to '00' in step d above:
- 13 a) The service configuration in use is the one specified by SCR and
14 NN-SCR in the *Service Connect Message* sent by the base station.
15 b) Verify user traffic (Ex. Audio) on both directions.
- 16 2. If the base station sends *Service Connect Message* with
17 USE_OLD_SERV_CONFIG field set to '01' in step d above:
- 18 a) The service configuration in use is the stored configuration
19 corresponding to the SYNC_ID included by the mobile station in the
20 *Origination Message*.
21 b) Verify user traffic (Ex. Audio) on both directions.
- 22 3. If the base station sends *Service Connect Message* with
23 USE_OLD_SERV_CONFIG field set to '10' in step d above:
- 24 a) service configuration in use is the stored configuration corresponding
25 to the SYNC_ID included by the mobile station in the *Origination*
26 *Message*, with modifications specified by SCR and NN-SCR in the
27 *Service Connect Message*.
28 b) Verify user traffic (Ex. Audio) on both directions.
- 29 4. If the base station sends *General Handoff Direction Message/Universal*
30 *Handoff Direction Message* in step d above:
- 31 a) The service configuration in use is the one specified by SCR and
32 NN-SCR in the *General Handoff Direction Message/Universal*
33 *Handoff Direction Message* sent by the base station.
34 b) Verify user traffic (Ex. Audio) on both directions.
- 35 f. Repeat steps a through d, but with the following modifications:
- 36 1. In step b, instruct mobile station to include an invalid SYNC_ID field in
37 the *Origination Message*.
- 38 2. If the base station sends a *Service Connect Message* in step d, verify

- 1 that the base station does not set USE_OLD_SERV_CONFIG field to
 2 '01' or '10' in the *Service Connect Message*
- 3 g. Repeat steps a through d, but with the following modifications:
- 4 1. In step b, instruct mobile station not to include a SYNC_ID field in the
 5 *Origination Message*.
- 6 2. If the base station sends a *Service Connect Message* in step d, verify
 7 that the base station does not set USE_OLD_SERV_CONFIG field to
 8 '01' or '10' in the *Service Connect Message*
- 9 h. Repeat steps a through i for mobile station terminated calls. In this case, *Origination*
 10 *Message* is replaced by *Page Response Message*.

11 2.15.2.5 Minimum Standard

12 The base station shall comply with the requirements in steps e, f and g.
 13

14 2.16 Intra-Band Channel Assignment

15 2.16.1 Mobile Station Test

16 2.16.1.1 Definition

17 This test verifies that the mobile station originating a call can be assigned a different frequency
 18 within the same band class using the *(Extended) Channel Assignment Message*.

19 2.16.1.2 Traceability (See [4]):

20 2.6.2.4 *Mobile Station Order and Message Processing Operation*

21 2.6.3.5 *Mobile Station Origination Attempt Substate*

22 2.7.1.3.2.4 *Origination Message*

23 2.7.1.3.2.5 *Page Response Message*

24 3.7.2.3.2.8 *Channel Assignment Message*

25 3.7.2.3.2.21 *Extended Channel Assignment Message*

26 2.16.1.3 Call Flow Example(s)

27 None

28 2.16.1.4 Method of Measurement

- 29 a. Connect the mobile station and base stations as shown in [Annex A Figure 2](#). Base
 30 station 1 and base station 2 are operating the same band class with different
 31 frequencies.
- 32 b. Ensure the mobile station is operating in the *Idle State* on bases station 1.
- 33 c. Set up a mobile station originated call.
- 34 d. Instruct the base station to send a *Channel Assignment Message* or *Extended*
 35 *Channel Assignment Message* with the following settings:

1 **Channel Assignment Message Settings**

Field	Value
ASSIGN_MODE	'100'
FREQ_INCL	'1'
BAND_CLASS	Target Band Class (same as base station 1)
CDMA_FREQ	Target Frequency for base station 2

2 **Extended Channel Assignment Message Settings**

Field	Value
ASSIGN_MODE	'000' or '100'
FREQ_INCL	'1'
BAND_CLASS	Target Band Class (same as base station 1)
CDMA_FREQ	Target Frequency for base station 2

3

- 4 e. Verify the mobile station tunes to the new frequency and completes the call on base
- 5 station 2.
- 6 f. Verify user data in both directions.
- 7 g. End the call.
- 8 h. Set up a mobile station terminated call and repeat steps d through g.

9 **2.16.1.5 Minimum Standard**

10 The mobile station shall comply with steps e and f.

11 **2.16.2 Base Station Test**

12 None

13 **2.17 Voice Call set-up with RC 11 and RC 8 and SO 73/ SO 68/ SO**

14 **3**

15 **2.17.1 Mobile Station Test**

16 **2.17.1.1 Definition**

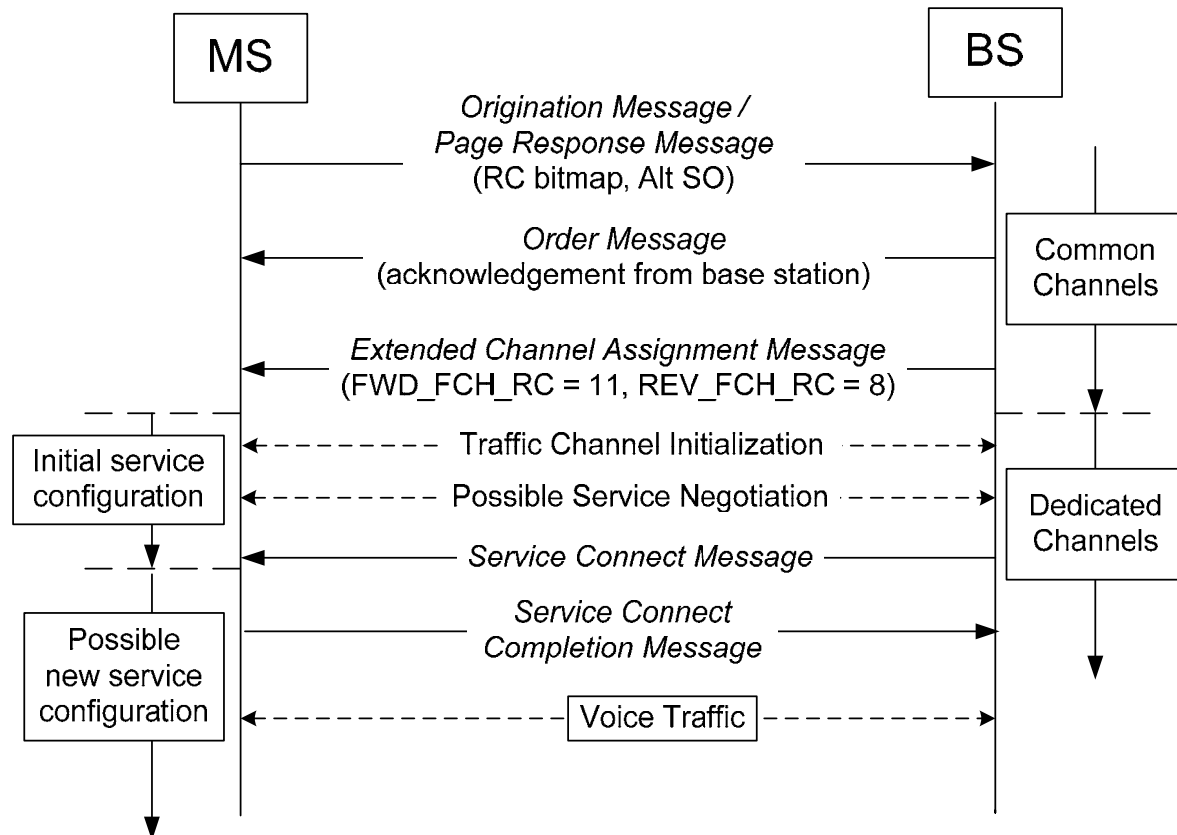
17 This tests mobile station's inclusion of RC 11 and RC 8 in the Channel Configuration Capability
 18 Information record in a origination and page response messages during mobile station originated
 19 and terminated calls respectively. Negotiation of SO 73, SO 68 and SO 3 is also verified. This test
 20 also verifies that if the mobile mobile indicates support for RC 11 or RC 8 then the mobile station
 21 also supports SO 73. This test is applicable when P_REV_IN_USE ≥ 6.

22 **2.17.1.2 Traceability (See [4]):**

23 *2.7.1.3.2.5 Page Response Message*

24 *2.7.1.3.2.2.4 Origination Message*

- 1 2.7.2.3.2.14 Service Connect Completion Message
 2 3.7.2.3.2.17 General Page Message
 3 3.7.2.3.2.21 Extended Channel Assignment Message
 4 3.7.3.3.2.20 Service Connect Message
 5 3.7.5.7 Service Configuration
 6 2.17.1.3 Call Flow Diagram



7
8

9 2.17.1.4 Method of Measurement

- 10 a. Configure the setup for good RF links.
 11 b. Configure the base station to advertize a value of 7 in the MAX_NUM_ALT_SO field
 12 of the *Extended System Parameters Message*.
 13 c. Allow the mobile station to come to the idle state on the base station.
 14 d. Attempt a mobile station originated call.
 15 e. Verify that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and
 16 RC 8 in REV_FCH_RC_MAP in the *Origination Message*.
 17 f. Verify that the mobile station includes SO 73 in the origination message. Note, when
 18 PREV_IN_USE is equal to 6, mobile station should include SO 73 in SO or ALT_SO

- 1 fields in the *Origination Message*. If the PREV_IN_USE is greater than 6, the mobile
2 station may include SO 73 in the SO or ALT_SO or the SO_BITMAP field.
- 3 g. Instruct the base station to send an *Extended Channel Assignment Message* with
4 FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.
- 5 h. Instruct the base station to transmit a *Service Connect Message* specifying the SO
6 73 in the SERVICE_OPTION field.
- 7 i. Verify that the mobile station transmits a *Service Connect Completion Message*.
- 8 j. Verify that the mobile station starts transmitting and receiving frames for voice traffic.
- 9 k. Terminate the voice call.
- 10 l. Repeat steps a through k with mobile station terminated call in steps c. In this case,
11 *Origination Message* is replaced by *Page Response Message*.
- 12 m. Configure the base station to advertize a value of 0 in the MAX_NUM_ALT_SO field
13 of the *Extended System Parameters Message*.
- 14 n. Allow the mobile station to come to the idle state on the base station.
- 15 o. Attempt a mobile station originated call.
- 16 p. Verify that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and
17 RC 8 in REV_FCH_RC_MAP in the *Origination Message*.
- 18 q. Instruct the base station to send an *Extended Channel Assignment Message* with
19 FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.
- 20 r. Instruct the base station transmits a *Service Connect Message* specifying the SO 73
21 in the SERVICE_OPTION field.
- 22 s. Verify that the mobile station transmits a *Service Connect Completion Message*.
- 23 t. Verify that the mobile station starts transmitting and receiving frames for voice traffic.
- 24 u. Terminate the voice call.
- 25 v. Repeat steps o-q. If the mobile station included SO 73 in the Origination
26 Message.skip to step cc.
- 27 w. Instruct the base station to transmit a *Status Request Message* to the mobile station
28 querying the Service Option Information or Extended Service Option Information
29 record.
- 30 x. Verify that the mobile station sends a *Status Response Message* and includes
31 Service Option Information or the Extended Service Option Information Record as
32 requested by the base station and includes SO 73 in the record.
- 33 y. Ensure that the base station transmits a *Service Connect Message* specifying the SO
34 73 in the SERVICE_OPTION field.
- 35 z. Verify that the mobile station transmits a *Service Connect Completion Message*.
- 36 aa. Verify that the mobile station starts transmitting and receiving frames for voice traffic.

- 1 bb. Terminate the voice call.
- 2 cc. Attempt a mobile station originated call.
- 3 dd. Repeat steps y-bb.
- 4 ee. Repeat steps m through bb for mobile station terminated calls. In this case,
5 *Origination Message* is replaced by *Page Response Message*.
- 6
- 7 ff. Establish a mobile station terminated call.
- 8 gg. f the test is being conducted for SO 73 or SO 68, instruct the base station to send a
9 Service Option Control Message with RATE_REDUC parameter set to '001'.
- 10 hh. Verify that the mobile station continues transmitting and receiving frames for voice
11 traffic.
- 12 ii. If the test is being conducted for SO 73 or SO 68, instruct the base station to send a
13 Service Option Control Message with RATE_REDUC parameter set to '111'.
- 14 jj. Verify that the mobile station continues transmitting and receiving frames for voice
15 traffic.
- 16 kk. Repeat the steps a through q and v through jj for SO 68 and SO 3 instead of SO 73.

17 2.17.1.5 Minimum Standard

18 The mobile station shall comply with the requirements in steps e, i, j, p, s, s, x, z, aa, hh, and jj.
19 The mobile station should comply with step f.

20 2.17.2 Base Station Test

21 None

22 2.18 Radio Configuration Parameters Message Processing

23 2.18.1 Mobile Station Test

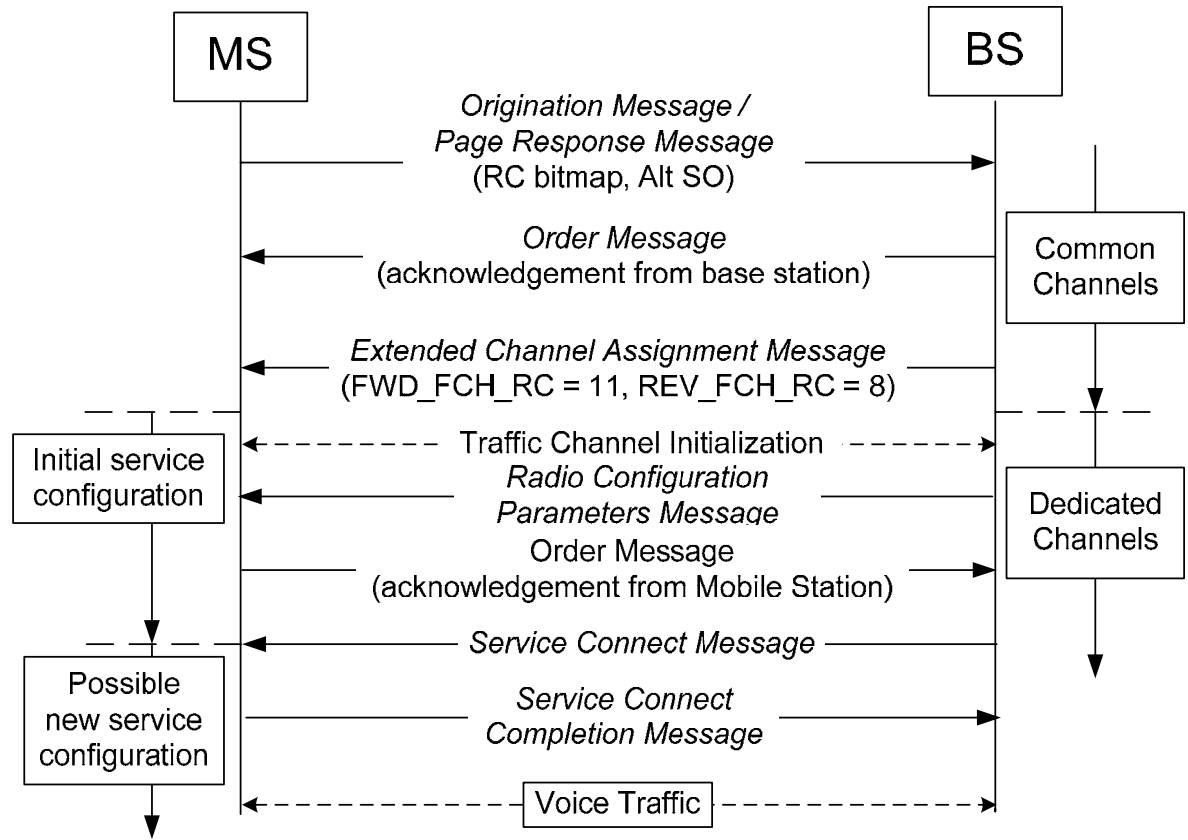
24 2.18.1.1 Definition

25 This test verifies that mobile station changes the RC 11 and RC 8 parameters received in the
26 Radio Configuration Parameters message. In the test procedure below it is preferred to use
27 service option 74 to generate the Non-Critical Rate 1/8th frames. If instead the mobile station is
28 muted, the vocoder may generate frames at a higher frequency.

29 2.18.1.2 Traceability (See [4]):

- 30 2.7.1.3.2.2 *Order Message*
- 31 2.7.1.3.2.5 *Page Response Message*
- 32 2.7.1.3.2.2.4 *Origination Message*
- 33 2.7.2.3.2.14 *Service Connect Completion Message*
- 34 3.7.2.3.2.17 *General Page Message*
- 35 3.7.2.3.2.21 *Extended Channel Assignment Message*

- 1 3.7.3.3.2.20 Service Connect Message
- 2 3.7.5.7 Service Configuration
- 3 3.7.3.3.2.51 Radio Configuration Parameters Message
- 4
- 5 2.18.1.3 Call Flow Diagram



6
7

8 2.18.1.4 Method of Measurement

- 9 a. Configure the base station to advertize a value of 7 in the MAX_NUM_ALT_SO field
- 10 of the *Extended System Parameters Message* and setup for good RF links.
- 11 b. Allow the mobile station to come to the idle state on the base station.
- 12 c. Attempt a mobile station originated call.
- 13 d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP
- 14 and RC 8 in REV_FCH_RC_MAP in the *Origination Message*.
- 15 e. Ensure that the mobile station includes SO 74 in the SO or ALT_SO or SO_BITMAP
- 16 field in the origination message.
- 17 f. Instruct the base station to send an *Extended Channel Assignment Message* with
- 18 FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.
- 19 g. Ensure that the mobile station initializes the traffic channel.

- 1 h. Instruct the base station to transmit *Service Connect Message* specifying the SO 74
2 in the SERVICE_OPTION field.
- 3 i. Ensure that the mobile station transmits *Service Connect Completion Message* to the
4 base station.
- 5 j. Verify that the mobile station starts transmitting and receiving frames for voice traffic.
- 6 k. Mute the mobile station such that the vocoder generates only one-eighth rate non-
7 critical frames or instruct the base station to transmit a Service Option Control
8 Mesasge with CTL_REC_TYPE set to 0 and RTC_MODE set to '101' (fixed Rate
9 1/8th non-critical).
- 10 l. Verify that the out of every four consecutive R-FCH frames the mobile station sends
11 only one 1/8th rate frame and blanks other three frames.
- 12 m. Instruct the base station to send a *Radio Configuration Parameters Message* to the
13 mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of '010'.
14 Ensure that the base station transmits the *Radio Configuration Parameters Message*
15 using assured L2 delivery.
- 16 n. Verify that the access terminal transmits an *Order Message* acknowledging the
17 receipt of *Radio Configuration Parameters Message*.
- 18 o. Verify that the mobile station starts using the parameters received in the *Radio*
19 *Configuration Parameters Message* at the ACTION_TIME carried implicitly or
20 explicitly in the message. Note, this can be verified by the use of
21 REV_FCH_BLANKING_DUTYCYCLE value carried in the *Radio Configuration*
22 *Parameters Message*. Verify that the out of every eight consecutive R-FCH frames
23 the mobile station sends only one 1/8th rate frame and blanks other seven frames.
- 24 p. Instruct the base station to send a *Radio Configuration Parameters Message* to the
25 mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of '000'.
- 26 q. Verify that the mobile station sends 1/8th rate frame on the R-FCH and does not blank
27 any frames. Note, frames may be erased on the R-FCH and should not be counted
28 as blanked frames.
- 29 r. Terminate the voice call.
- 30 s. Repeat steps b through k.

31 2.18.1.5 Minimum Standard

32 The mobile station shall comply with the requirements in steps, j, l, n, o, and q.

33 2.18.2 Base Station Test

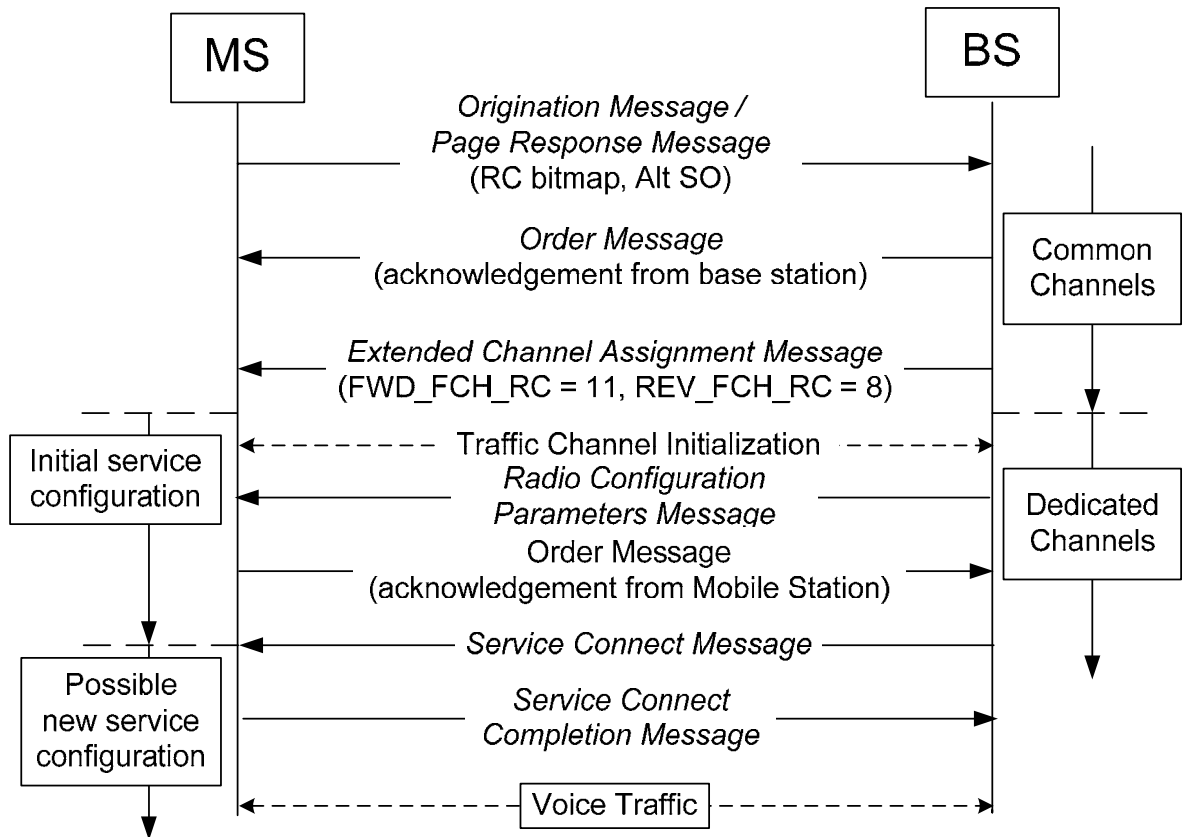
34 2.18.2.1 Definition

35 This test verifies that base station can successfully change the RC 11 and RC 8 parameters to
36 their non-default values by using the *Radio Configuration Parameters Message*.

- 1 2.18.2.2 Traceability (See [4]):
- 2 2.7.1.3.2.2 Order Message
- 3 2.7.1.3.2.5 Page Response Message
- 4 2.7.1.3.2.2.4 Origination Message
- 5 2.7.2.3.2.14 Service Connect Completion Message
- 6 3.7.2.3.2.17 General Page Message
- 7 3.7.2.3.2.21 Extended Channel Assignment Message
- 8 3.7.3.3.2.20 Service Connect Message
- 9 3.7.5.7 Service Configuration
- 10 3.7.3.3.2.51 Radio Configuration Parameters Message

11

12 2.18.2.3 Call Flow Diagram



13
14

15 2.18.2.4 Method of Measurement

- 16 a. Configure the setup for good RF links.
- 17 b. Allow the mobile station to come to the idle state on the base station.
- 18 c. Attempt a mobile station originated call.
- 19 d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP
- 20 and RC 8 in REV_FCH_RC_MAP in the *Origination Message*.

- 1 e. Ensure that the mobile station includes SO 73 in the alternative SO list in the
- 2 origination message.
- 3 f. Ensure that the base station sends an *Extended Channel Assignment Message* with
- 4 FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.
- 5 g. Ensure that base station sends a *Radio Configuration Parameters Message* to the
- 6 mobile station with REV_FCH_BLANKING_DUTYCYCLE set to non-default value.
- 7 Ensure that the base station transmits the *Radio Configuration Parameters Message*
- 8 using assured L2 delivery.
- 9 h. Ensure that the access terminal transmits an *Order Message* acknowledging the
- 10 receipt of *Radio Configuration Parameters Message*.
- 11 i. Verify that the base station starts using the parameters transmitted in the *Radio*
- 12 *Configuration Parameters Message* at the USE_TIME specified in the message.
- 13 Note, this can be verified by the use of FWD_FCH_BLANKING_DUTYCYCLE value
- 14 carried in the *Radio Configuration Parameters Message* after SO 73 is negotiated, as
- 15 specified in following steps.
- 16 j. Instruct the base station to transmit *Service Connect Message* specifying the SO 73
- 17 in the SERVICE_OPTION field.
- 18 k. Ensure that the mobile station transmits *Service Connect Completion Message* to the
- 19 base station.
- 20 l. Verify that the base station starts transmitting and receiving frames for voice traffic.
- 21 m. Terminate the voice call.
- 22 n. Repeat steps b through f.
- 23 o. Instruct the base station to transmit *Service Connect Message* specifying the SO 73
- 24 in the SERVICE_OPTION field.
- 25 p. Ensure that the mobile station transmits *Service Connect Completion Message* to the
- 26 base station.
- 27 q. Repeat step g.
- 28 r. Cause the radio conditions to degrade such that the *Order Message* acknowledging
- 29 the *Radio Configuration Parameters Message* that is transmitted by the mobile
- 30 station is dropped during transmission.
- 31 s. Verify that the base station continues transmitting and receiving frames for voice
- 32 traffic and continues to use default RC 11 and RC 8 parameters. Ensure that this
- 33 period is greater than 200 ms.
- 34 t. Verify that the base station to retransmits the *Radio Configuration Parameters*
- 35 *Message* to the mobile station with FOR_FCH_BLANKING_DUTYCYCLE and
- 36 REV_FCH_BLANKING_DUTYCYCLE set to non-default value of 8.
- 37 u. Ensure that the access terminal transmits an *Order Message* acknowledging the
- 38 receipt of *Radio Configuration Parameters Message*.
- 39 v. Verify that the base station continues transmitting and receiving frames for voice
- 40 traffic.

41 2.18.2.5 Minimum Standard

42 The base station shall comply with the requirements in steps i, l, s, t, and v.

43

1 **2.19 GEM Processing for Radio Configuration Parameters**
2 **Record Processing**

3 **2.19.1 Mobile Station Test**

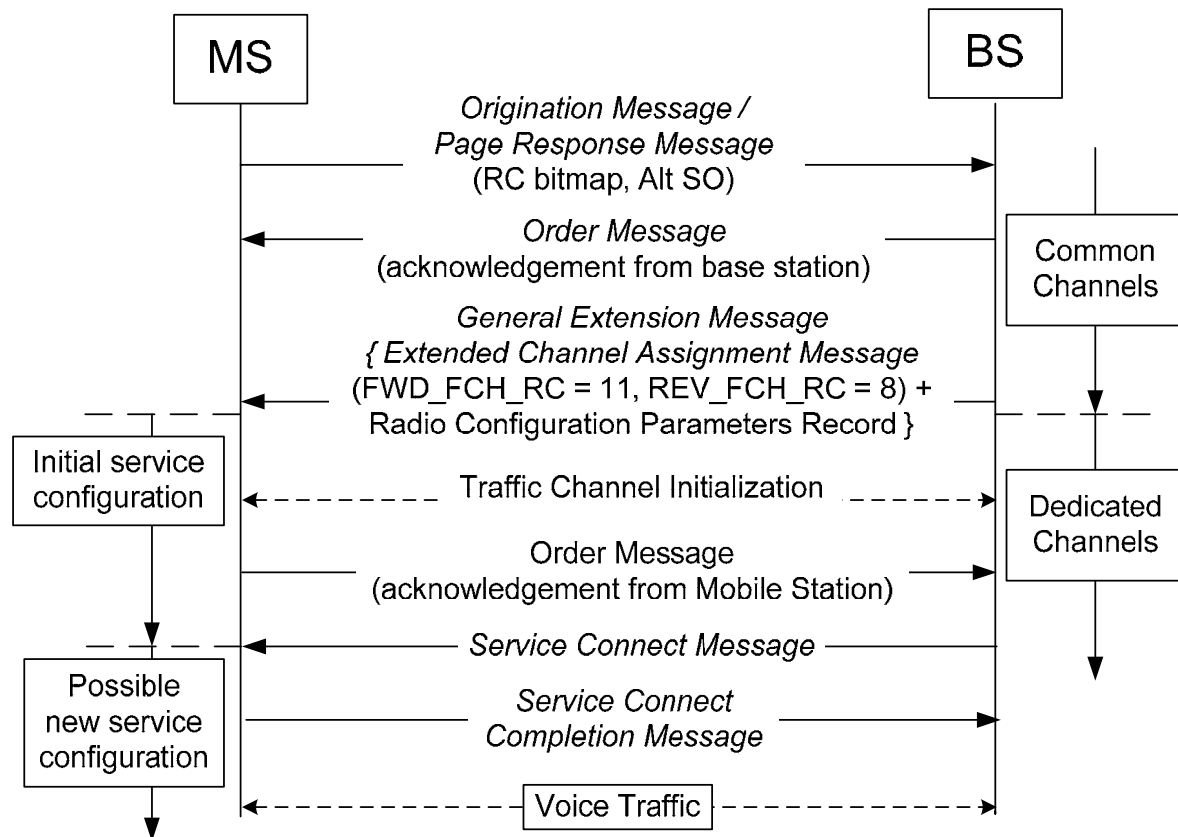
4 2.19.1.1 Definition

5 This test verifies that mobile station changes the RC 11 and RC 8 parameters received in the
6 Radio Configuration Parameters Record, when this record is received along with an *Extended*
7 *Channel Assignment Message* in a *General Extension Message*. In the test procedure below it is
8 preferred to use service option 74 to generate the Non-Critical Rate 1/8th frames. If instead the
9 mobile station is muted, the vocoder may generate frames at a higher frequency.

10 2.19.1.2 Traceability (See [4]):

- 11 2.7.1.3.2.5 *Page Response Message*
- 12 2.7.1.3.2.2.4 *Origination Message*
- 13 2.7.2.3.2.14 *Service Connect Completion Message*
- 14 3.7.2.3.2.17 *General Page Message*
- 15 3.7.2.3.2.21 *Extended Channel Assignment Message*
- 16 3.7.3.3.2.20 *Service Connect Message*
- 17 3.7.5.7 *Service Configuration*
- 18 3.7.3.3.2.51 *Radio Configuration Parameters Message*
- 19

1 2.19.1.3 Call Flow Diagram



2
3

4 2.19.1.4 Method of Measurement

- 5 a. Configure the setup for good RF links.
- 6 b. Allow the mobile station to come to the idle state on the base station.
- 7 c. Attempt a mobile station originated or terminated call.
- 8 d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP
- 9 and RC 8 in REV_FCH_RC_MAP in the *Origination Message* or *Page Response*
- 10 *Message*.
- 11 e. Ensure that the mobile station includes SO 74 in the alternative SO list in the
- 12 *origination message*. Note, the base station should be configured to advertize a value
- 13 of 7 in the MAX_NUM_ALT_SO field of the *Extended System Parameters Message*.
- 14 f. Instruct the base station to send a *General Extension Message* carrying
 - 15 1. *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set
 - 16 to 11 and REV_FCH_RC / FOR_RC set to 8 and
 - 17 2. *Radio Configuration Parameters Record* with
 - 18 REV_FCH_BLANKING_DUTYCYCLE set to non-default value.

- 1 g. Verify that the access terminal transmits an *Order Message* acknowledging the
2 receipt of *Extended Channel Assignment Message*.
- 3 h. Instruct the base station to transmit *Service Connect Message* specifying the SO 74
4 in the SERVICE_OPTION field. If SO 74 is not supported at the base station, then
5 use SO 73 and mute the mobile station.
- 6 i. Ensure that the mobile station transmits *Service Connect Completion Message* to the
7 base station.
- 8 j. If SO 74 has been assigned, instruct the base station to transmit a Service Option
9 Control Mesasge with CTL_REC_TYPE set to 0 and RTC_MODE set to '101' (fixed
10 Rate 1/8th non-critical).
- 11 k. Verify that the mobile station starts using the parameters received in the *Radio*
12 *Configuration Parameters Record*. Note, this can be verified by the use of
13 REV_FCH_BLANKING_DUTYCYCLE value carried in the *Radio Configuration*
14 *Parameters Record* after SO 73 is negotiated. For example, when the mobile station
15 is muted or SO 74 is used, out of every eight frames on the R-FCH, the mobile
16 station should transmit only one 1/8th rate frame and blank other seven frames when
17 REV_FCH_BLANKING_DUTYCYCLE is set to a value of '010'..
- 18 l. Verify that the mobile station starts transmitting and receiving frames *for* voice traffic.
- 19 m. Terminate the call.

20 2.19.1.5 Minimum Standard

21 The mobile station shall comply with the requirements in steps g, k, and l.

22 **2.19.2 Base Station Test**

23 None

24 **2.20 Mobile Station Reject Order generation for GEM**

25 **2.20.1 Mobile Station Test**

26 2.20.1.1 Definition

27 This test verifies that mobile station generates a Reject Order if any of the field in the Radio
28 Configuration Parameters Record contained in the *Extended Channel Assignment Message* in a
29 *General Extension Message*.

30 2.20.1.2 Traceability (See [4]):

31 2.6.18 *Processing of General Extension Message*

32 2.7.1.3.2.5 *Page Response Message*

33 2.7.1.3.2.2.4 *Origination Message*

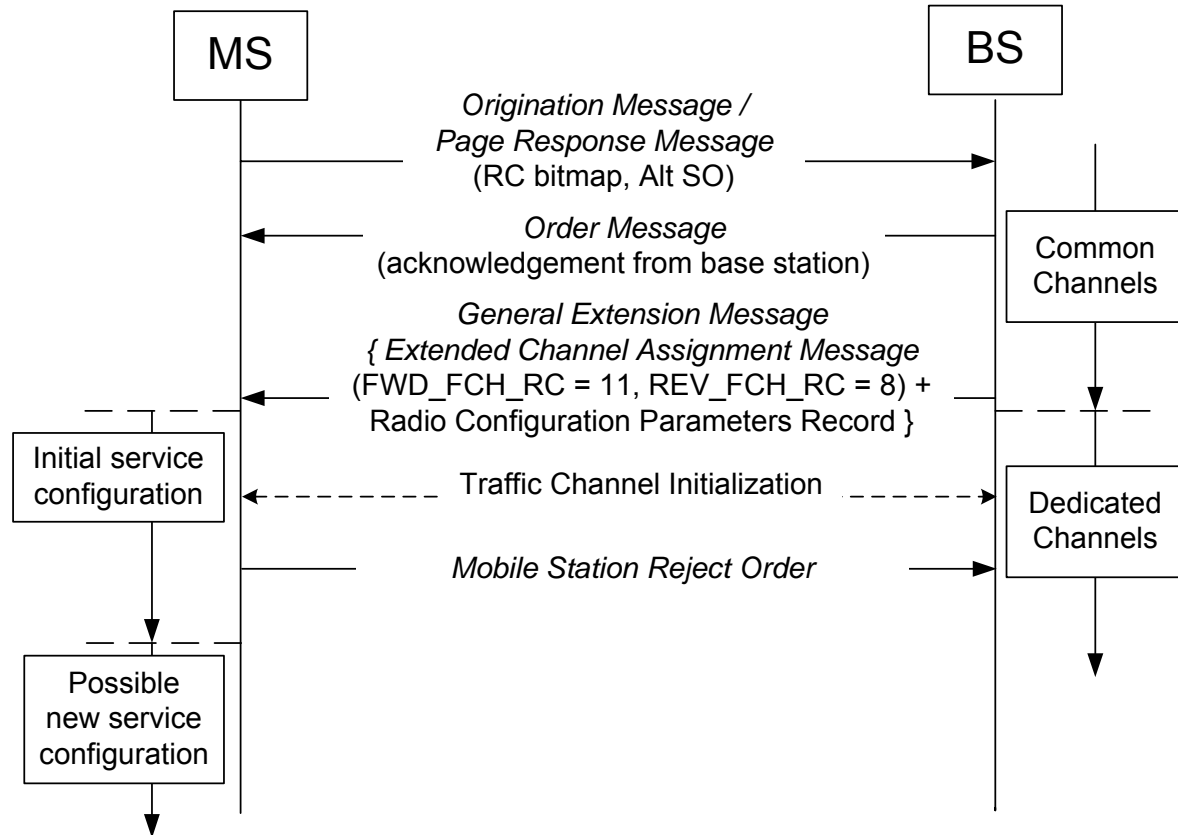
34 2.7.2.3.2.14 *Service Connect Completion Message*

35 3.7.2.3.2.17 *General Page Message*

36 3.7.2.3.2.21 *Extended Channel Assignment Message*

37 3.7.3.3.2.20 *Service Connect Message*

- 1 3.7.5.7 Service Configuration
 2 3.7.3.3.2.51 Radio Configuration Parameters Message
 3
 4 2.20.1.3 Call Flow Diagram



5
6

7 2.20.1.4 Method of Measurement

- 8 a. Configure the setup for good RF links.
- 9 b. Allow the mobile station to come to the idle state on the base station.
- 10 c. Attempt a mobile station originated or terminated call.
- 11 d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP
12 and RC 8 in REV_FCH_RC_MAP in the *Origination Message* or *Page Response*
13 *Message*.
- 14 e. Ensure that the mobile station includes SO 73 in the alternative SO list in the
15 origination message. Note, the base station should be configured to advertize a value
16 of 7 in the MAX_NUM_ALT_SO field of the *Extended System Parameters Message*.
- 17 f. Instruct the base station to send a General Extension Message carrying
 - 18 1. *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set
19 to 11 and REV_FCH_RC / FOR_RC set to 8 and

- 1 2. A General Extension record with GE_REC_TYPE set to '11111111'.
- 2 g. Verify that the access terminal transmits a *Mobile Station Reject Order* with ORDQ
- 3 equal to 00011101.
- 4 h. Repeat steps b-e.
- 5 i. Instruct the base station to send a General Extension Message carrying
- 6 1. Extended Channel Assignment Message with FOR_FCH_RC / FOR_RC set
- 7 to 11 and REV_FCH_RC / FOR_RC set to 8 and
- 8 2. A General Extension record with GE_REC_TYPE set to 00000001 and set
- 9 the value of one of the parameters in the Radio Configuration Parameters
- 10 Record to an invalid range. For example, set
- 11 FOR_FCH_BLANKING_DUTYCYCLE to '111' or
- 12 PWR_CNTL_STEP_ZERO_RATE to '111'.
- 13 j. Verify that the access terminal transmits a *Mobile Station Reject Order* with ORDQ
- 14 equal to '00011111'.

15 2.20.1.5 Minimum Standard

16 The mobile station shall comply with the requirements in steps g and j.

17 **2.20.2 Base Station Test**

18 None

19 **2.21 Forward Link Error with RC11/RC12**

20 **2.21.1 Mobile Station Test**

21 2.21.1.1 Definition

22 This test verifies forward link error trigger functionality in the mobile for different smart blanking

23 options for the RC11/RC12 assignment on the forward link.

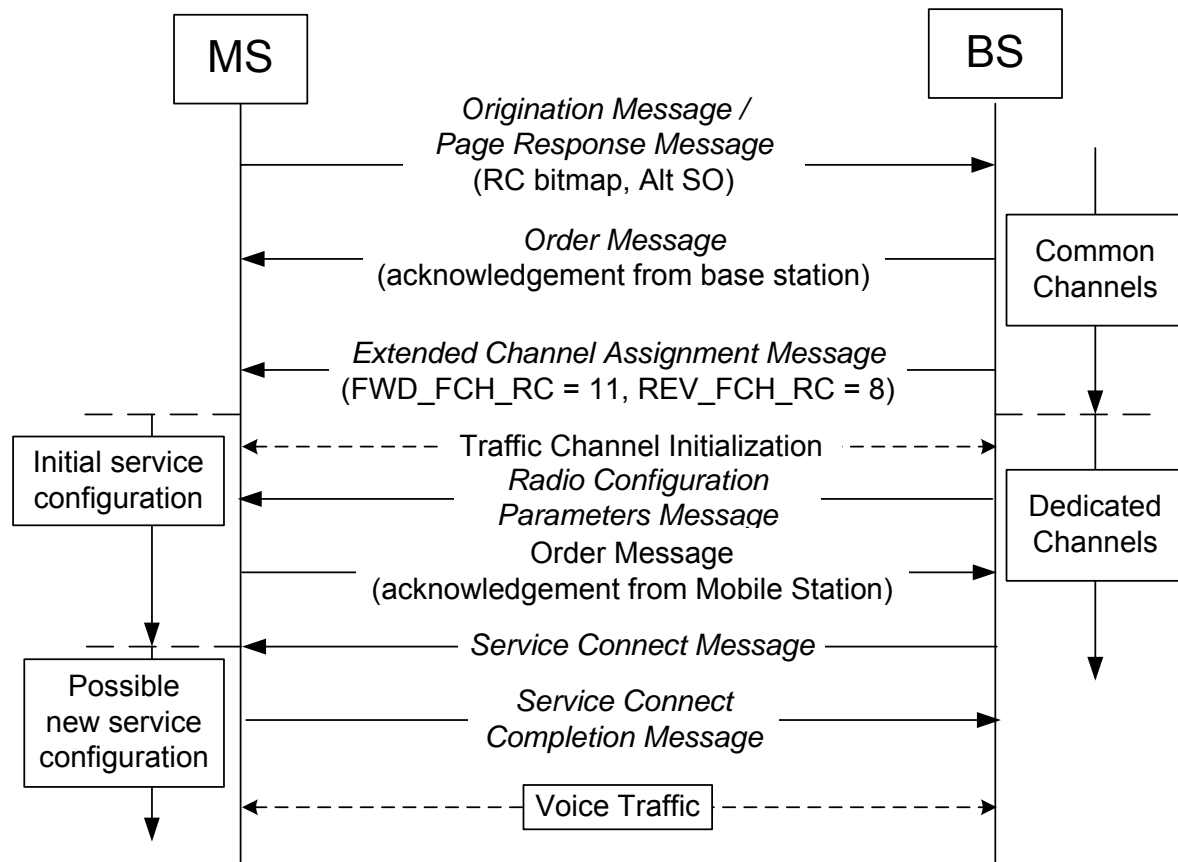
24 2.21.1.2 Traceability (See [4]):

25 2.6.2.1.1.4 *Common Channel Supervision*

26 2.6.4.1.8 *Forward Traffic Channel Supervision*

27 2.6.4.1.8.1.1 *Triggers*

1 2.21.1.3 Call Flow Diagram

2
3

4 2.21.1.4 Method of Measurement

- 5 a. Configure a test setup with a connection of a single base station and the mobile
6 station to allow the forward radio link to be abruptly attenuated, or interfered with,
7 enough to cause continuous loss of all forward frames for a specified duration, as
8 shown in Annex A Figure 6.
- 9 b. Allow the mobile station to come to the idle state on the base station.
- 10 c. Attempt a mobile station originated or terminated call.
- 11 d. Instruct the base station to assign RC11/RC12 on the forward fundamental channel
12 and to assign a value of '010' for 'FOR_FCH_BLANKING_DUTYCYCLE' and '011' for
13 FOR_N2M_IND using the *Radio Configuration Parameters Message* or the Radio
14 Configuration Parameters Record.
- 15 e. Instruct the base station to transmit only guaranteed physical layer frames. This can
16 be achieved by using of SO 74.
- 17 f. Abruptly cause loss of the forward RF link beginning in for a period greater than
18 FOR_N2M_IND guaranteed frames (i.e. > (FOR_N2M_IND + 1) *
19 FOR_FCH_BLANKING_DUTYCYCLE * 20 ms) and less than 5 seconds. Note that
20 FOR_N2M_IND and FOR_FCH_BLANKING_DUTYCYCLE values are in number of

- 1 frames and not the actual attribute values. FOR_FCH_BLANKING_DUTYCYCLE
2 value of '000', '001' and '010' correspond to 0, 4 and 8 frames respectively.
3 FOR_N2M_IND value of '000', '001', '010', and '011' correspond to 2, 4, 6 and 8
4 frames respectively.
- 5 g. Verify that the mobile station disables its reverse link transmitter after it receives
6 FOR_N2M_IND consecutive guaranteed FL frames with insufficient signal quality.
- 7 h. Verify that the mobile station starts its transmitter after receiveing N3m (2)
8 consecutive guaranteed frames from on the forward link or if the mobile station
9 receives the forward fundamental channel with sufficient signal quality for a period of
10 $N3m \times 20ms$ (= 40 ms).
- 11 i. Terminate the call.
- 12 j. Repeat steps c-g with the exception that the base station is continuously transmitting
13 frames to the mobile station. This can be achieved for example by using SO 74 and
14 generating critical 1/8th rate frames.
- 15 k. Verify that the mobile station starts its transmitter after receiveing N_{3m} (2) consecutive
16 frames from on the forward link or if the mobile station receives the forward
17 fundamental channel with sufficient signal quality for a period of $N3m \times 20ms$ (= 40
18 ms).
- 19 l. Repeat steps c-e.
- 20 m. Abruptly cause loss of the forward RF link beginning in for a period equal to
21 $FOR_N2M_IND * FOR_FCH_BLANKING_DUTYCYCLE * 20\ ms - 20\ ms$ such that
22 less than FOR_N2M_IND guaranteed frames are lost. Note that
23 FOR_FCH_BLANKING_DUTYCYCLE and FOR_N2M_IND values are in number of
24 frames and not the actual attribute values.
- 25 n. Verify that the mobile station does not disable its reverse link transmitter.
- 26 o. Terminate the call.
- 27 p. Repeat steps c-o for FOR_N2M_IND attribute values of '000', '001' and '010'.
- 28 q. Repeat steps c-p for FOR_FCH_BLANKING_DUTYCYCLE attribute value of '001'.
- 29 r. Repeat steps c-e with FOR_FCH_BLANKING_DUTYCYCLE attribute value of '000'
30 and configure the base station to continuously transmit frames to the mobile station.
31 This can be achieved for example by using SO 74 and generating critical 1/8th rate
32 frames.
- 33 s. Abruptly cause loss of the forward RF link beginning in for a period greater than N_{2M}
34 frames and less than 5 seconds.
- 35 t. Verify that the mobile station disables its reverse link transmitter after it receives N_{2M}
36 consecutive FL frames with insufficient signal quality.
- 37 u. Verify that the mobile station starts its transmitter after receiveing N3m (2)
38 consecutive frames from on the forward link or if the mobile station receives the

- 1 forward fundamental channel with sufficient signal quality for a period of $N_{3m} \times 20\text{ms}$
 2 (= 40 ms).
- 3 v. Terminate the call.
- 4 w. Repeat step c-e with FOR_FCH_BLANKING_DUTYCYCLE attribute value of '000'
 5 and configure the base station is continuously transmitting frames to the mobile
 6 station. This can be achieved for example by using SO 74 and generating critical
 7 $1/8^{\text{th}}$ rate frames..
- 8 x. Abruptly cause loss of the forward RF link beginning in for a period less than N_{2M}
 9 frames.
- 10 y. Verify that the mobile station does not disable its reverse link transmitter.
- 11 z. Repeat steps r-y for for FOR_N2M_IND attribute values of '000', '001' and '010'.
 12 Note, FOR_N2M_IND value is not used when FOR_FCH_BLANKING_DUTYCYCLE
 13 attribute value of '000' is used.
- 14 aa. Repeat steps a-z with REV_FCH_BLANKING_DUTYCYCLE set to '000'.

15 2.21.1.5 Minimum Standard

16 The mobile station shall comply with the requirements in steps g, h, k, n, t, u, and y.

17 2.21.2 Base Station Test

18 None

19 2.22 Traffic Channel Assignment in QoF

20 2.22.1 Mobile Station Test

21 2.22.1.1 Definition

22 This test verifies a call set-up with a QoF assignment instead of walsh channel.

23 2.22.1.2 Traceability (See [4]):

- 24 2.7.1.3.2.5 *Page Response Message*
 25 2.7.1.3.2.2.4 *Origination Message*
 26 2.7.2.3.2.14 *Service Connect Completion Message*
 27 3.7.2.3.2.17 *General Page Message*
 28 3.7.2.3.2.21 *Extended Channel Assignment Message*
 29 3.7.3.3.2.20 *Service Connect Message*
 30 3.7.5.7 *Service Configuration*

31 2.22.1.3 Call Flow Diagram

32 None

33 2.22.1.4 Method of Measurement

- 34 a. Configure the setup for good RF links.

- 1 b. Attempt a mobile station originated or terminated call.
- 2 c. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP
- 3 and RC 8 in REV_FCH_RC_MAP in the *Origination Message*.
- 4 d. Ensure that the mobile station includes SO 74 in the SO or ALT_SO or SO_BITMAP
- 5 field in the origination message.
- 6 e. Instruct the base station to send an *Extended Channel Assignment Message* with
- 7 FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8 and to
- 8 set the QOF_MASK_ID_FCH set to '11'.
- 9 f. Ensure that the mobile station initializes the traffic channel.
- 10 g. Instruct the base station to transmit *Service Connect Message* specifying the SO 74
- 11 in the SERVICE_OPTION field.
- 12 h. Ensure that the mobile station transmits *Service Connect Completion Message* to the
- 13 base station.
- 14 i. Instruct the base station to send a Radio Configuration Parameters Message with
- 15 QOF_SET_IN_USE set to '11'.
- 16 j. Verify that the mobile station starts transmitting and receiving frames for voice traffic.

17 2.22.1.5 Minimum Standard

18 The mobile station shall comply with the requirements in steps j.

19

20 **2.23 Call Recovery Request Message**

21 **2.23.1 Mobile Station Test**

22 2.23.1.1 Definition

23 This test verifies the Call Recovery Request Message functionality at the mobile station.

24 2.23.1.2 Traceability (See [4]):

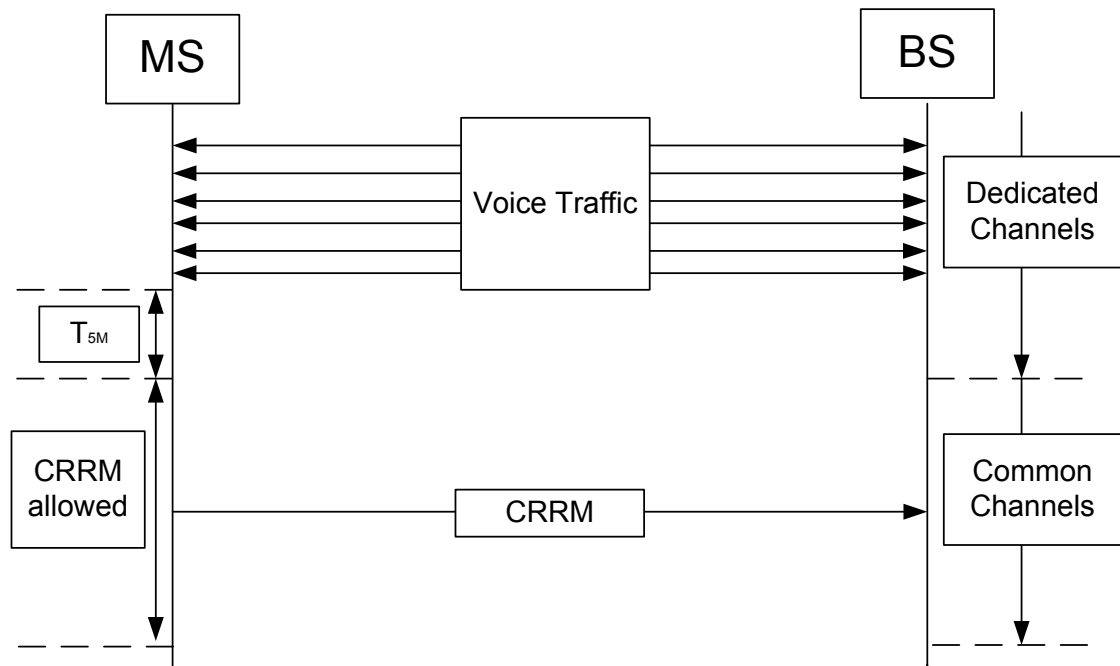
25 2.6.2.1.1.4 *Common Channel Supervision*

26 2.6.4.1.8 *Forward Traffic Channel Supervision*

27 2.7.1.3.2.17 *Call Recovery 1 Request Message*

28 2.6.4.1.8.1.1 *Triggers*

1 2.23.1.3 Call Flow Diagram



2
3

4 2.23.1.4 Method of Measurement

- 5 a. Configure a test setup with a connection of a single base station and the mobile
- 6 station to allow the forward radio link to be abruptly attenuated, or interfered with,
- 7 enough to cause continuous loss of all forward frames for a specified duration, as
- 8 shown in Annex A Figure 6
- 9 b. Configure the setup for good RF links.
- 10 c. Allow the mobile station to come to the idle state on the base station.
- 11 d. Instruct the base station to set the value of CRRM_MSG_IND to '1' in the overhead
- 12 messages.
- 13 e. Attempt a mobile station originated call.
- 14 f. Ensure that the mobile and base station are sending and receiving voice frames.
- 15 g. Abruptly cause loss of the forward RF link beginning in for a period greater than T_{5m}
- 16 (5 seconds) and less than 20 seconds.
- 17 h. Ensure that the RF conditions are restored.

- 1 i. Verify that the mobile station transmits the *Call Recovery Request Message* to the
- 2 base station.
- 3 j. Terminate the call.
- 4 k. Repeat steps c-f.
- 5 l. Abruptly cause loss of the forward RF link beginning in for a period greater than 20
- 6 seconds.
- 7 m. Ensure that the RF conditions are restored.
- 8 n. Verify that the mobile station does not transmit *Call Recovery Request Message* to
- 9 the base station.
- 10 o. Terminate the call.
- 11 p. Instruct the base station to set the value of CRRM_MSG_IND to '0' in the overhead
- 12 messages.
- 13 q. Repeat steps c-h.
- 14 r. Verify that the mobile station does not transmit *Call Recovery Request Message* to
- 15 the base station.

16 2.23.1.5 Minimum Standard

17 The mobile station shall comply with the requirements in steps g, n, and r.

18 2.23.2 Base Station Test

19 None

20 2.24 General Overhead Information Message

21 2.24.1 Mobile Station Test

22 2.24.1.1 Definition

23 This test verifies the General Overhead Information Message processing at the mobile station.

24 2.24.1.2 Traceability (See [4]):

25 2.6.2.2.22 *General Overhead Information Message*

26 3.7.2.3.2.42 *General Overhead Information Message*

27 3.7.2.3.2.31 *MC-1 RR Parameters Message*

28 3.7.2.3.2.1 *System 1 Parameters Message*

29 2.24.1.3 Call Flow Diagram

30 None

31 2.24.1.4 Method of Measurement

- 32 a. Configure the setup for good RF links.

- 1 b. Instruct the base station to set the value of GEN_OVHD_INF_IND to '1' and
2 GEN_OVHD_CYCLE_INDEX to '101' in the overhead messages.
- 3 c. Allow the mobile station to become idle.
- 4 d. Attempt a mobile station originated call before the *General Overhead Information*
5 *Message* is received from the base station.
- 6 e. Verify that the mobile station transmits an *Origination Message*.
- 7 f. Terminate the call.
- 8 g. Allow the mobile station to become idle.
- 9 h. Attempt a mobile station terminated call before the *General Overhead Information*
10 *Message* is received from the base station.
- 11 i. Verify that the mobile station transmits a *Page Response Message*.
- 12 j. Terminate the call.

13 2.24.1.5 Minimum Standard

14 The mobile station shall comply with the requirements in steps e and i.
15

16 **2.24.2 Base Station Test**

17 None

18 **2.25 Additional Geo Location Type Record**

19 **2.25.1 Mobile Station Test**

20 2.25.1.1 Definition

21 This test verifies the mobile station response to *Status Request Message* for Additional Geo-
22 Location Capability records

23 2.25.1.2 Traceability (See [4]):

24 2.7.1.3.2.10 *Extended Status Response Message*

25 2.7.2.3.2.16 *Status Response Message*

26 3.7.2.3.2.15 *Status Request Message*

27 3.7.3.3.2.16 *Status Request Message*

28 2.25.1.3 Call Flow Diagram

29 None

30 2.25.1.4 Method of Measurement

- 31 a. Initiate a call.
- 32 b. Instruct base station to send a *Status Request Message* with RECORD_TYPE =
33 '00101111' (Additional Geo-Location Capability) on f-dsch.

- 1 c. Verify that the mobile station responds with a *Status Response Message* with
- 2 RECORD_TYPE = '00101111' (Additional Geo-Location Capability) and includes the
- 3 Additional Geo-1 Location Capability record.
- 4 d. End the call.
- 5 e. Instruct base station to send a *Status Request Message* with RECORD_TYPE =
- 6 '00101111' (Additional Geo-Location Capability) on f-csch.
- 7 f. Verify that the mobile station responds with an *Extended Status Response Message*
- 8 with RECORD_TYPE = '00101111' (Additional Geo-Location Capability) and includes
- 9 the Additional Geo-1 Location Capability record.

10 2.25.1.5 Minimum Standard

11 The mobile station shall comply with the requirements in steps c and f.

12

13 2.25.2 Base Station Test

14 None

15 2.26 SO 33 call set-up with RC 11 and RC 8

16 2.26.1 Mobile Station Test

17 2.26.1.1 Definition

18 This test verifies SO 33 call set-up with FL RC 11 and RL RC 8 assignment. It also verifies
19 various power control mode assignments through Radio Configuration Parameters Messge.

20 2.26.1.2 Traceability (See [1]):

21 2.1.3.1.11 *Reverse Power Control Subchannel*

22 (See [4]):

23 2.6.6.2.5.1, 3.6.6.2.2.12, 3.7.3.3.2.37 *Extended Supplemental Channel Assignment Message*

24 2.6.2.4, 2.6.3.3, 2.6.3.5, 3.6.3.3, 3.6.3.5, 3.7.2.3.2.21 *Extended Channel Assignment Message*

25 2.6.4.1.2, 2.6.4.1.2.2, 3.7.3.3.2.20, 3.7.5, 3.7.5.7, 3.7.5.20 *Service Connect Message*

26 2.26.1.3 Call Flow Examples

27 2.26.1.4 Method of Measurement

- 28 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
- 29 b. Set power levels as stated in [Annex B.1](#). Set up a mobile station originated call using
- 30 Service Option 33.
- 31 c. Instruct the base station to send the *Extended Channel Assignment Message* with
- 32 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '01011' (RC 11)	REV_RC = '01000' (RC 8)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 1 d. Instruct the base station to send and to send a *Radio Configuration Parameters*
2 *Mesage* with REV_FCH_BLANKING_DUTYCYCLE set to '000' and to send the
3 *Service Connect Message* with the parameters set as follows:

FPC_INCL = '0'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = not included	

- 4 e. Instruct the base station to download SCH configuration and assign a Forward
5 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
6 *Message* and set the power control related fields as stated in follows:

FPC_INCL = '0'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_FER = '01010' (5%)	FPC_SCH_MIN_SETPT = '00010000' (2 dB)

- 7 f. Verify that the mobile station and base station are able to send and receive IP
8 packets.
- 9 g. Repeat steps a-f with the exception that FPC_MODE is set to '010'.
- 10 h. Repeat steps a-f with the exception that RPC_MODE is set to '01' and FPC_MODE
11 is set to '011'.
- 12 i. Repeat steps a-f with the exception that RPC_MODE is set to '01' and FPC_MODE
13 is set to '010'.
- 14 j. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set
15 to the default value, RPC_MODE is set to '01' and FPC_MODE is set to '010'.
- 16 k. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set
17 to the default value, RPC_MODE is set to '01' and FPC_MODE is set to '010'.
- 18 l. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set
19 to the default value, RPC_MODE is set to default value of '00' and FPC_MODE is set
20 to '010'.

21 2.26.1.5 Minimum Standard

22 The mobile station shall comply with the requirement in step f for all cases.

23 2.26.2 Base Station Test

24 None

25

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1 3 Idle handoff

2 3.1 PCH only is available in neighbor BS, NGHBR_CONFIG= 3 '000'

4 3.1.1 Mobile Station test

5 3.1.1.1 Definition

6 This test verifies that an idle handoff is successfully completed if the neighbor base station has
7 the same number of frequencies with paging channels as current base station and there is a
8 frequency in the neighbor which has the same number of paging channels as current CDMA
9 frequency assignment.

10 3.1.1.2 Traceability (See [4]):

11 *2.6.2.1.4: Idle handoff*

12 *2.6.2.2.3: Neighbor List Message*

13 *2.6.2.2.7: Extended Neighbor List Message*

14 *2.6.2.2.8: General Neighbor List Message*

15 *3.7.2.3.2.3: Neighbor List Message*

16 *3.7.2.3.2.14: Extended Neighbor List Message*

17 *3.7.2.3.2.22: General Neighbor List Message*

18 3.1.1.3 Call Flow Diagram

19 None

20 3.1.1.4 Method of Measurement

- 21 a. Set up test as shown in [Annex A Figure 2](#)
22 b. Set the test parameters as specified in Table 3.1.1.4-1.

23 **Table 3.1.1.4-1 Idle handoff Test Parameters**

Parameter	Unit	BS #1	BS #2
\hat{I}_{or}/I_{oc}	dB	0	-10
Pilot E_c/I_{or}	dB	-7	-7
I_{oc}	dBm/1.23 MHz	-75	-75
Pilot E_c/I_o	dB	-10.2	-20.2

- 24 c. Reverse link attenuation should be set to balance the forward and reverse links
25 (approximately 90 dB).
26 d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels
27 (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to
28 frequency channels supported by the mobile station.

- 1 e. Configure base station 2 to support freq 1 and freq 3, with 2 Paging Channels
- 2 (without BCCH) on each frequency. Freq 3 should be configured to frequency
- 3 channel supported by the mobile station.
- 4 f. Configure base station 1 to send a *Neighbor List Message, Extended Neighbor List*
- 5 *Message* or *General Neighbor List Message* on each of the paging channels of freq 1
- 6 with NGHBR_CONFIG= '000' (FREQ_INCL= '0' if applicable).
- 7 g. Configure all the paging channel messages on freq 2 of base station 1 according to
- 8 scenario 1 of Table 3.1.1.4-2. Make sure that NGHBR_CONFIG is set to the value
- 9 shown in the title of each test case.

Table 3.1.1.4-2 Message Field Setup

		Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Message Used		ENLM	GNLM	NLM+GNLM	ENLM+GNLM	ENLM+GNLM
E N L M	FREQ_	'1'	N/A	'1'	'1'	'0'
	INCL					
	NGHB	freq 3	N/A	freq 3	freq 3	N/A
	R_FRE Q					
G N L M	FREQ_	N/A	'1'	'0'	'0'	'1'
	FIELD					
	S_INC L					
	NGHB	N/A	freq 3	N/A	N/A	freq 3
	R_FRE Q					
Note: NLM can only be sent on Band Class 0; ENLM can not be sent on Band Class 0						

- 11 h. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended*
- 12 *CDMA Channel List Message* on each of the paging channels of each frequency with
- 13 the frequency list inside the message as follows: freq 1 followed by freq 2.
- 14 i. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended*
- 15 *CDMA Channel List Message* on each of the paging channels of each frequency with
- 16 the frequency list inside the message as follows: freq 1 followed by freq 3.
- 17 j. Power up the mobile station.
- 18 k. Instruct base station 1 to page the mobile station by sending the *General Page*
- 19 *Message*.
- 20 l. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 21 m. Raise the level of base station 2 and lower the level of base station 1 until the level of
- 22 base station 2 is at least 3 dB higher than that of base station 1.

- 1 n. Wait until the mobile station completes an idle handoff and then instruct base station
2 2 to page the mobile station on the hashed (freq, PCH) pair.
- 3 o. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 4 p. Repeat step a to n with the following modification in step n:
- 5 1. Wait until the mobile station completes an idle handoff and then instruct
6 base station 2 to page the mobile station on a (freq, PCH) pair other than
7 the hashed (freq, PCH) pair.
- 8 q. Verify that the mobile station does not send a *Page Response Message* to base
9 station 2.
- 10 r. Repeat step a to q except the following:
- 11 1. In step e: Configure base station 2 to have freq 3 and freq 2, with 2
12 Paging Channels (without BCCH) on each frequency.
- 13 2. In step f and g: Swap freq 1 for freq 2.
- 14 3. In step i: Configure base station 2 to send a *CDMA Channel List*
15 *Message* or an *Extended CDMA Channel List Message* on each of the
16 paging channels of each frequency with the frequency list inside the
17 message as follows: freq 3 followed by freq 2.
- 18 s. Repeat step a to r for scenarios 2 to 5 in Table 3.1.1.4-1.

19 3.1.1.5 Minimum Standard

20 The mobile station shall comply with the requirements in steps l, o and q.

21 3.1.2 Base Station Test

22 None

23 3.2 PCH only is available in neighbor base station, 24 NGHBR_CONFIG= '001'

25 3.2.1 Mobile Station test

26 3.2.1.1 Definition

27 This test verifies that an idle handoff is successfully completed if the neighbor base station has
28 the same number of frequencies with paging channels as current base station and there is a
29 frequency in the neighbor which has different number of paging channels as current CDMA
30 frequency assignment.

31

32 3.2.1.2 Traceability (See [4]):

33 2.6.2.1.4: *Idle handoff*

34 2.6.2.2.3: *Neighbor List Message*

35 2.6.2.2.7: *Extended Neighbor List Message*

- 1 2.6.2.2.8: *General Neighbor List Message*
- 2 3.7.2.3.2.3: *Neighbor List Message*
- 3 3.7.2.3.2.14: *Extended Neighbor List Message*
- 4 3.7.2.3.2.22: *General Neighbor List Message*

5 3.2.1.3 Call Flow Diagram

6 None

7 3.2.1.4 Method of Measurement

- 8 a. Set up test as shown in [Annex A Figure 2](#).
- 9 b. Set the test parameters as specified in Table 3.1.1.4-1.
- 10 c. Reverse link attenuation should be set to balance the forward and reverse links
- 11 (approximately 90 dB).
- 12 d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels
- 13 (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to
- 14 frequency channels supported by the mobile station.
- 15 e. Configure base station 2 to support freq 1 and freq 3, with 3 Paging Channels
- 16 (without BCCH) on each frequency. Freq 3 should be configured to frequency
- 17 channel supported by the mobile station.
- 18 f. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List*
- 19 *Message* or *General Neighbor List Message* on each of the paging channels of freq 1
- 20 with NGHBR_CONFIG= '001', FREQ_INCL= '0' if the latter two.
- 21 g. Configure all the paging channel messages on the freq 2 of base station 1 according
- 22 to scenario 1 of Table 3.1.1.4-2.
- 23 h. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended*
- 24 *CDMA Channel List Message* on each of the paging channels of each frequency with
- 25 the frequency list inside the message as follows: freq 1 followed by freq 2.
- 26 i. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended*
- 27 *CDMA Channel List Message* on each of the paging channels of each frequency with
- 28 the frequency list inside the message as follows: freq 1 followed by freq 3.
- 29 j. Power up the mobile station.
- 30 k. Instruct base station 1 to page the mobile station by sending the *General Page*
- 31 *Message*.
- 32 l. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 33 m. Raise the level of base station 2 and lower the level of base station 1 until the level of
- 34 base station 2 is at least 3 dB higher than that of base station 1.
- 35 n. Wait until the mobile station completes an idle handoff and then instruct base station
- 36 2 to page the mobile station on the hashed (freq, PCH).
- 37 o. Verify that the mobile station sends a *Page Response Message* to base station 2.

- 1 p. Repeat step a to o with the following modification in step n:
- 2 1. Wait until the mobile station completes an idle handoff and then instruct
- 3 base station 2 to page the mobile station on a (freq, PCH) pair other than
- 4 the hashed (freq, PCH).
- 5 q. Verify that the mobile station does not send a *Page Response Message* to base
- 6 station 2.
- 7 r. Repeat step a to q except the following:
- 8 1. In step e: Configure base station 2 to have freq 3 and freq 2, with 3
- 9 Paging Channels (without BCCH) on each frequency.
- 10 2. In step f and g: Swap freq 1 for freq 2.
- 11 3. In step i: Configure base station2 to send a *CDMA Channel List*
- 12 *Message* or an *Extended CDMA Channel List Message* on each of the
- 13 paging channels of each frequency with the frequency list inside the
- 14 message as follows: freq 3 followed by freq 2.
- 15 s. Repeat step a to r for scenarios 2 to 5 in Table 3.1.1.4-2.

16 3.2.1.5 Minimum Standard

17 The mobile station shall comply with the requirements in steps l, o and q.

18 3.2.2 Base Station test

19 None

20 3.3 PCH only is available in neighbor base station, 21 NGHBR_CONFIG= '010'

22 3.3.1 Mobile Station Test

23 3.3.1.1 Definition

24 This test verifies that an idle handoff is successfully completed if the neighbor base station has

25 different number of frequencies with paging channels as current base station and there is a

26 frequency in the neighbor which has a primary paging channel.

27 3.3.1.2 Traceability (See [4])

28 2.6.2.1.4: *Idle Handoff*

29 2.6.2.2.3: *Neighbor List Message*

30 2.6.2.2.7: *Extended Neighbor List Message*

31 2.6.2.2.8: *General Neighbor List Message*

32 3.7.2.3.2.3: *Neighbor List Message*

33 3.7.2.3.2.14: *Extended Neighbor List Message*

34 3.7.2.3.2.22: *General Neighbor List Message*

1 3.3.1.3 Call Flow Diagram

2 None

3 3.3.1.4 Method of Measurement

- 4 a. Set up test as shown in [Annex A Figure 2](#).
- 5 b. Set the test parameters as specified in Table 3.1.1.4-1.
- 6 c. Reverse link attenuation should be set to balance the forward and reverse links
7 (approximately 90 dB).
- 8 d. Configure base station 1 to support freq 1 with 2 Paging Channels (without BCCH).
9 Freq 1 and Freq 2 should be configured to frequency channels supported by the
10 mobile station.
- 11 e. Configure base station 2 to support freq 1 and freq 3, with 2 Paging Channels
12 (without BCCH) on each frequency. Freq 3 should be configured to frequency channel
13 supported by the mobile station.
- 14 f. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List*
15 *Message* or *General Neighbor List Message* on each of the paging channels of freq 1
16 with NGHBR_CONFIG= '010', (FREQ_INCL= '0' if applicable).
- 17 g. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended*
18 *CDMA Channel List Message* with freq 1.
- 19 h. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended*
20 *CDMA Channel List Message* on each of the paging channel of each frequency with
21 the frequency list inside the message as follows: freq 1 followed by freq 3.
- 22 i. Power up the mobile station.
- 23 j. Instruct base station 1 to page the mobile station by sending the *General Page*
24 *Message*.
- 25 k. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 26 l. Raise the level of base station 2 and lower the level of base station 1 until the level of
27 base station 2 is at least 3 dB higher than that of base station 1.
- 28 m. Wait until the mobile station completes the idle handoff and then instruct base station
29 2 to page the mobile station on the hashed (freq, PCH).
- 30 n. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 31 o. Adjust the level of base station 1 and 2 to the original setting.
- 32 p. Configure all the paging channels on the freq 1 of base station 1 according to
33 scenario 1 of Table 3.1.1.4-2.
- 34 q. Ensure that the mobile station has updated the overhead messages on freq 1 of base
35 station 1.
- 36 r. Raise the level of base station 2 and lower the level of base station 1 until the level of
37 base station 2 is at least 3 dB higher than that of base station 1.

- 1 s. Wait until the mobile station completes the idle handoff and then instruct base station
2 2 to page the mobile station on the hashed (freq, PCH).
- 3 t. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 4 u. Repeat step a to t with the following modification:
- 5 1. In step m and s: Wait until the mobile station completes the idle handoff
6 and then instruct base station 2 to page the mobile station on a (freq,
7 PCH) pair other than the hashed (freq, PCH).
- 8 2. In step n and t: Verify that the mobile station does not send a *Page*
9 *Response Message* to base station 2.
- 10 v. Repeat step a to u for scenarios 2 to 5 in Table 3.1.1.4-2.

11 3.3.1.5 Minimum Standard

12 The mobile station shall comply with the requirements in steps k, n, t and u.

13 3.3.2 Base Station test

14 None

15 3.4 Unknown configuration in neighbor base station, 16 NGHBR_CONFIG= '011'

17 3.4.1 Mobile Station test

18 3.4.1.1 Definition

19 This test verifies that an idle handoff is successfully completed if the current base station has no
20 knowledge of neighbor base station except pilots.

21 3.4.1.2 Traceability (See [4]):

22 2.6.2.1.4: *Idle Handoff*

23 2.6.2.2.3: *Neighbor List Message*

24 2.6.2.2.7: *Extended Neighbor List Message*

25 2.6.2.2.8: *General Neighbor List Message*

26 3.7.2.3.2.3: *Neighbor List Message*

27 3.7.2.3.2.14: *Extended Neighbor List Message*

28 3.7.2.3.2.22: *General Neighbor List Message*

29 3.4.1.3 Call Flow Diagram

30 None

31 3.4.1.4 Method of Measurement

- 32 a. Set up test as shown in [Annex A Figure 2](#).
- 33 b. Set the test parameters as specified in Table 3.1.1.4-1.

- 1 c. Reverse link attenuation should be set to balance the forward and reverse links
- 2 (approximately 90 dB).
- 3 d. Configure base station 1 to support freq 1, with 1 Primary Paging Channel (without
- 4 BCCH). Freq 1 and Freq 2 should be configured to frequency channels supported by
- 5 the mobile station.
- 6 e. Configure base station 2 to support freq 1 and freq 3, with a primary paging channel
- 7 on each frequency. Freq 3 should be configured to frequency channel supported by
- 8 the mobile station.
- 9 f. Configure base station 2 to send a *CDMA Channel Message* or an *Extended CDMA*
- 10 *Channel Message* on each of the paging channel of each frequency with the
- 11 frequency list as follows: freq 1 followed by freq 3.
- 12 g. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List*
- 13 *Message* or *General Neighbor List Message* on the primary paging channel of freq 1
- 14 with NGHBR_CONFIG= '011', (FREQ_INCL= '0' if applicable).
- 15 h. Power up the mobile station.
- 16 i. Send a *General Page Message* from base station 1.
- 17 j. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 18 k. Raise the level of base station 2 and lower the level of base station 1 until the level of
- 19 base station 2 is at least 3 dB higher than that of base station 1.
- 20 l. Wait until the mobile station completes the idle handoff and then instruct base station
- 21 2 to page the mobile station on the hashed (freq, PCH).
- 22 m. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 23 n. Adjust the level of base station 1 and 2 to the original setting.
- 24 o. Configure all the paging channels on the freq 1 of base station 1 according to
- 25 scenario 1 of Table 3.1.1.4-2.
- 26 p. Instruct base station 1 to page the mobile station by sending the *General Page*
- 27 *Message*.
- 28 q. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 29 r. Raise the level of base station 2 and lower the level of base station 1 until the level of
- 30 base station 2 is at least 3 dB higher than that of base station 1.
- 31 s. Wait until the mobile station completes the idle handoff and then instruct the base
- 32 station 2 to page the mobile station on the hashed (freq, PCH).
- 33 t. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 34 u. Repeat step a to t with the following modification:
- 35 1. In step l and s: Wait until the mobile station completes the idle handoff
- 36 and then instruct base station 2 to page the mobile station on a (freq,
- 37 PCH) pair other than the hashed (freq, PCH).

- 1 e. Configure base station 2 to support freq 1 and freq 3, with 2 Paging Channels on
2 each frequency. Freq 3 should be configured to frequency channel supported by the
3 mobile station.
- 4 f. Configure base station 2 to support freq 3 with 1 primary BCCH and 1 FCCCH
5 associated with this BCCH.
- 6 g. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List*
7 *Message* or *General Neighbor List Message* on each of the paging channels of freq 1
8 with NGHBR_CONFIG= '000', (FREQ_INCL= '0' if applicable), and only in *General*
9 *Neighbor List Message*, ensure BCCH_IND_INCL= '0'.
- 10 h. Configure all the paging channels on the freq 2 of base station 1 according to
11 scenario 1 of Table 3.1.1.4-2. And in *General Neighbor List Message*, ensure
12 BCCH_IND_INCL= '0'.
- 13 i. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended*
14 *CDMA Channel List Message* on each of the paging channels of each frequency with
15 the frequency list inside the message as follows: freq 1 followed by freq 2.
- 16 j. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended*
17 *CDMA Channel List Message* on each of the paging channel of each frequency with
18 the frequency list inside the message as follows: freq 1 followed by freq 3.
- 19 k. Configure base station 2 to send an *Extended CDMA Channel List Message* with freq
20 3 on primary BCCH.
- 21 l. Instruct the base station 2 to send an *Extended System Parameters Message* of all
22 the paging channels on freq 1 and 3 with BCCH_SUPPORTED= '1'.
- 23 m. Power up the mobile station.
- 24 n. Instruct base station 1 to page the mobile station by sending the *General Page*
25 *Message*.
- 26 o. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 27 p. Raise the level of base station 2 and lower the level of base station 1 until the level of
28 base station 2 is at least 3 dB higher than that of base station 1.
- 29 q. Wait until the mobile station completes the idle handoff and then instruct base station
30 2 to page the mobile station on the FCCCH of freq 3.
- 31 r. Verify that the mobile station sends a *Page Response Message* to base station 2 on
32 freq 3.
- 33 s. Repeat step a to r with the following modification:
- 34 1. In step q: Wait until the mobile station completes the idle handoff and
35 then instruct base station 2 to page the mobile station on the paging
36 channel on each frequency.
- 37 2. In step r: Verify that the mobile station does not send a *Page Response*
38 *Message* to base station 2.
- 39 t. Repeat step a to s except the following:

- 1 1. In step e: Configure base station 2 to have freq 3 and freq 2, with 2
- 2 Paging Channels on each frequency.
- 3 2. In step g and h: Swap freq 1 for freq 2.
- 4 3. In step j: Configure base station2 to send a *CDMA Channel List*
- 5 *Message* or an *Extended CDMA Channel List Message* on each of the
- 6 paging channels of each frequency with the frequency list inside the
- 7 message as follows: freq 3 followed by freq 2.
- 8 u. Repeat step a to t for scenarios 2 to 5 in Table 3.1.1.4-2.

9 3.5.1.5 Minimum Standard

10 The mobile station shall comply with the requirements in steps o, r.

11 **3.5.2 Base Station Test**

12 None

13 **3.6 PCH+BCCH/FCCCH are available in neighbor base station,**

14 **NGHBR_CONFIG= '001', BCCH_IND_INCL= '0'**

15 **3.6.1 Mobile Station Test**

16 3.6.1.1 Definition

17 This test verifies that an idle handoff is successfully completed if the neighbor base station has
 18 the same number of frequencies with paging channels as current base station and there is a
 19 frequency in the neighbor which has different number of paging channels as current CDMA
 20 frequency assignment. BCCH/FCCCH is also available in the neighbor base station.

21 3.6.1.2 Traceability (See [4]):

- 22 2.6.2.1.4: *Idle handoff*
- 23 2.6.2.2.3: *Neighbor List Message*
- 24 2.6.2.2.7: *Extended Neighbor List Message*
- 25 2.6.2.2.8: *General Neighbor List Message*
- 26 3.7.2.3.2.3: *Neighbor List Message*
- 27 3.7.2.3.2.14: *Extended Neighbor List Message*
- 28 3.7.2.3.2.22: *General Neighbor List Message*

29 3.6.1.3 Call Flow Diagram

30 None

31 3.6.1.4 Method of Measurement

- 32 a. Set up test as shown in Figure [Annex A Figure 2](#).
- 33 b. Set the test parameters as specified in Table 3.1.1.4-1.
- 34 c. Reverse link attenuation should be set to balance the forward and reverse links
- 35 (approximately 90 dB).

- 1 d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels
2 (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to
3 frequency channels supported by the mobile station.
- 4 e. Configure base station 2 to support freq 1 and freq 3, with 3 Paging Channels on
5 each frequency. Freq 3 should be configured to frequency channel supported by the
6 mobile station.
- 7 f. Configure base station 2 to support freq 3 with 1 primary BCCH and 1 FCCCH
8 associated with this BCCH.
- 9 g. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List*
10 *Message* or *General Neighbor List Message* on each of the paging channels of freq 1
11 with NGHBR_CONFIG= '001', (FREQ_INCL= '0' if applicable), and only in *General*
12 *Neighbor List Message*, ensure BCCH_IND_INCL= '0'.
- 13 h. Configure all the paging channels on the freq 2 of base station 1 according to
14 scenario 1 of Table 3.1.1.4-2. And in *General Neighbor List Message*, ensure
15 BCCH_IND_INCL= '0'.
- 16 i. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended*
17 *CDMA Channel List Message* on each of the paging channels of each frequency with
18 the frequency list inside the message as follows: freq 1 followed by freq 2.
- 19 j. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended*
20 *CDMA Channel List Message* on each of the paging channels of each frequency with
21 the frequency list inside the message as follows: freq 1 followed by freq 3.
- 22 k. Configure base station 2 to send an *Extended CDMA Channel List Message* with freq
23 3 on primary BCCH.
- 24 l. Instruct the base station 2 to send an *Extended System Parameters Message* of all
25 the paging channels on freq 1 and 3 with BCCH_SUPPORTED= '1'.
- 26 m. Power up the mobile station.
- 27 n. Instruct base station 1 to page the mobile station by sending the *General Page*
28 *Message*.
- 29 o. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 30 p. Raise the level of base station 2 and lower the level of base station 1 until the level of
31 base station 2 is at least 3 dB higher than that of base station 1.
- 32 q. Wait until the mobile station completes the idle handoff and then instruct base station
33 2 to page the mobile station on the FCCCH of freq 3.
- 34 r. Verify that the mobile station sends a *Page Response Message* to base station 2 on
35 freq 3.
- 36 s. Repeat step a to r with the following modification:
- 37 1. In step q: Wait until the mobile station completes the idle handoff and
38 then instruct base station 2 to page the mobile station on the paging
39 channel on each frequency.

- 1 2. In step r: Verify that base station 2 does not receive a *Page Response*
2 *Message* from the mobile station.
- 3 t. Repeat step a to s except the following:
- 4 1. In step e: Configure base station 2 to have freq 3 and freq 2, with 3
5 Paging Channels on each frequency.
- 6 2. In step g and h: Swap freq 1 for freq 2.
- 7 3. In step j: Configure base station2 to send a *CDMA Channel List*
8 *Message* or an *Extended CDMA Channel List Message* on each of the
9 paging channels of each frequency with the frequency list inside the
10 message as follows: freq 3 followed by freq 2.
- 11 u. Repeat step a to t for scenarios 2 to 5 in Table 3.1.1.4-2.

12 3.6.1.5 Minimum Standard

13 The mobile station shall comply with the requirements in steps o and r.

14 3.6.2 Base Station Test

15 None

16 3.7 PCH+BCCH/FCCCH are available in neighbor base station, 17 NGHBR_CONFIG= '010', BCCH_IND_INCL= '0'

18 3.7.1 Mobile Station Test

19 3.7.1.1 Definition

20 This test verifies that idle handoff is successfully completed if the neighbor base station has
21 different number of frequencies with paging channels as current base station and there is a
22 frequency in the neighbor which has a primary paging channel. BCCH/FCCCH is also available in
23 the neighbor base station.

24 3.7.1.2 Traceability (See [4]):

25 2.6.2.1.4: *Idle handoff*

26 2.6.2.2.3: *Neighbor List Message*

27 2.6.2.2.7: *Extended Neighbor List Message*

28 2.6.2.2.8: *General Neighbor List Message*

29 3.7.2.3.2.3: *Neighbor List Message*

30 3.7.2.3.2.14: *Extended Neighbor List Message*

31 3.7.2.3.2.22: *General Neighbor List Message*

32 3.7.1.3 Call Flow Diagram

33 None

34 3.7.1.4 Method of Measurement

- 35 a. Set up test as shown in [Annex A Figure 2](#).

- 1 b. Set the test parameters as specified in Table 3.1.1.4-1.
- 2 c. Reverse link attenuation should be set to balance the forward and reverse links
- 3 (approximately 90 dB).
- 4 d. Configure base station 1 to support freq 1 with 2 Paging Channels (without BCCH).
- 5 Freq 1 and Freq 2 should be configured to frequency channels supported by the
- 6 mobile station.
- 7 e. Configure base station 2 to support freq 1 and freq 3 with 2 Paging Channels each.
- 8 Freq 3 should be configured to frequency channel supported by the mobile station.
- 9 f. Configure base station 2 to support freq 3 with 1 BCCH and 1 FCCCH associated
- 10 with this BCCH.
- 11 g. Instruct the base station 2 to send an *Extended System Parameters Message* of all
- 12 the paging channels on freq 1 and 3 with BCCH_SUPPORTED= '1'.
- 13 h. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List*
- 14 *Message* or *General Neighbor List Message* on each of the paging channels of freq 1
- 15 with NGHBR_CONFIG= '010', (FREQ_INCL= '0' if applicable), and only in *General*
- 16 *Neighbor List Message*, ensure BCCH_IND_INCL= '0'.
- 17 i. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended*
- 18 *CDMA Channel List Message* on each of the paging channels with freq 1.
- 19 j. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended*
- 20 *CDMA Channel List Message* on each of the paging channels of each frequency with
- 21 the frequency list inside the message as follows: freq 1 followed by freq 3.
- 22 k. Configure base station 2 to send an *Extended CDMA Channel List Message* with freq
- 23 3 on primary BCCH.
- 24 l. Power up the mobile station.
- 25 m. Instruct base station 1 to page the mobile station by sending the *General Page*
- 26 *Message*.
- 27 n. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 28 o. Raise the level of base station 2 and lower the level of base station 1 until the level of
- 29 base station 2 is at least 3 dB higher than that of base station 1.
- 30 p. Wait until the mobile station completes the idle handoff and then instruct base station
- 31 2 to page the mobile station on FCCCH of freq 3.
- 32 q. Verify that the mobile station sends a *Page Response Message* to base station 2 on
- 33 freq 3.
- 34 r. Adjust the level of base station 1 and 2 to the original setting.
- 35 s. Configure all the paging channels on the freq 1 of base station 1 according to
- 36 scenario 1 of Table 3.1.1.4-2. And in *General Neighbor List Message*, ensure
- 37 BCCH_IND_INCL= '0'.

- 1 t. Ensure that the mobile station has updated the overhead messages on freq 1 of base
2 station 1.
- 3 u. Raise the level of base station 2 and lower the level of base station 1 until the level of
4 base station 2 is at least 3 dB higher than that of base station 1.
- 5 v. Wait until the mobile station completes the idle handoff and then instruct base station
6 2 to page the mobile station on FCCCH of freq 3.
- 7 w. Verify that base station 2 receives a *Page Response Message* from the mobile
8 station on freq 3.
- 9 x. Repeat step a to w with the following modification:
- 10 1. In step p and v: Wait until the mobile station completes the idle handoff
11 and then instruct base station 2 to page the mobile station on the paging
12 channel on each frequency.
- 13 2. In step q and w: Verify that base station 2 does not receive a *Page*
14 *Response Message* from the mobile station.
- 15 y. Repeat step a to x for scenarios 2 to 5 in Table 3.1.1.4-2.

16 3.7.1.5 Minimum Standard

17 The mobile station shall comply with the requirements in stepsn, q and w.

18 3.7.2 Base Station Test

19 None

20 3.8 PCH+BCCH/FCCCH are available in neighbor base station, 21 BCCH_SUPPORT= '1' (e.g. NGHBR_CONFIG= '000')

22 3.8.1 Mobile Station Test

23 3.8.1.1 Definition

24 This test verifies that an idle handoff is successfully completed if the neighbor base station has
25 the same number of frequencies with paging channels as current base station and there is a
26 frequency in the neighbor which has the same number of paging channels as current CDMA
27 frequency assignment. BCCH/FCCCH is also available in the neighbor base station.

28 3.8.1.2 Traceability (See [4]):

29 2.6.2.1.4: *Idle handoff*

30 2.6.2.2.3: *Neighbor List Message*

31 2.6.2.2.7: *Extended Neighbor List Message*

32 2.6.2.2.8: *General Neighbor List Message*

33 3.7.2.3.2.3: *Neighbor List Message*

34 3.7.2.3.2.14: *Extended Neighbor List Message*

35 3.7.2.3.2.22: *General Neighbor List Message*

1 3.8.1.3 Call Flow Diagram

2 None

3 3.8.1.4 Method of Measurement

- 4 a. Set up test as shown in [Annex A Figure 2](#).
- 5 b. Set the test parameters as specified in Table 3.1.1.4-1.
- 6 c. Reverse link attenuation should be set to balance the forward and reverse links
7 (approximately 90 dB).
- 8 d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels
9 (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to
10 frequency channels supported by the mobile station.
- 11 e. Configure base station 2 to support freq 1 and freq 3, with 2 Paging Channels on
12 each frequency. Freq 3 should be configured to frequency channel supported by the
13 mobile station.
- 14 f. Configure base station 2 to support freq 3 with 1 primary BCCH and 1 FCCCH
15 associated with this BCCH.
- 16 g. Configure base station 1 to send a *General Neighbor List Message* on each of the
17 paging channels of freq 1 with NGHBR_CONFIG= '000', FREQ_INCL= '0',
18 BCCH_SUPPORT= '1'.
- 19 h. Configure all the paging channels on the freq 2 of base station 1 according to
20 scenario 1 of Table 3.1.1.4-2. And in *General Neighbor List Message*, ensure
21 BCCH_SUPPORT= '1'.
- 22 i. Configure base station 2 to send an *Extended CDMA Channel List Message* with freq
23 3 on primary BCCH.
- 24 j. Power up the mobile station.
- 25 k. Instruct base station 1 to page the mobile station by sending the *General Page*
26 *Message*.
- 27 l. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 28 m. Raise the level of base station 2 and lower the level of base station 1 until the level of
29 base station 2 is at least 3 dB higher than that of base station 1.
- 30 n. Wait until the mobile station completes the idle handoff and then instruct base station
31 2 to page the mobile station on FCCCH of freq 3.
- 32 o. Verify that the mobile station sends a *Page Response Message* to base station 2 on
33 freq 3.
- 34 p. Repeat step a to o with the following modification:
 - 35 1. In step n: Wait until the mobile station completes the idle handoff and
36 then instruct base station 2 to page the mobile station on the paging
37 channel on each frequency.

- 1 2. In step o: Verify that base station 2 does not receive a *Page Response*
2 *Message* from the mobile station.
- 3 q. Repeat step a to p except the following:
- 4 1. In step e: Configure base station 2 to have freq 3 and freq 2, with 2
5 Paging Channels on each frequency.
- 6 2. In step g and h: Swap freq 1 for freq 2.
- 7 r. Repeat step a to q for scenarios 2 to 5 in Table 3.1.1.4-2.

8 3.8.1.5 Minimum Standard

9 The mobile station shall comply with the requirements in steps l and o.

10 **3.8.2 Base Station Test**

11 None

12 **3.9 BCCH/FCCCH is available in neighbor base station,** 13 **NGHBR_CONFIG= '000'**

14 **3.9.1 Mobile Station test**

15 3.9.1.1 Definition

16 This test verifies that an idle handoff is successfully completed if the neighbor base station has
17 the same number of frequencies with primary BCCH/FCCCH as current base station and there is
18 a frequency in the neighbor which has the same number of FCCCH as current CDMA frequency
19 assignment.

20 3.9.1.2 Traceability (See [4]):

- 21 2.6.2.1.4: *Idle handoff*
- 22 2.6.2.2.3: *Neighbor List Message*
- 23 2.6.2.2.7: *Extended Neighbor List Message*
- 24 2.6.2.2.8: *General Neighbor List Message*
- 25 2.6.2.2.17: *Universal Neighbor List Message*
- 26 3.7.2.3.2.3: *Neighbor List Message*
- 27 3.7.2.3.2.14: *Extended Neighbor List Message*
- 28 3.7.2.3.2.22: *General Neighbor List Message*
- 29 3.7.2.3.2.34: *Universal Neighbor List Message*

30 3.9.1.3 Call Flow Diagram

31 None

32 3.9.1.4 Method of Measurement

- 33 a. Set up test as shown in [Annex A Figure 2](#).
- 34 b. Set the test parameters as specified in Table 3.1.1.4-1.

- 1 c. Reverse link attenuation should be set to balance the forward and reverse links
2 (approximately 90 dB).
- 3 d. Configure base station 1 to support freq 1 and freq 2, with 1 primary BCCH and 2
4 FCCCHs on each frequency.
- 5 e. Configure base station 2 to support freq 1 and freq 3, with 1 primary BCCH and 2
6 FCCCHs on each frequency.
- 7 f. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of
8 freq 1 with NGHBR_CONFIG= '000', FREQ_INCL= '0'.
- 9 g. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of
10 freq 2 with NGHBR_CONFIG= '000', FREQ_INCL= '1' and NGHBR_FREQ is set to
11 freq 3.
- 12 h. Configure base station 1 to send an *Extended CDMA Channel List Message* on the
13 BCCH of each frequency with the frequency list inside the message as follows: freq 1
14 followed by freq 2.
- 15 i. Configure base station 2 to send an *Extended CDMA Channel List Message* on the
16 BCCH of each frequency with the frequency list inside the message as follows: freq 1
17 followed by freq 3.
- 18 j. Power up the mobile station.
- 19 k. Instruct base station 1 to page the mobile station by sending the *General Page*
20 *Message*.
- 21 l. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 22 m. Raise the level of base station 2 and lower the level of base station 1 until the level of
23 base station 2 is at least 3 dB higher than that of base station 1.
- 24 n. Wait until the mobile station completes the idle handoff and then instruct base station
25 2 to page the mobile station on the hashed (freq, FCCCH).
- 26 o. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 27 p. Repeat step a to o with the following modification:
- 28 1. In step n: Wait until the mobile station completes the idle handoff and
29 then instruct base station 2 to page the mobile station on a (freq,
30 FCCCH) pair other than the hashed (freq, FCCCH).
- 31 2. In step o: Verify that the mobile station does not send a *Page Response*
32 *Message* to base station 2.
- 33 q. Repeat step a to p except the following:
- 34 1. In step e: Configure base station 2 to have freq 3 and freq 2, with 1
35 primary BCCH and 2 FCCCHs on each frequency.
- 36 2. In step f and g: Swap freq 1 for freq 2.
- 37 3. In step i: Configure base station 2 to send an *Extended CDMA Channel*
38 *List Message* on the BCCH of each frequency with the frequency list

1 inside the message as follows: freq 3 followed by freq 2.

2 3.9.1.5 Minimum Standard

3 The mobile station shall comply with the requirements in steps l and o.

4 **3.9.2 Base Station Test**

5 None

6 **3.10 BCCH/FCCCH is available in neighbor base station,** 7 **NGHBR_CONFIG= '010'**

8 **3.10.1 Mobile Station Test**

9 3.10.1.1 Definition

10 This test verifies that an idle handoff is successfully completed if the neighbor base station has
11 different number of frequencies with primary BCCH/FCCCH as current base station and there is a
12 frequency in the neighbor, which has a primary BCCH.

13 3.10.1.2 Traceability (See [4]):

14 2.6.2.1.4: *Idle handoff*

15 2.6.2.2.3: *Neighbor List Message*

16 2.6.2.2.7: *Extended Neighbor List Message*

17 2.6.2.2.8: *General Neighbor List Message*

18 2.6.2.2.17: *Universal Neighbor List Message*

19 3.7.2.3.2.3 : *Neighbor List Message*

20 3.7.2.3.2.14: *Extended Neighbor List Message*

21 3.7.2.3.2.22: *General Neighbor List Message*

22 3.7.2.3.2.34: *Universal Neighbor List Message*

23 3.10.1.3 Call Flow Diagram

24 None

25 3.10.1.4 Method of Measurement

- 26 a. Set up test as shown in [Annex A Figure 2](#).
- 27 b. Set the test parameters as specified in Table 3.1.1.4-1.
- 28 c. Reverse link attenuation should be set to balance the forward and reverse links
29 (approximately 90 dB).
- 30 d. Configure base station 1 to support freq 1 with 1 primary BCCH and 2 FCCCHs on
31 each frequency. Freq 1 and Freq 2 should be configured to frequency channels
32 supported by the mobile station.
- 33 e. Configure base station 2 to support freq 1 and freq 3, with 1 primary BCCH and 2
34 FCCCHs on each frequency. Freq 3 should be configured to frequency channel
35 supported by the mobile station.

- 1 f. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of
2 freq 1 with NGHBR_CONFIG= '010', FREQ_INCL= '0'.
- 3 g. Configure base station 1 to send an *Extended CDMA Channel List Message* with freq
4 1.
- 5 h. Configure base station 2 to send an *Extended CDMA Channel List Message* on the
6 BCCH of each frequency with the frequency list inside the message as follows: freq 1
7 followed by freq 3.
- 8 i. Power up the mobile station.
- 9 j. Instruct base station 1 to page the mobile station by sending the *General Page*
10 *Message*.
- 11 k. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 12 l. Raise the level of base station 2 and lower the level of base station 1 until the level of
13 base station 2 is at least 3 dB higher than that of base station 1.
- 14 m. Wait until the mobile station completes the idle handoff and then instruct base station
15 2 to page the mobile station on the hashed (freq, FCCCH).
- 16 n. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 17 o. Adjust the level of base station 1 and base station 2 to the original.
- 18 p. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of
19 freq 1 with NGHBR_CONFIG= '010', FREQ_INCL= '1' and NGHBR_FREQ is set to
20 be freq 3.
- 21 q. Ensure that the mobile station has updated all the overhead messages of the BCCH
22 of freq 1 of base station 1.
- 23 r. Raise the level of base station 2 and lower the level of base station 1 until the level of
24 base station 2 is at least 3 dB higher than that of base station 1.
- 25 s. Wait until the mobile station completes the idle handoff and then instruct base station
26 2 to page the mobile station on the hashed (freq, FCCCH).
- 27 t. Verify the mobile station sends a *Page Response Message* to base station 2.
- 28 u. Repeat step a to t with the following modification:
- 29 1. In step m and s: Wait until the mobile station completes the idle handoff
30 and then instruct base station 2 to page the mobile station on a (freq,
31 FCCCH) pair other than the hashed (freq, FCCCH).
- 32 2. In step n and t: Verify that the mobile station does not send a *Page*
33 *Response Message* to base station 2.

34 3.10.1.5 Minimum Standard

35 The mobile station shall comply with the requirements in steps n and t.

1 **3.10.2 Base Station Test**

2 None

3 **3.11 BCCH/FCCCH is available in neighbor base station,**
4 **NGHBR_CONFIG= '100'**

5 **3.11.1 Mobile Station Test**

6 3.11.1.1 Definition

7 This test verifies that an idle handoff is successfully completed if the neighbor base station has
8 the same number of frequencies with primary BCCH/FCCCH as current base station and there is
9 a frequency in the neighbor, which has a primary BCCH.

10 3.11.1.2 Traceability (See [4]):

11 *2.6.2.1.4: Idle handoff*

12 *2.6.2.2.3: Neighbor List Message*

13 *2.6.2.2.7: Extended Neighbor List Message*

14 *2.6.2.2.8: General Neighbor List Message*

15 *2.6.2.2.17: Universal Neighbor List Message*

16 *3.7.2.3.2.3: Neighbor List Message*

17 *3.7.2.3.2.14: Extended Neighbor List Message*

18 *3.7.2.3.2.22: General Neighbor List Message*

19 *3.7.2.3.2.34: Universal Neighbor List Message*

20 3.11.1.3 Call Flow Diagram

21 None

22 3.11.1.4 Method of Measurement

- 23 a. Set up test as shown in [Annex A Figure 2](#).
- 24 b. Set the test parameters as specified in Table 3.1.1.4-2.
- 25 c. Reverse link attenuation should be set to balance the forward and reverse links
26 (approximately 90 dB).
- 27 d. Configure base station 1 to support freq 1 and freq 2, with 1 primary BCCH and 2
28 FCCCHs on each frequency. Freq 1 and Freq 2 should be configured to frequency
29 channels supported by the mobile station.
- 30 e. Configure base station 2 to support freq 1 and freq 3, with 1 primary BCCH and 3
31 FCCCHs on each frequency. Freq 3 should be configured to frequency channel
32 supported by the mobile station. Moreover, configure the data rate of these 3
33 FCCCHs to be different from that of 2 FCCCHs in base station 1.
- 34 f. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of
35 freq 1 with NGHBR_CONFIG= '100', FREQ_INCL= '0'.

- 1 g. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of
2 freq 2 with NGHBR_CONFIG= '100', FREQ_INCL= '1' and NGHBR_FREQ is set to
3 freq 3.
- 4 h. Configure base station 1 to send an *Extended CDMA Channel List Message* on the
5 BCCH of each frequency with the frequency list inside the message as follows: freq 1
6 followed by freq 2.
- 7 i. Configure base station 2 to send an *Extended CDMA Channel List Message* on the
8 BCCH of each frequency with the frequency list inside the message as follows: freq 1
9 followed by freq 3.
- 10 j. Power up the mobile station.
- 11 k. Instruct base station 1 to page the mobile station by sending the *General Page*
12 *Message*.
- 13 l. Verify the mobile station sends a *Page Response Message* to base station 1.
- 14 m. Raise the level of base station 2 and lower the level of base station 1 until the level of
15 base station 2 is at least 3 dB higher than that of base station 1.
- 16 n. Wait until the mobile station completes the idle handoff and then instruct base station
17 2 to page the mobile station on the hashed (freq, FCCCH).
- 18 o. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 19 p. Repeat step a to o with the following modification:
 - 20 1. In step n: Wait until the mobile station completes the idle handoff and
21 then instruct base station 2 to page the mobile station on a (freq,
22 FCCCH) pair other than the hashed (freq, FCCCH).
 - 23 2. In step o: Verify that the mobile station does not send a *Page Response*
24 *Message* to BS 2.
- 25 q. Repeat step a to p except the following:
 - 26 1. In step e: Configure base station 2 to have freq 3 and freq 2, with 1
27 primary BCCH and 3 FCCCHs on each frequency.
 - 28 2. In step f and g: Swap freq 1 for freq 2.
 - 29 3. In step i: Configure base station2 to send an *Extended CDMA Channel*
30 *List Message* on the BCCH of each frequency with the frequency list
31 inside the message as follows: freq 3 followed by freq 2.

32 3.11.1.5 Minimum Standard

33 The mobile station shall comply with the requirement in step o.

34 3.11.2 Base Station Test

35 None

1 **3.12 PCH ONLY is available in neighbor base station,** 2 **NGHBR_CONFIG= '001'**

3 **3.12.1 Mobile Station Test**

4 3.12.1.1 Definition

5 This test verifies that an idle handoff is successfully completed if the neighbor base station has no
 6 frequency with primary BCCH and the same number of frequencies with PCH as the current base
 7 with BCCH. There is a frequency in the neighbor, which has different number of PCH from the
 8 number of FCCCHs of the current base station.

9 3.12.1.2 Traceability (See [4]):

10 *2.6.2.1.4: Idle handoff*

11 *2.6.2.2.3: Neighbor List Message*

12 *2.6.2.2.7: Extended Neighbor List Message*

13 *2.6.2.2.8: General Neighbor List Message*

14 *2.6.2.2.17: Universal Neighbor List Message*

15 *3.7.2.3.2.3: Neighbor List Message*

16 *3.7.2.3.2.14: Extended Neighbor List Message*

17 *3.7.2.3.2.22: General Neighbor List Message*

18 *3.7.2.3.2.34: Universal Neighbor List Message*

19 3.12.1.3 Call Flow Diagram

20 None

21 3.12.1.4 Method of Measurement

- 22 a. Set up test as shown in [Annex A Figure 2](#).
- 23 b. Set the test parameters as specified in Table 3.1.1.4-1.
- 24 c. Reverse link attenuation should be set to balance the forward and reverse links
 25 (approximately 90 dB).
- 26 d. Configure base station 1 to support freq 1 and freq 2, with 1 primary BCCH and 2
 27 FCCCHs on each frequency. Freq 1 and Freq 2 should be configured to frequency
 28 channels supported by the mobile station.
- 29 e. Configure base station 2 to support freq 1 and freq 3, with 2 PCHs on each
 30 frequency. Freq 3 should be configured to frequency channel supported by the
 31 mobile station.
- 32 f. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of
 33 freq 1 with NGHBR_CONFIG= '001', FREQ_INCL= '0'.
- 34 g. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of
 35 freq 2 with NGHBR_CONFIG= '001', FREQ_INCL= '1' and NGHBR_FREQ is set to
 36 freq 3.

- 1 h. Configure base station 1 to send an *Extended CDMA Channel List Message* on the
2 BCCH of each frequency with the frequency list inside the message as follows: freq 1
3 followed by freq 2.
- 4 i. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended*
5 *CDMA Channel List Message* on each paging channel of each frequency with the
6 frequency list inside the message as follows: freq 1 followed by freq 3.
- 7 j. Power up the mobile station.
- 8 k. Instruct base station 1 to page the mobile station by sending the *General Page*
9 *Message*.
- 10 l. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 11 m. Raise the level of base station 2 and lower the level of base station 1 until the level of
12 base station 2 is at least 3 dB higher than that of base station 1.
- 13 n. Wait until the mobile station completes the idle handoff and then instruct base station
14 2 to page the mobile station on the hashed (freq, PCH).
- 15 o. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 16 p. Repeat step a to o with the following modification:
 - 17 1. In step n: Wait until the mobile station completes the idle handoff and
18 then instruct base station 2 to page the mobile station on a (freq, PCH)
19 pair other than the hashed (freq, PCH).
 - 20 2. In step o: Verify that the mobile station does not send a *Page Response*
21 *Message* to base station 2.
- 22 q. Repeat step a to p except the following:
 - 23 1. In step e: Configure base station 2 to have freq 3 and freq 2, with 3
24 PCHs on each frequency.
 - 25 2. In step f and g: Swap freq 1 for freq 2.
 - 26 3. In step i: Configure base station 2 to send a *CDMA Channel List*
27 *Message* or an *Extended CDMA Channel List Message* on each paging
28 channel of each frequency with the frequency list inside the message as
29 follows: freq 3 followed by freq 2.

30 3.12.1.5 Minimum Standard

31 The mobile station shall comply with the requirements in steps l and o.

32 3.12.2 Base Station Test

33 None

1 **3.13 Only pilots are known in neighbor base station,** 2 **NGHBR_CONFIG= '011'**

3 **3.13.1 Mobile Station Test**

4 3.13.1.1 Definition

5 This test verifies an idle handoff correctly if the current base station has no knowledge of
 6 neighbor base station except pilot.

7 3.13.1.2 Traceability (See [4]):

8 *2.6.2.1.4: Idle handoff*

9 *2.6.2.2.3: Neighbor List Message*

10 *2.6.2.2.7: Extended Neighbor List Message*

11 *2.6.2.2.8: General Neighbor List Message*

12 *2.6.2.2.17: Universal Neighbor List Message*

13 *3.7.2.3.2.3: Neighbor List Message*

14 *3.7.2.3.2.14: Extended Neighbor List Message*

15 *3.7.2.3.2.22: General Neighbor List Message*

16 *3.7.2.3.2.34: Universal Neighbor List Message*

17 3.13.1.3 Call Flow Diagram

18 None

19 3.13.1.4 Method of Measurement

- 20 a. Set up test as shown in [Annex A Figure 2](#).
- 21 b. Set the test parameters as specified in Table 3.1.1.4-1.
- 22 c. Reverse link attenuation should be set to balance the forward and reverse links
 23 (approximately 90 dB).
- 24 d. Configure base station 1 to support freq 1, with 1 Primary BCCH and 1 FCCCH on
 25 this frequency. Freq 1 and Freq 2 should be configured to frequency channels
 26 supported by the mobile station.
- 27 e. Configure base station 2 to support freq 1 and freq 3, with a primary BCCH/FCCCH
 28 on each frequency. Freq 3 should be configured to frequency channel supported by
 29 the mobile station.
- 30 f. Configure base station 1 to send a *Universal Neighbor List Message* on the primary
 31 BCCH of freq 1 with NGHBR_CONFIG= '011', FREQ_INCL= '0'.
- 32 g. Power up the mobile station.
- 33 h. Instruct base station 1 to page the mobile station by sending the *General Page*
 34 *Message*.
- 35 i. Verify that the mobile station sends a *Page Response Message* to base station 1.
- 36 j. Raise the level of base station 2 and lower the level of base station 1 until the level of
 37 base station 2 is at least 3 dB higher than that of base station 1.

- 1 k. Wait until the mobile station completes the idle handoff and then instruct the base
- 2 station 2 to page the mobile station on the hashed (freq, FCCCH).
- 3 l. Verify that the mobile station sends a *Page Response Message* to BS 2.
- 4 m. Adjust the level of base station 1 and base station 2 to the original setting.
- 5 n. Configure base station 1 to send a *Universal Neighbor List Message* on the primary
- 6 BCCH of freq 1 with NGHBR_CONFIG= '011', FREQ_INCL= '1' and NGHBR_FREQ
- 7 is set to be freq 3.
- 8 o. Ensure that a mobile station has updated all the overhead message of the Primary
- 9 BCCH on freq 1 of base station 1.
- 10 p. Raise the level of base station 2 and lower the level of base station 1 until the level of
- 11 BS 2 is at least 3 dB higher than that of BS 1.
- 12 q. Wait until the mobile station completes the idle handoff and then instruct the base
- 13 station 2 to page the mobile station on the hashed (freq, FCCCH).
- 14 r. Verify that the mobile station sends a *Page Response Message* to base station 2.
- 15 s. Repeat step a to r with the following modification:
- 16 1. In step k and q: Wait until the mobile station completes the idle handoff
- 17 and then instruct base station 2 to page the mobile station on a (freq,
- 18 FCCCH) pair other than the hashed (freq, FCCCH).
- 19 2. In step l and r: Verify that the mobile station does not send a *Page*
- 20 *Response Message* to base station 2.

21 3.13.1.5 Minimum Standard

22 The mobile station shall comply with the requirements in steps l and r.

23 3.13.2 Base Station test

24 None

25 3.14 Search Window Size and Offset (Idle State)

26 3.14.1 Mobile Station Test

27 3.14.1.1 Definition

28 The mobile station is operating in idle state and monitoring sector α of base station #1. Delay is

29 applied to both sector β of base station #1 and base station #2. The level of neighbor pilots are

30 raised sufficiently high to ensure an idle handoff is possible.

31

32 In section 3.14.1.4.1, the pilot strength measurements of base station #2 and sector β of base

33 station #1 are checked against the search window size and search window offset settings for

34 each of the neighbor pilots. If the delay is greater than the search window size for the neighbor

35 pilot then the mobile station shall not an idle handoff to that neighbor pilot.

36

1 In section 3.14.1.4.2, the pilot strength measurements of base station #2 and sector B of base
 2 station #1 are checked against a common search window size (i.e. SRCH_WIN_N). If the delay is
 3 greater than the search window size for the neighbor pilot then the mobile station shall not an idle
 4 handoff to that neighbor pilot.

5 Formulas

$$6 \text{ Num_Chips} = \text{Set_Chip_Offset} - \text{Sim_Chip_Offset} \\ \frac{\text{Num_chip} \times 244\text{m}}{300\text{m}/\mu\text{s}}$$

$$7 \text{ Chip_Delay } (\mu\text{s}) = \frac{300\text{m}}{\mu\text{s}}$$

8 Set_Chip_Offset is the desired number of chip offsets for a particular test case. Sim_Chip_Offset
 9 is the inherent delay for a pilot due to the time alignment/calibration of the equipment. Chip_Delay
 10 is the actual delay in usec the tester should vary with the test equipment (e.g. fader) to achieve
 11 the proper Set_Chip_Offset (this includes the inherent delay measured for Sim_Chip_Offset.
 12 When properly adjusted, the Set_Chip_Offset should equal to the neighbor pilot's chip offset from
 13 zero chip delay.

14 3.14.1.2 Traceability (See [4]):

15 2.6.6: Handoff Procedures

16 2.6.6.2.1: Pilot Search

17 Table 2.6.6.2.1: Search Window Sizes

18 Table 2.6.6.2.1-2: Search Window Offset

19 3.6.6: Handoff Procedures

20 3.7.2.3.2.1: System Parameters Message

21 3.7.2.3.2.22: General Neighbor List Message

22 3.7.2.3.2.34: Universal Neighbor List Message

23 3.14.1.3 Call Flow Example(s)

24 3.14.1.4 Method of Measurement

25 3.14.1.4.1 Method of Measurement with NGHBR_SRCH_MODE = '10' 26 (search window size per neighbor)

27 **Table 3.14.1.4.1-1 Test Cases for NGHBR_SRCH_MODE='10' (Idle State)**

Test Case #	Neighbor Message	P2 win size	P2 win offset	P2 Set_Chip_Offset	P3 win size	P3 win offset	P3 Set_Chip_Offset
1	GNLM	7	0	P3 win/4 +P3 offset	9	0	P3 win/4 +P3 offset
2	GNLM	7	0	P3 win/2 +P3 offset	9	0	P3 win/2 +P3 offset
3	GNLM	7	0	P3 win/2 +P3 offset +10 chips	9	0	P3 win/2 +P3 offset +10 chips
4	GNLM	7	0	P3 win/2 +P3 offset	7	1	P3 win/2 +P3 offset
5	GNLM	7	0	P3 win/2	7	4	P3 win/2

6	GNLM	8	0	P3 win/4 +P3 offset	10	0	P3 win/4 +P3 offset
7	GNLM	8	0	P3 win/2 +P3 offset	10	0	P3 win/2 +P3 offset
8	GNLM	8	0	P3 win/2 +P3 offset +10 chips	10	0	P3 win/2 +P3 offset +10 chips
9	GNLM	11	0	P3 win/4 +P3 offset	13	0	P3 win/4 +P3 offset
10	GNLM	11	0	P3 win/2 +P3 offset	13	0	P3 win/2 +P3 offset
11	GNLM	11	0	P3 win/2 +P3 offset +10 chips	13	0	P3 win/2 +P3 offset +10 chips
12	GNLM	12	0	P3 win/4 +P3 offset	14	0	P3 win/4 +P3 offset
13	GNLM	12	0	P3 win/2 +P3 offset	14	0	P3 win/2 +P3 offset
14	GNLM	12	0	P3 win/2 +P3 offset +10 chips	14	0	P3 win/2 +P3 offset +10 chips
15	GNLM	13	0	P3 win/4 +P3 offset	15	0	P3 win/4 +P3 offset
16	GNLM	13	0	P3 win/2 +P3 offset	15	0	P3 win/2 +P3 offset
17	GNLM	13	0	P3 win/2 +P3 offset +10 chips	15	0	P3 win/2 +P3 offset +10 chips
18	UNLM	7	0	P3 win/4 +P3 offset	9	0	P3 win/4 +P3 offset
19	UNLM	7	0	P3 win/2 +P3 offset	9	0	P3 win/2 +P3 offset
20	UNLM	7	0	P3 win/2 +P3 offset +10 chips	9	0	P3 win/2 +P3 offset +10 chips
21	UNLM	7	0	P3 win/2 +P3 offset	7	1	P3 win/2 +P3 offset
22	UNLM	7	0	P3 win/2	7	4	P3 win/2
23	UNLM	8	0	P3 win/4 +P3 offset	10	0	P3 win/4 +P3 offset
24	UNLM	8	0	P3 win/2 +P3 offset	10	0	P3 win/2 +P3 offset

25	UNLM	8	0	P3 win/2 +P3 offset +10 chips	10	0	P3 win/2 +P3 offset +10 chips
26	UNLM	11	0	P3 win/4 +P3 offset	13	0	P3 win/4 +P3 offset
27	UNLM	11	0	P3 win/2 +P3 offset	13	0	P3 win/2 +P3 offset
28	UNLM	11	0	P3 win/2 +P3 offset +10 chips	13	0	P3 win/2 +P3 offset +10 chips
29	UNLM	12	0	P3 win/4 +P3 offset	14	0	P3 win/4 +P3 offset
30	UNLM	12	0	P3 win/2 +P3 offset	14	0	P3 win/2 +P3 offset
31	UNLM	12	0	P3 win/2 +P3 offset +10 chips	14	0	P3 win/2 +P3 offset +10 chips
32	UNLM	13	0	P3 win/4 +P3 offset	15	0	P3 win/4 +P3 offset
33	UNLM	13	0	P3 win/2 +P3 offset	15	0	P3 win/2 +P3 offset
34	UNLM	13	0	P3 win/2 +P3 offset +10 chips	15	0	P3 win/2 +P3 offset +10 chips

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a. Set up test as shown in [Annex A Figure 3](#).

1. The Forward Channel from sector α of base station #1 has an arbitrary pilot PN offset index P1 and is called Channel 1.
2. The Forward Channel from sector β of base station #1 has an arbitrary pilot PN offset index P2 and is called Channel 2.
3. The Forward Channel from base station #2 has an arbitrary pilot PN offset index P3 and is called Channel 3.

b. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

c. Set the following values in the *General Neighbor List Message* (GNLM):

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)

NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

1

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHR	7 (40 chips)
SRCH_OFFSET_NGHR	0 (no offset)

2

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHR	9 (80 chips)
SRCH_OFFSET_NGHR	0 (no offset)

3

- 4 d. Determine the inherent delay of the channel simulator (i.e. Sim_Chip_Offset).
- 5 e. For Tests 1, 6, 9, 12, 15, 18, 23, 26, 29 and 32, set the delay on both Channel 2 and
- 6 on Channel 3 to a Chip_Delay such that Set_Chip_Offset =(SRCH_WIN_NGHR of
- 7 P3)/4 + SRCH_OFFSET_NGHR of P3 (i.e Set_Chip_Offset of P2 is equal to
- 8 Set_Chip_Offset of P3).
- 9 f. Set the test parameters as specified in Table 3.14.1.4.1-2 for state S1 in all 3
- 10 channels.

11

Table 3.14.1.4.1-2 Test Parameters for Search Window per Neighbor (Idle State)

Parameter	Unit	Channel 1	Channel 2	Channel 3
$\hat{I}_{or/loc}$	dB	1 (S1 and S2)	-20 for S1 5 for S2	-20 for S1 5 for S2
Pilot Ec/Ior	dB	-7	-7	-7
Traffic Ec/Ior	dB	-7	-7	-7
loc	dBm/1.23 MHz	-75	-75	-75
Pilot Ec/Io	dB	-9.6 for S1 -13.3 for S2	-30.6 for S1 -9.3 for S2	-30.6 for S1 -9.3 for S2

12

13 Note: The Pilot Ec/Io value is calculated from the parameters set in the table. It is not a settable
14 parameter itself.

15

- 15 g. Allow the mobile station to monitor Channel 1 while in idle state.
- 16 h. Raise the level of Channel 2 to $\hat{I}_{or/loc} = +5$ dB (State S2 for Channel 2 in Table
- 17 3.14.1.4.1-2).
- 18 i. Reset the test parameter as specified in Table 3.10.3.1-2 for state S1 in all 3
- 19 channels.
- 20 j. Raise the level of Channel 3 to $\hat{I}_{or/loc} = +5$ dB (State S2 for Channel 3 in Table
- 21 3.14.1.4.1-2).
- 22 k. Verify the following:

- 1 1. The mobile station shall perform an idle handoff to Channel 2 in step h.
- 2 2. The mobile station shall perform an idle handoff to Channel 3 in step j.
- 3 l. For Tests 2, 7 10, 13, 16, 19, 24, 27, 30 and 33, set the delay on both Channel 2 and
- 4 Channel 3 to a Chip_Delay such that $\text{Set_Chip_Offset} = (\text{SRCH_WIN_NGHBR of}$
- 5 $\text{P3})/2 + \text{SRCH_OFFSET_NGHBR of P3}$.
- 6 m. Repeat steps f to j.
- 7 n. Verify the following:
- 8 1. The mobile station shall not perform an idle handoff to Channel 2 in step
- 9 h.
- 10 2. The mobile station shall perform an idle handoff to Channel 2 in step j.
- 11 o. For Tests 3, 8, 11, 14, 17, 20, 25, 28, 31 and 34, set the delay on both Channel 2
- 12 and Channel 3 to a Chip_Delay such that $\text{Set_Chip_Offset} = (\text{SRCH_WIN_NGHBR}$
- 13 of $\text{P3})/2 + \text{SRCH_OFFSET_NGHBR of P3} + 10$ chips.
- 14 p. Repeat steps f to j.
- 15 q. Verify that the mobile station does not perform an idle handoff(s) in either step h or j.
- 16 r. Set the following values in the *General Neighbor List Message*:

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

18

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

19

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	1 (window_size/2)

20

21

- 22 s. For Tests 4 and 21, set the delay on both Channel 2 and Channel 3 to a Chip_Delay
- 23 such that $\text{Set_Chip_Offset} = (\text{SRCH_WIN_NGHBR of P3})/2 +$
- 24 $\text{SRCH_OFFSET_NGHBR of P3}$.
- 25 t. Repeat steps g to k.

- 1 u. Verify the following:
- 2 1. The mobile station shall not perform an idle handoff to Channel 2 in step
- 3 h.
- 4 2. The mobile station shall perform an idle handoff to Channel 3 in step j.
- 5 v. Set the following values in the *General Neighbor List Message*:

6

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

7

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

8

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	4 (-window_size/2)

- 9
- 10
- 11 w. For Tests 5 and 22, set the delay on both Channel 2 and Channel 3 to a Chip_Delay
- 12 such that $\text{Set_Chip_Offset} = (\text{SRCH_WIN_NGHBR of P3})/2$.
- 13 x. Repeat steps g to k.
- 14 y. Verify the following:
- 15 1. The mobile station shall perform an idle handoff to Channel 2 in step h.
- 16 2. The mobile station shall not perform an idle handoff to Channel 3 in step
- 17 j.
- 18 z. For Tests 6, 7 and 8 repeat steps b to r with the following changes to the *General*
- 19 *Neighbor List Message*.

20

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

21

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	8 (60 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

1

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	10 (100 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

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aa. For Tests 9, 10 and 11 repeat steps b to r with the following changes to the *General Neighbor List Message*.

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

7

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	11 (130 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

8

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	13 (226 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

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bb. For Tests 12, 13 and 14 repeat steps b to r with the following changes to the *General Neighbor List Message*.

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

13

Neighbor Setting for P2	
NGHBR_PN	P2

SRCH_WIN_NGHR	12 (160 chips)
SRCH_OFFSET_NGHR	0 (no offset)

1

Neighbor Setting for P3	
NGHR_PN	P3
SRCH_WIN_NGHR	14 (320 chips)
SRCH_OFFSET_NGHR	0 (no offset)

2

3 cc. For Tests 15, 16 and 17 repeat steps b to r with the following changes to the *General*
 4 *Neighbor List Message*.

5

Field	Value
NGHR_CONFIG_PN_INCL	1 (for GNLM only)
NGHR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

6

Neighbor Setting for P2	
NGHR_PN	P2
SRCH_WIN_NGHR	13 (226 chips)
SRCH_OFFSET_NGHR	0 (no offset)

7

Neighbor Setting for P3	
NGHR_PN	P3
SRCH_WIN_NGHR	15 (452 chips)
SRCH_OFFSET_NGHR	0 (no offset)

8

9 dd. For Tests 18 to 22 repeat Tests 1 to 5, correspondingly with the exception that
 10 *Universal Neighbor List Message* is used instead of the *General Neighbor List*
 11 *Message*.

12 ee. For Tests 23, 24 and 25 repeat Tests 6, 7 and 8, correspondingly with the exception
 13 that *Universal Neighbor List Message* is used instead of the *General Neighbor List*
 14 *Message*.

15 ff. For Tests 26, 27 and 28 repeat Tests 9, 10 and 11, correspondingly with the
 16 exception that *Universal Neighbor List Message* is used instead of the *General*
 17 *Neighbor List Message*.

18 gg. For Tests 29, 30 and 31 repeat Tests 12, 13 and 14, correspondingly with the
 19 exception that *Universal Neighbor List Message* is used instead of the *General*
 20 *Neighbor List Message*.

1 hh. For Tests 32, 33 and 34 repeat Tests 15, 16 and 17, correspondingly with the
 2 exception that *Universal Neighbor List Message* is used instead of the *General*
 3 *Neighbor List Message*.

4 3.14.1.4.2 Method of Measurement with NGHBR_SRCH_MODE = '00' (same
 5 search window size for all neighbor)

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Table 3.14.1.4.2-1 Test Cases for NGHBR_SRCH_MODE='00' (Idle State)

Test Case #	Neighbor Message	P2 win size	P2 Set_Chip_Offset	P3 win size	P3 Set_Chip_Offset
1	GNLM	7	SRCH_Win_N/2	7	SRCH_WIN_N/4
2	GNLM	7	SRCH_Win_N/2 + 10 chips	7	SRCH_WIN_N/4 + 10 chips
3	GNLM	10	SRCH_Win_N/2	10	SRCH_WIN_N/4
4	GNLM	10	SRCH_Win_N/2 + 10 chips	10	SRCH_WIN_N/4 + 10 chips
5	GNLM	13	SRCH_Win_N/2	13	SRCH_WIN_N/4
6	GNLM	13	SRCH_Win_N/2 + 10 chips	13	SRCH_WIN_N/4 + 10 chips
7	GNLM	14	SRCH_Win_N/2	14	SRCH_WIN_N/4
8	GNLM	14	SRCH_Win_N/2 + 10 chips	14	SRCH_WIN_N/4 + 10 chips
9	GNLM	15	SRCH_Win_N/2	15	SRCH_WIN_N/4
10	GNLM	15	SRCH_Win_N/2 + 10 chips	15	SRCH_WIN_N/4 + 10 chips
11	UNLM	7	SRCH_Win_N/2	7	SRCH_WIN_N/4
12	UNLM	7	SRCH_Win_N/2 + 10 chips	7	SRCH_WIN_N/4 + 10 chips
13	UNLM	10	SRCH_Win_N/2	10	SRCH_WIN_N/4

14	UNLM	10	SRCH_Win_N/2 + 10 chips	10	SRCH_WIN_N/4 + 10 chips
15	UNLM	13	SRCH_Win_N/2	13	SRCH_WIN_N/4
16	UNLM	13	SRCH_Win_N/2 + 10 chips	13	SRCH_WIN_N/4 + 10 chips
17	UNLM	14	SRCH_Win_N/2	14	SRCH_WIN_N/4
18	UNLM	14	SRCH_Win_N/2 + 10 chips	14	SRCH_WIN_N/4 + 10 chips
19	UNLM	15	SRCH_Win_N/2	15	SRCH_WIN_N/4
20	UNLM	15	SRCH_Win_N/2 + 10 chips	15	SRCH_WIN_N/4 + 10 chips

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- a. Set up test as shown in [Annex A Figure 3](#).
 - 1. The Forward Channel from sector α of base station #1 has an arbitrary pilot PN offset index P1 and is called Channel 1.
 - 2. The Forward Channel from sector β of base station #1 has an arbitrary pilot PN offset index P2 and is called Channel 2.
 - 3. The Forward Channel from base station #2 has an arbitrary pilot PN offset index P3 and is called Channel 3.
- b. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).
- c. Set the following value in the *System Parameters Message*:

Field	Value
SRCH_WIN_N	7 (40 chips)

- d. Set the following values in the *General Neighbor List Message*:

Field	Value
NGHBR_SRCH_MODE	'00'

- e. For Tests 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19, set the delay on Channel 2 to a Chip_Delay such that Set_Chip_Offset of P2 =SRCH_WIN_N/2, and set the delay on Channel 3 to a Chip_Delay such that Set_Chip_Offset=SRCH_WIN_N/4.

- 1 f. Set the test parameters as specified in Table 3.14.1.4.1-2 for state S1 in all 3
2 channels.
- 3 g. Allow the mobile station to monitor Channel 1 while in idle state.
- 4 h. Raise the level of Channel 2 to $\hat{I}_{or}/I_{oc} = +5$ dB (State S2 for Channel 2 in Table
5 4.5.1.4.1-2).
- 6 i. Reset the test parameter as specified in Table 3.10.3.1-2 for state S1 in all 3
7 channels.
- 8 j. Raise the level of Channel 3 to $\hat{I}_{or}/I_{oc} = +5$ dB (State S2 for Channel 3 in Table
9 4.5.1.4.1-2).
- 10 k. Verify the following:
- 11 1. The mobile station shall perform an idle handoff to Channel 2 in step h.
12 2. The mobile station shall perform an idle handoff to Channel 2 in step j.
- 13 l. For Tests 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20, set the delay on Channel 2 to a
14 Chip_Delay such that Set_Chip_Offset of P2 $= (SRCH_WIN_N/2) + 10$ chips, and set
15 the delay on Channel 3 to a Chip_Delay such that
16 Set_Chip_Offset $= (SRCH_WIN_N/4) + 10$ chips.
- 17 m. Repeat steps f to j.
- 18 n. Verify the following:
- 19 1. The mobile station shall not perform an idle handoff to Channel 2 in step
20 h.
21 2. The mobile station shall perform an idle handoff to Channel 2 in step j.
- 22 o. For Tests 3 and 4 repeat steps b to n with SRCH_WIN_N set to 10 (100 chips).
- 23 p. For Tests 5 and 6 repeat steps b to n with SRCH_WIN_N set to 13 (226 chips).
- 24 q. For Tests 7 and 8 repeat steps b to n with SRCH_WIN_N set to 14 (320 chips).
- 25 r. For Tests 9 and 10 repeat steps b to n with SRCH_WIN_N set to 15 (452 chips).
- 26 s. Set the following values in the *Universal Neighbor List Message*:
- | Field | Value |
|-----------------|--------------|
| NGHBR_SRCH_MODE | '00' |
| SRCH_WIN_N | 7 (40 Chips) |
- 27
- 28 t. For Tests 11 and 12 repeat steps b to n using parameter values in step t sent over
29 the *Universal Neighbor List Message* instead of the *General Neighbor List Message*.
- 30 u. For Tests 13 and 14 repeat steps b to n with SRCH_WIN_N set to 10 (100 chips) in
31 the *Universal Neighbor List Message* in step t.

- 1 v. For Tests 15 and 16 repeat steps b to n with SRCH_WIN_N set to 13 (226 chips) in
2 the *Universal Neighbor List Message* in step t.
- 3 w. For Tests 17 and 18 repeat steps b to n with SRCH_WIN_N set to 14 (320 chips) in
4 the *Universal Neighbor List Message* in step t.
- 5 x. For Tests 19 and 20 repeat steps b to n with SRCH_WIN_N set to 15 (452 chips) in
6 the *Universal Neighbor List Message* in step t.

7 **3.14.1.5 Minimum Standard**

8

9 **3.14.1.5.1 NGHBR_SRCH_MODE = '10' (search window size per neighbor):**

10 Verify steps k, n and q for Tests 1 to 3, Tests 6 to 20 and Tests 23 to 34. Verify steps u and y for
11 Tests 4 to 5 and Tests 21 to 22.

12

13 **3.14.1.5.2 NGHBR_SRCH_MODE = '00' (same search window size for all
14 neighbor):**

15 Verify step k for Tests 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19.

16 Verify step n for Tests 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20.

17 **3.14.2 Base Station Test**

18 None

1 **4 Handoff**

2 **4.1 Soft Handoff With Dynamic Threshold**

3 **4.1.1 Mobile Station Test**

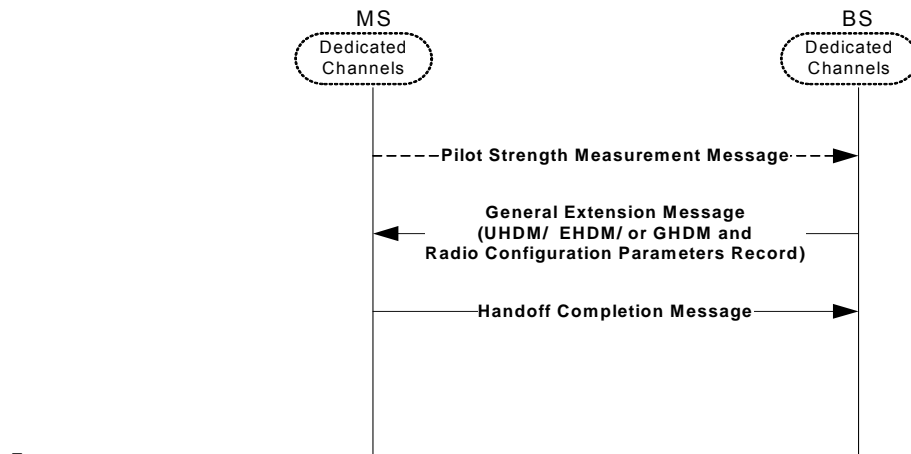
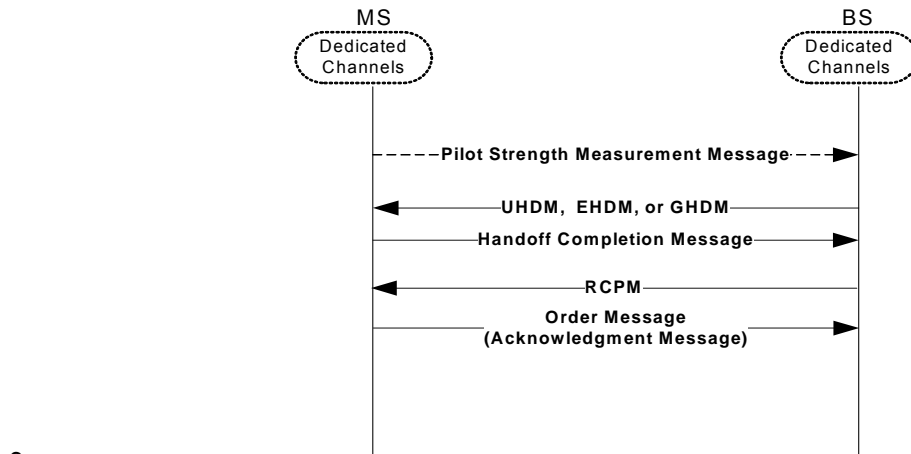
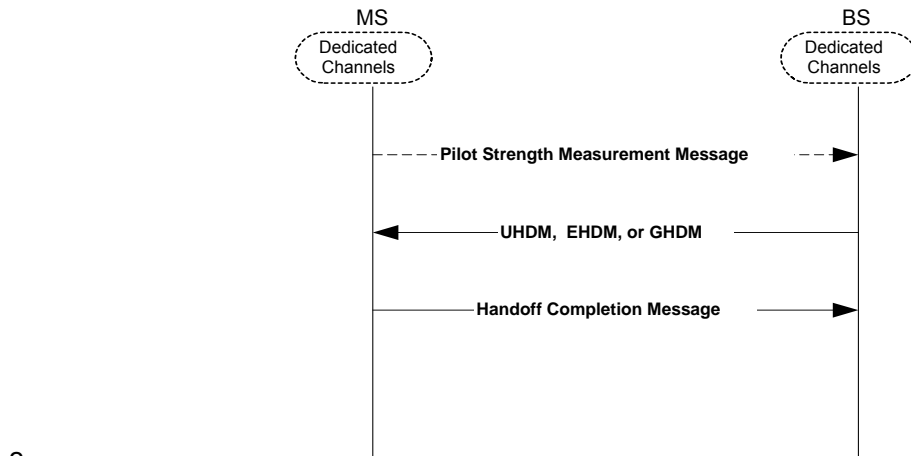
4 4.1.1.1 Definition

5 This test verifies the proper operation of mobile station soft handoff. Soft handoff with dynamic
6 thresholds is verified. This test verifies both adding pilot to and dropping pilot from the soft
7 handoff Active Set. Tests 1 through 4 apply to cases when SOFT_SLOPE is not equal to '000000'
8 (dynamic threshold enabled).

9 4.1.1.2 Traceability (See [4]):

- 10 2.6.2.2.5: *Extended System Parameters Message*
- 11 2.6.4.1.4: *Processing the In-Traffic System Parameters Message*
- 12 2.6.6.2.3: *Handoff Drop Timer*
- 13 2.6.6.2.5.1: *Processing of Forward Traffic Channel Handoff Messages*
- 14 2.6.6.2.5.2: *Processing of Reverse Traffic Channel Handoff Messages*
- 15 2.6.6.2.6.2: *Maintenance of the Candidate Set*
- 16 2.6.6.2.6.3: *Maintenance of the Neighbor Set*
- 17 2.6.6.2.8.2.1: *Restoring the Configuration*
- 18 2.6.6.3: *Examples*
- 19 2.7.2.3.2.5: *Pilot Strength Measurement Message*
- 20 3.6.6.2.1.1: *System Parameters*
- 21 3.7.2.3.2.13: *Extended System Parameters Message*
- 22 3.7.3.3.2.7: *In-Traffic System Parameters Message*
- 23 3.7.3.3.2.17: *Extended Handoff Direction Message*
- 24 3.7.3.3.2.31: *General Handoff Direction Message*
- 25 3.7.3.3.2.36: *Universal Handoff Direction Message*
- 26 3.7.2.3.2.44: *General Extension Message*
- 27 3.7.3.3.2.51: *Radio Configuration Parameters Message*

1 4.1.1.3 Call Flow Diagram



1 4.1.1.4 Method of Measurement

- 2 a. Set up test as shown in [Annex A Figure 3](#)
- 3 1. The Forward Channel from sector α of base station #1 has an arbitrary
4 pilot PN offset index P1 and is called Channel 1.
- 5 2. The Forward Channel from sector β of base station #1 has an arbitrary
6 pilot PN offset index P2 and is called Channel 2.
- 7 3. The Forward Channel from base station #2 has an arbitrary pilot PN
8 offset index P3 and is called Channel 3.
- 9 b. Reverse link attenuation should be set to balance the forward and reverse links
10 (approximately 90 dB).
- 11 c. Set test parameters for Test 1 as specified in Table 4.1.1.4-2 while only Channel 1 is
12 in the Active Set. Raise the level of Channel 2 in steps of 1 dB with a dwell time of
13 five seconds after each step until the mobile station has generated the *Pilot Strength*
14 *Measurement Message*. Record the level of Pilot E_c/I_o in the *Pilot Strength*
15 *Measurement Message*.
- 16 d. If the RC used on the forward fundamental channel is < 10 , instruct the base station
17 to send an *Extended Handoff Direction Message* to the mobile station to allow a soft
18 handoff between Channel 1 and Channel 2. For RC11/RC12 assignment on the
19 forward fundamental channel, instruct the base station to
- 20 1. Send an *Extended Handoff Direction Message* followed by a *Radio*
21 *Configuration Parameters Message* to the mobile station.
- 22 2. When repeating the test using the *General Extension Message*, send a
23 *General Extension Message* containing *Extended Handoff Direction*
24 *Message* and Radio Configuration Parameters record.
- 25 e. Verify the following:
- 26 1. The mobile station sends the *Pilot Strength Measurement Message*
27 when the pilot level of channel 2 is at a level between -10dB and -13dB .
- 28 2. The mobile station sends a *Handoff Completion Message* or an
29 *Extended Handoff Completion Message* as a response to handoff
30 message sent in step d.
- 31 3. Channel 1 and Channel 2 are in the Active Set.
- 32 4. For RC11/RC12 assignment on the forward fundamental channel, the
33 mobile station starts using the parameters assigned in the *Radio*
34 *Configuration Parameters Message* / Radio Configuration Parameters
35 Record.
- 36 f. Repeat steps c to e with the change that the base station is instructed to send the
37 *General Handoff Direction Message* in step d. If RC11/RC12 is assigned on the
38 forward fundamental channel, repeat the test using the *General Extension Message*.

- 1 g. Repeat steps c to e with the change that the base station is instructed to send the
 2 *Universal Handoff Direction Message* in step d. If RC11/RC12 is assigned on the
 3 forward fundamental channel, repeat the test using the *General Extension Message*.
- 4 h. Set test parameters for Test 2 as specified in Table 4.1.1.4-3 while Channel 1 and
 5 Channel 2 are in soft handoff. Raise the level of Channel 3 in steps of 1 dB with a
 6 dwell time of five seconds after each step until the mobile station has generated the
 7 *Pilot Strength Measurement Message*. Record the level of Pilot Ec/Io in the *Pilot*
 8 *Strength Measurement Message*.
- 9 i. If the RC used on the forward fundamental channel is < 10, instruct the base station
 10 to send an *Extended Handoff Direction Message* to the mobile station to allow a soft
 11 handoff between Channel 1, Channel 2 and Channel 3. For RC11/RC12 assignment
 12 on the forward fundamental channel, instruct the base station to
- 13 1. Send an *Extended Handoff Direction Message* followed by a *Radio*
 14 *Configuration Parameters Message* to the mobile station.
 - 15 2. When repeating the test using the *General Extension Message*, send a
 16 *General Extension Message* containing *Extended Handoff Direction*
 17 *Message* and Radio Configuration Parameters record.

18
 19 Table 4.1.1.4-1 Soft Handoff with Dynamic Threshold Test Parameters - T_ADD, T_DROP,
 20 T_TDROPE, ADD_INTERCEPTs, DROP_INTERCEPTs, SOFT_SLOPEs
 21

Field	Value
SOFT_SLOPE	'010000' (2) ⁵
ADD_INTERCEPT	'000110' (3 dB) ⁶
DROP_INTERCEPT	'000010' (1 dB) ⁷
T_ADD	'100000' (-16 dB)
T_DROP	'100100' (-18 dB)
T_TDROPE	'0011' (4s)

22
 23 Table 4.1.1.4-2 Add Test – One Pilot (Test 1)

⁵ SOFT_SLOPE=16/8=2

⁶ ADD_INTERCEPT=6/2=3dB

⁷ DROP_INTERCEPT=2/2=1dB

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	-20	-20
Pilot E_C/I_{or}	dB	-5	-5	-5
Traffic E_C/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_C/I_o	dB	-5.8	-33	-33

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Table 4.1.1.4-3 Add Test – Two Pilots (Test 2)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	-20
Pilot E_C/I_{or}	dB	-5	-5	-5
Traffic E_C/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_C/I_o	dB	-8.4	-8.4	-35

7

8 j. Verify the following:

- 9 1. The mobile station sends the *Pilot Strength Measurement Message*
10 when the pilot level of channel 3 is at a level between –10dB and –13dB.
- 11 2. The mobile station sends a *Handoff Completion Message* or an
12 *Extended Handoff Completion Message* as a response to the handoff
13 message sent in step k.
- 14 3. Channel 1, Channel 2 and Channel 3 are in the Active Set.
- 15 4. For RC11/RC12 assignment on the forward fundamental channel, the
16 mobile station starts using the parameters assigned in the *Radio*
17 *Configuration Parameters Message* / Radio Configuration Parameters
18 Record.

19 k. Repeat steps h to j with the change that the base station is instructed to send the
20 *General Handoff Direction Message* in step i. If RC11/RC12 is assigned on the
21 forward fundamental channel, repeat the test using the *General Extension Message*.

22 l. Repeat steps h to j with the change that the base station is instructed to send the
23 *Universal Handoff Direction Message* in step i. If RC11/RC12 is assigned on the
24 forward fundamental channel, repeat the test using the *General Extension Message*.

- 1 m. Set the test parameters for Test 3 in Table 4.1.1.4-4 while Channel 1, Channel 2, and
 2 Channel 3 are in soft handoff. Lower the level of Channel 3 in steps of 1 dB with a
 3 dwell time of 30 seconds until the mobile station has generated the *Pilot Strength*
 4 *Measurement Message*. Record the level of Pilot E_c/I_o in the *Pilot Strength*
 5 *Measurement Message*.
- 6 n. If the RC used on the forward fundamental channel is < 10, instruct the base station
 7 to send an *Extended Handoff Direction Message* to the mobile station to allow a soft
 8 handoff between Channel 1 and Channel 2. For RC11/RC12 assignment on the
 9 forward fundamental channel, instruct the base station to
- 10 1. Send an *Extended Handoff Direction Message* followed by a *Radio*
 11 *Configuration Parameters Message* to the mobile station.
 - 12 2. When repeating the test using the *General Extension Message*, send a
 13 *General Extension Message* containing *Extended Handoff Direction*
 14 *Message* and Radio Configuration Parameters record.

15
 16 Table 4.1.1.4-4 Drop Test - Three Pilots (Test 3)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	7
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-10.1	-10.1	-10.1

- 17
- 18 o. Verify the following:
- 19 1. The mobile station sends the *Pilot Strength Measurement Message*
 20 when the pilot level of channel 3 is at a level between -12dB and -16dB.
 - 21 2. The mobile station sends a *Handoff Completion Message* or an
 22 *Extended Handoff Completion Message* as a response to the handoff
 23 message sent in step n.
 - 24 3. Channel 1 and Channel 2 are in the Active Set.
 - 25 4. For RC11/RC12 assignment on the forward fundamental channel, the
 26 mobile station starts using the parameters assigned in the *Radio*
 27 *Configuration Parameters Message* / Radio Configuration Parameters
 28 Record.
- 29
- 30 p. Repeat steps m to o with the change that the base station is instructed to send the
 31 *General Handoff Direction Message* in step n. If RC11/RC12 is assigned on the
 32 forward fundamental channel, repeat the test using the *General Extension Message*.

- 1 q. Repeat steps m to o with the change that the base station is instructed to send the
2 *Universal Handoff Direction Message* in step n. If RC11/RC12 is assigned on the
3 forward fundamental channel, repeat the test using the *General Extension Message*.
- 4 r. Set test parameters for Test 4 as specified in Table 4.1.1.4-5. Lower level of Channel
5 2 in steps of 1 dB with a dwell time of 30 seconds after each step until the mobile
6 station has generated the *Pilot Strength Measurement Message*. Record the level of
7 Pilot Ec/Io in the *Pilot Strength Measurement Message*.
- 8 s. If the RC used on the forward fundamental channel is < 10, instruct the base station
9 to send an *Extended Handoff Direction Message* to the mobile station with only
10 Channel 1 listed in the Active Set. For RC11/RC12 assignment on the forward
11 fundamental channel, instruct the base station to
- 12 1. Send an *Extended Handoff Direction Message* followed by a *Radio*
13 *Configuration Parameters Message* to the mobile station.
 - 14 2. When repeating the test using the *General Extension Message*, send a
15 *General Extension Message* containing *Extended Handoff Direction*
16 *Message* and Radio Configuration Parameters record.
- 17 t. Verify the following:
- 18 1. The mobile station sends the *Pilot Strength Measurement Message*
19 when the pilot level of channel 2 is at a level between -11dB and -14dB.
 - 20 2. The mobile station sends a *Handoff Completion Message* or an
21 *Extended Handoff Completion Message* as a response to the handoff
22 message sent in step s.
 - 23 3. Only Channel 1 is in the Active Set.
 - 24 4. For RC11/RC12 assignment on the forward fundamental channel, the
25 mobile station starts using the parameters assigned in the *Radio*
26 *Configuration Parameters Message* / Radio Configuration Parameters
27 Record.
- 28
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1
2**Table 4.1.1.4-5 Drop Test - Two Pilots (Test 4)**

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	-20
Pilot E_C/I_{or}	dB	-5	-5	-5
Traffic E_C/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_C/I_o	dB	-8.4	-8.4	-35

3

- 4 u. Repeat steps r to t with the change that the base station is instructed to send the
5 *General Handoff Direction Message* in step s. If RC11/RC12 is assigned on the
6 forward fundamental channel, repeat the test using the *General Extension Message*.
- 7 v. Repeat steps r to t with the change that the base station is instructed to send the
8 *Universal Handoff Direction Message* in step s. If RC11/RC12 is assigned on the
9 forward fundamental channel, repeat the test using the *General Extension Message*.

10 **4.1.1.5 Minimum Standard**

11 The mobile station shall comply with the requirements in steps e, j, o, and t for the *General*
12 *Extension Message*, *Radio Configuration Parameters Message*, *Extended Handoff Direction*
13 *Message*, the *General Handoff Direction Message* and the *Universal Handoff Direction Message*.
14

15 **4.1.2 Base Station Test**16 **4.1.2.1 Definition**

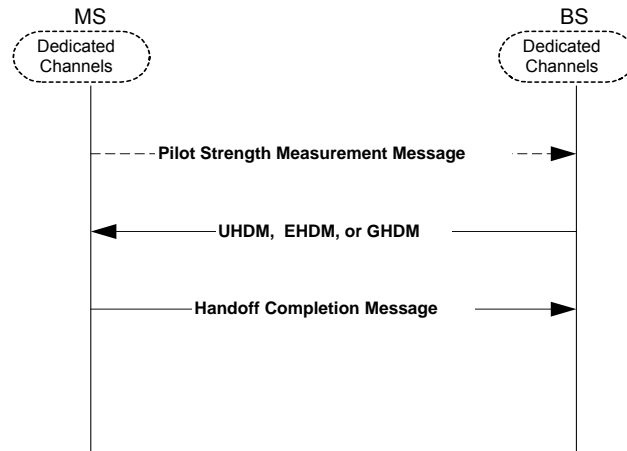
17 This test verifies the proper operation of base station soft handoff. A soft handoff with dynamic
18 thresholds is verified. This test verifies both adding pilot to and dropping pilot from the a soft
19 handoff Active Set. Tests 1 through 4 apply to cases when SOFT_SLOPE is not equal to '000000'
20 (dynamic threshold enabled).

21 **4.1.2.2 Traceability (See [4]):**

- 22 2.6.2.2.5: *Extended System Parameters Message*
23 2.6.4.1.4: *Processing the In-Traffic System Parameters Message*
24 2.6.6.2.3: *Handoff Drop Timer*
25 2.6.6.2.5.1: *Processing of Forward Traffic Channel Handoff Messages*
26 2.6.6.2.5.2: *Processing of Reverse Traffic Channel Handoff Messages*
27 2.6.6.2.6.2: *Maintenance of the Candidate Set*
28 2.6.6.2.6.3: *Maintenance of the Neighbor Set*
29 2.6.6.2.8.2.1: *Restoring the Configuration*
30 2.6.6.3: *Examples*
31 2.7.2.3.2.5: *Pilot Strength Measurement Message*
32 3.6.6.2.1.1: *System Parameters*

- 1 3.7.2.3.2.13: *Extended System Parameters Message*
 2 3.7.3.3.2.7: *In-Traffic System Parameters Message*
 3 3.7.3.3.2.17: *Extended Handoff Direction Message*
 4 3.7.3.3.2.31: *General Handoff Direction Message*
 5 3.7.3.3.2.36: *Universal Handoff Direction Message*

6 4.1.2.3 Call Flow Diagram



7

8 4.1.2.4 Method of Measurement

- 9 a. Set up test as shown in [Annex A Figure 3](#).
- 10 1. The Forward Channel from sector α of base station #1 has an arbitrary
 - 11 pilot PN offset index P1 and is called Channel 1.
 - 12 2. The Forward Channel from sector β of base station #1 has an arbitrary
 - 13 pilot PN offset index P2 and is called Channel 2.
 - 14 3. The Forward Channel from base station #2 has an arbitrary pilot PN
 - 15 offset index P3 and is called Channel 3.
- 16 b. Set the test parameters for Test 1 as specified in Table 4.1.2.4-1 and Table 4.1.2.4-2.
- 17 c. Reverse link attenuation should be set to balance the forward and reverse links
- 18 (approximately 90 dB).
- 19 d. Set up a mobile station terminated call and verify user data in both directions
- 20 e. Verify that the base station is not in soft handoff.
- 21 f. Raise the level of Channel 2 until the mobile station generates the *Pilot Strength*
- 22 *Measurement Message*.
- 23 g. Verify that the the base station sends an *Extended Handoff Direction Message*,
- 24 *General Handoff Direction Message*, or *Universal Handoff Direction Message* to the
- 25 mobile station with Channel 1 and Channel 2 listed as the Active Set.

- 1 h. Set test parameters for Test 2 as specified in Table 4.1.2.4-3 while Channel 1 and
 2 Channel 2 are in soft handoff. Raise the level of Channel 3 until the mobile station
 3 generates the *Pilot Strength Measurement Message*.

4 Table 4.1.2.4-1 A soft handoff with Dynamic Threshold Test Parameters - T_ADD, T_DROP,
 5 T_TDROp, ADD_INTERCEPTs, DROP_INTERCEPTs, SOFT_SLOPEs

Field	Value
SOFT_SLOPE	'010000' (2) ⁸
ADD_INTERCEPT	'000110' (3 dB) ⁹
DROP_INTERCEPT	'000010' (1 dB) ¹⁰
T_ADD	'100000' (-16 dB)
T_DROP	'100100' (-18 dB)
T_TDROp	'0011' (4s)

6
7

Table 4.1.2.4-2 Add Test – One Pilot (Test 1)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	-20	-20
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-5.8	-33	-33

8
9

Table 4.1.2.4-3 Add Test – Two Pilots (Test 2)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	-20
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-8.4	-8.4	-35

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11
12
13

- i. Verify that the base station sends an *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* specifying Channel 1, Channel 2 and Channel 3 listed as the Active Set.

⁸ SOFT_SLOPE=16/8=2.

⁹ ADD_INTERCEPT=6/2=3dB

¹⁰ DRÖP_INTERCEPT=2/2=1dB

- 1 j. Set the test parameters for Test 3 in Table 4.1.2.4-4 while Channel 1, Channel 2, and
 2 Channel 3 are in soft handoff. Lower the level of Channel 3 until the mobile station
 3 has generated the *Pilot Strength Measurement Message*.

4 **Table 4.1.2.4-4 Drop Test - Three Pilots (Test 3)**

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	7
Pilot E_C/I_{or}	dB	-5	-5	-5
Traffic E_C/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_C/I_o	dB	-10.1	-10.1	-10.1

5

- 6 k. Verify that the base station sends an *Extended Handoff Direction Message*, *General*
 7 *Handoff Direction Message*, or *Universal Handoff Direction Message* with Channel 1
 8 and Channel 2 listed as the Active Set.
- 9 l. Set test parameters for Test 4 as specified in Table 4.1.2.4-5. Lower level of Channel
 10 2 in steps of 1 dB until the mobile station has generated the *Pilot Strength*
 11 *Measurement Message*.
- 12 m. Verify that the base station sends an *Extended Handoff Direction Message*, *General*
 13 *Handoff Direction Message*, or *Universal Handoff Direction Message* with Channel 1
 14 only listed as the Active Set.

15 **Table 4.1.2.4-5 Drop Test - Two Pilots (Test 4)**

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	-20
Pilot E_C/I_{or}	dB	-5	-5	-5
Traffic E_C/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_C/I_o	dB	-8.4	-8.4	-35

16

- 17 n. End call.

18 4.1.2.5 Minimum Standard

19 The base station shall comply with the requirements in steps e, g, i, k, and m.

20

1 **4.2 Soft Handoff Without Dynamic Threshold**

2 **4.2.1 Mobile Station Test**

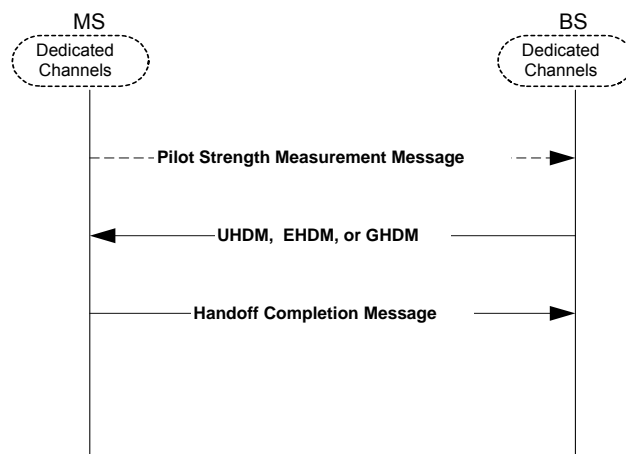
3 **4.2.1.1 Definition**

4 This test verifies the proper operation of mobile station soft handoff. Soft handoff without dynamic
 5 thresholds is verified. This test verifies both adding pilot to and dropping pilot from the soft
 6 handoff Active Set. Tests 1 through 4 apply to cases when SOFT_SLOPE is equal to '000000'
 7 (dynamic threshold disabled).

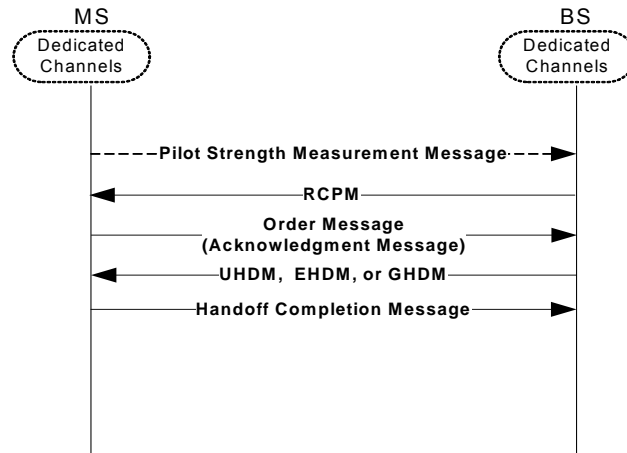
8 **4.2.1.2 Traceability (See [4]):**

- 9 *2.6.2.2.5: Extended System Parameters Message*
- 10 *2.6.4.1.4: Processing the In-Traffic System Parameters Message*
- 11 *2.6.6.2.3: Handoff Drop Timer*
- 12 *2.6.6.2.5.1: Processing of Forward Traffic Channel Handoff Messages*
- 13 *2.6.6.2.5.2: Processing of Reverse Traffic Channel Handoff Messages*
- 14 *2.6.6.2.6.2: Maintenance of the Candidate Set*
- 15 *2.6.6.2.6.3: Maintenance of the Neighbor Set*
- 16 *2.6.6.2.8.2.1: Restoring the Configuration*
- 17 *2.6.6.3: Examples*
- 18 *2.7.2.3.2.5: Pilot Strength Measurement Message*
- 19 *3.6.6.2.1.1: System Parameters*
- 20 *3.7.2.3.2.13: Extended System Parameters Message*
- 21 *3.7.3.3.2.7: In-Traffic System Parameters Message*
- 22 *3.7.3.3.2.17: Extended Handoff Direction Message*
- 23 *3.7.3.3.2.31: General Handoff Direction Message*
- 24 *3.7.3.3.2.36: Universal Handoff Direction Message*
- 25 *3.7.2.3.2.44 General Extension Message*
- 26 *3.7.3.3.2.51 Radio Configuration Parameters Message*

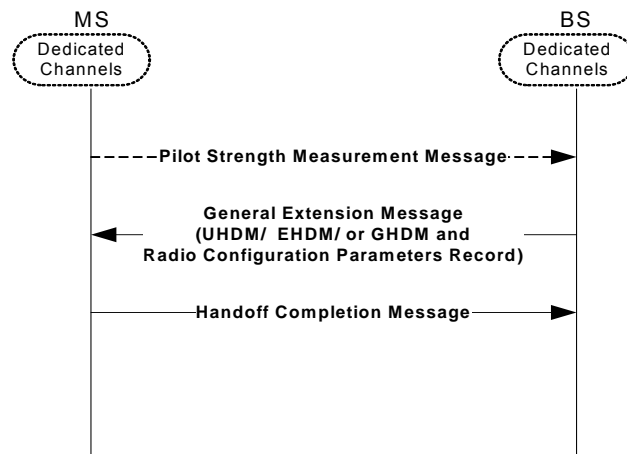
27 **4.2.1.3 Call Flow Diagram**



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4.2.1.4 Method of Measurement

- a. Set up test as shown in [Annex A Figure 3](#).
 1. The Forward Channel from sector α of base station #1 has an arbitrary pilot PN offset index P1 and is called Channel 1.
 2. The Forward Channel from sector β of base station #1 has an arbitrary pilot PN offset index P2 and is called Channel 2.
 3. The Forward Channel from base station #2 has an arbitrary pilot PN offset index P3 and is called Channel 3.
- b. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).
- c. Set test parameters for Test 1 as specified in Table 4.2.1.4-2 while only Channel 1 is in the Active Set. Raise the level of Channel 2 in steps of 1 dB with a dwell time of five seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message*. Record the level of Pilot E_c/I_o in the *Pilot Strength Measurement Message*.

19

- 1 d. If the RC used on the forward fundamental channel is < 10 , instruct the base station
2 to send an *Extended Handoff Direction Message* to the mobile station to allow a soft
3 handoff between Channel 1 and Channel 2. For RC11/RC12 assignment on the
4 forward fundamental channel, instruct the base station to
- 5 1. Send an *Extended Handoff Direction Message* followed by a *Radio*
6 *Configuration Parameters Message* to the mobile station.
 - 7 2. When repeating the test using the *General Extension Message*, send a
8 *General Extension Message* containing *Extended Handoff Direction*
9 *Message* and Radio Configuration Parameters record.
- 10 e. Verify the following:
- 11 1. The mobile station sends the *Pilot Strength Measurement Message*
12 when the pilot level of Channel 2 is at a level between T_ADD and
13 T_ADD +2dB.
 - 14 2. The mobile station sends a *Handoff Completion Message* or an
15 *Extended Handoff Completion Message* as a response to the handoff
16 message sent in step d.
 - 17 3. Channel 1 and Channel 2 are in the Active Set.
 - 18 4. For RC11/RC12 assignment on the forward fundamental channel, the
19 mobile station starts using the parameters assigned in the *Radio*
20 *Configuration Parameters Message / Radio Configuration Parameters*
21 *Record*.
- 22 f. Repeat steps c to e with the change that the base station is instructed to send the
23 *General Handoff Direction Message* in step d. If RC11/RC12 is assigned on the
24 forward fundamental channel, repeat the test using the *General Extension Message*.
- 25 g. Repeat steps c to e with the change that the base station is instructed to send the
26 *Universal Handoff Direction Message* in step d. If RC11/RC12 is assigned on the
27 forward fundamental channel, repeat the test using the *General Extension Message*.
- 28 h. Set test parameters for Test 2 as specified in Table 4.2.1.4-3 while Channel 1 and
29 Channel 2 are in soft handoff. Raise the level of Channel 3 in steps of 1 dB with a
30 dwell time of five seconds after each step until the mobile station has generated the
31 *Pilot Strength Measurement Message*. Record the level of Pilot Ec/Io in the *Pilot*
32 *Strength Measurement Message*.
- 33 i. If the RC used on the forward fundamental channel is < 10 , instruct the base station
34 to send an *Extended Handoff Direction Message* to the mobile station to allow soft
35 handoff between Channel 1, Channel 2 and Channel 3. For RC11/RC12 assignment
36 on the forward fundamental channel, instruct the base station to
- 37 1. Send an *Extended Handoff Direction Message* followed by a *Radio*
38 *Configuration Parameters Message* to the mobile station.
 - 39 2. When repeating the test using the *General Extension Message*, send a
40 *General Extension Message* containing *Extended Handoff Direction*

1 *Message and Radio Configuration Parameters record.*

2 Table 4.2.1.4-1 Soft handoff Without Dynamic Threshold Test Parameters - T_ADD, T_DROP,
3 T_TDROPS, ADD_INTERCEPTs, DROP_INTERCEPTs, SOFT_SLOPES

4

Field	Value
SOFT_SLOPE	'000000' (0)
ADD_INTERCEPT	'000000' (0 dB)
DROP_INTERCEPT	'000000' (0 dB)
T_ADD	'011100' (-14 dB)
T_DROP	'100000' (-16 dB)
T_TDROPS	'0011' (4s)

5

6

Table 4.2.1.4-2 Add Test – One Pilot (Test 1)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	-20	-20
Pilot E_C/I_{or}	dB	-5	-5	-5
Traffic E_C/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_C/I_o	dB	-5.8	-33	-33

7

8

Table 4.2.1.4-3 Add Test – Two Pilots (Test 2)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	-20
Pilot E_C/I_{or}	dB	-5	-5	-5
Traffic E_C/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_C/I_o	dB	-8.4	-8.4	-35

9

10 j. Verify the following:

- 11 1. The mobile station sends the *Pilot Strength Measurement Message*
12 when the pilot level of Channel 3 is at a level between T_ADD and
13 T_ADD +2dB.
- 14 2. The mobile station sends a *Handoff Completion Message* or an
15 *Extended Handoff Completion Message* as a response to the handoff
16 message sent in step i.

- 1 3. Channel 1, Channel 2 and Channel 3 are in the Active Set.
- 2 4. For RC11/RC12 assignment on the forward fundamental channel, the
- 3 mobile station starts using the parameters assigned in the *Radio*
- 4 *Configuration Parameters Message* / Radio Configuration Parameters
- 5 Record
- 6 k. Repeat steps h to j with the change that the base station is instructed to send the
- 7 *General Handoff Direction Message* in step i. If RC11/RC12 is assigned on the
- 8 forward fundamental channel, repeat the test using the *General Extension Message*.
- 9 l. Repeat steps h to j with the change that the base station is instructed to send the
- 10 *Universal Handoff Direction Message* in step i. If RC11/RC12 is assigned on the
- 11 forward fundamental channel, repeat the test using the *General Extension Message*.
- 12 m. Set the test parameters for Test 3 in Table 4.2.1.4-4 while Channel 1, Channel 2, and
- 13 Channel 3 are in soft handoff. Lower the level of Channel 3 in steps of 1 dB with a
- 14 dwell time of 30 seconds until the mobile station has generated the *Pilot Strength*
- 15 *Measurement Message*. Record the level of Pilot E_c/I_o in the *Pilot Strength*
- 16 *Measurement Message*.
- 17 n. If the RC used on the forward fundamental channel is < 10, instruct the base station
- 18 to send an *Extended Handoff Direction Message* to the mobile station to allow a soft
- 19 handoff between Channel 1 and Channel 2. For RC11/RC12 assignment on the
- 20 forward fundamental channel, instruct the base station to
- 21 1. Send an *Extended Handoff Direction Message* followed by a *Radio*
- 22 *Configuration Parameters Message* to the mobile station.
- 23 2. When repeating the test using the *General Extension Message*, send a
- 24 *General Extension Message* containing *Extended Handoff Direction*
- 25 *Message* and Radio Configuration Parameters record.

Table 4.2.1.4-4 Drop Test - Three Pilots (Test 3)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	7
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-10.1	-10.1	-10.1

- 28
- 29 o. Verify the following:
- 30 1. The mobile station sends the *Pilot Strength Measurement Message*
- 31 when the pilot level of Channel 3 is at a level between T_DROP and
- 32 $T_DROP - 3$ dB for a period of T_TDROP .

- 1 2. The mobile station sends a *Handoff Completion Message* or an
 2 *Extended Handoff Completion Message* as a response to the handoff
 3 message sent in step n.
- 4 3. Channel 1 and Channel 2 are in the Active Set at the action time of the
 5 message.
- 6 4. For RC11/RC12 assignment on the forward fundamental channel, the
 7 mobile station starts using the parameters assigned in the *Radio*
 8 *Configuration Parameters Message* / Radio Configuration Parameters
 9 Record.
- 10 p. Repeat steps m to o with the change that the base station is instructed to send the
 11 *General Handoff Direction Message* in step n. If RC11/RC12 is assigned on the
 12 forward fundamental channel, repeat the test using the *General Extension Message*.
- 13 q. Repeat steps m to o with the change that the base station is instructed to send the
 14 *Universal Handoff Direction Message* in step n. If RC11/RC12 is assigned on the
 15 forward fundamental channel, repeat the test using the *General Extension Message*.
- 16 r. Set test parameters for Test 4 as specified in Table 4.2.1.4-5. Lower level of Channel
 17 2 in steps of 1 dB with a dwell time of 30 seconds after each step until the mobile
 18 station has generated the *Pilot Strength Measurement Message*. Record the level of
 19 Pilot Ec/Io in the *Pilot Strength Measurement Message*.
- 20 s. If the RC used on the forward fundamental channel is < 10, instruct the base station
 21 to send an *Extended Handoff Direction Message* to the mobile station with only
 22 Channel 1 listed in the Active Set. For RC11/RC12 assignment on the forward
 23 fundamental channel, instruct the base station to
- 24 5. Send an *Extended Handoff Direction Message* followed by a *Radio*
 25 *Configuration Parameters Message* to the mobile station.
- 26 6. When repeating the test using the *General Extension Message*, send a
 27 *General Extension Message* containing *Extended Handoff Direction*
 28 *Message* and Radio Configuration Parameters record.
- 29 t. Verify the following:
- 30 1. The mobile station sends the *Pilot Strength Measurement Message*
 31 when the pilot level of Channel 2 is at a level between T_DROP and
 32 T_DROP -3 dB for a period of T_TDROP.
- 33 2. The mobile station sends a *Handoff Completion Message* or an
 34 *Extended Handoff Completion Message* as a response to the handoff
 35 message sent in step s.
- 36 3. Only Channel 1 is in the Active Set.
- 37 4. For RC11/RC12 assignment on the forward fundamental channel, the
 38 mobile station starts using the parameters assigned in the *Radio*
 39 *Configuration Parameters Message* / Radio Configuration Parameters
 40 Record.

1
2

Table 4.2.1.4-5 Drop Test - Two Pilots (Test 4)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	-20
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-8.4	-8.4	-35

3

- 4 u. Repeat steps r to t with the change that the base station is instructed to send the
5 *General Handoff Direction Message* in step s. If RC11/RC12 is assigned on the
6 forward fundamental channel, repeat the test using the *General Extension Message*.
- 7 v. Repeat steps r to t with the change that the base station is instructed to send the
8 *Universal Handoff Direction Message* in step s. If RC11/RC12 is assigned on the
9 forward fundamental channel, repeat the test using the *General Extension Message*.

10 **4.2.1.5 Minimum Standard**

11 The mobile station shall comply with the requirements in steps e, j, o, and t for the *General*
12 *Extension Message*, *Radio Configuration Parameters Message*, *Extended Handoff Direction*
13 *Message*, the *General Handoff Direction Message* and the *Universal Handoff Direction Message*.

14 **4.2.2 Base Station Test**15 **4.2.2.1 Definition**

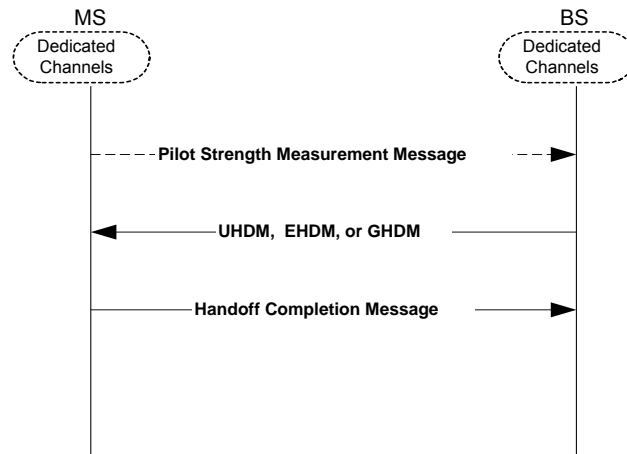
16 This test verifies the proper operation of base station soft handoff. Soft handoff without dynamic
17 thresholds is verified. This test verifies both adding pilot to and dropping pilot from the soft
18 handoff Active Set. Test 1-4 applies to cases when SOFT_SLOPE is equal to '000000' (dynamic
19 threshold disabled).

20 **4.2.2.2 Traceability (See [4]):**

- 21 2.6.2.2.5: *Extended System Parameters Message*
22 2.6.4.1.4: *Processing the In-Traffic System Parameters Message*
23 2.6.6.2.3: *Handoff Drop Timer*
24 2.6.6.2.5.1: *Processing of Forward Traffic Channel Handoff Messages*
25 2.6.6.2.5.2: *Processing of Reverse Traffic Channel Handoff Messages*
26 2.6.6.2.6.2: *Maintenance of the Candidate Set*
27 2.6.6.2.6.3: *Maintenance of the Neighbor Set*
28 2.6.6.2.8.2.1: *Restoring the Configuration*
29 2.6.6.3: *Examples*
30 2.7.2.3.2.5: *Pilot Strength Measurement Message*
31 3.6.6.2.1.1: *System Parameters*
32 3.7.2.3.2.13: *Extended System Parameters Message*

- 1 3.7.3.3.2.7: *In-Traffic System Parameters Message*
 2 3.7.3.3.2.17: *Extended Handoff Direction Message*
 3 3.7.3.3.2.31: *General Handoff Direction Message*
 4 3.7.3.3.2.36: *Universal Handoff Direction Message*

5 4.2.2.3 Call Flow Diagram



6
7

8 4.2.2.4 Method of Measurement

- 9 a. Set up test as shown in Figure [Annex A Figure 3](#).
- 10 1. The Forward Channel from sector α of base station #1 has an arbitrary
 - 11 pilot PN offset index P1 and is called Channel 1.
 - 12 2. The Forward Channel from sector β of base station #1 has an arbitrary
 - 13 pilot PN offset index P2 and is called Channel 2.
 - 14 3. The Forward Channel from base station #2 has an arbitrary pilot PN
 - 15 offset index P3 and is called Channel 3.
- 16 b. Set the test parameters for Test 1 as specified in Table 4.2.2.4-1 and Table 4.2.2.4-2.
- 17 c. Reverse link attenuation should be set to balance the forward and reverse links
- 18 (approximately 90 dB).
- 19 d. Set up a mobile station terminated call.
- 20 e. Verify user data in both directions. Verify that the base station is not in soft handoff.
- 21 f. Raise the level of Channel 2 until the mobile station has generated the *Pilot Strength*
- 22 *Measurement Message*.
- 23 g. Verify that the base station sends an *Extended Handoff Direction Message*, *General*
- 24 *Handoff Direction Message*, or *Universal Handoff Direction Message* to the mobile
- 25 station with Channel 1 and Channel 2 listed as the Active Set.

- 1 h. Set test parameters for Test 2 as specified in Table 4.2.2.4-3 while Channel 1 and
 2 Channel 2 are in soft handoff. Raise the level of Channel 3 until the mobile station
 3 has generated the *Pilot Strength Measurement Message*.

4 Table 4.2.2.4-1 Soft handoff Without Dynamic Threshold Test Parameters - T_ADD, T_DROP,
 5 T_TDROPE, ADD_INTERCEPTs, DROP_INTERCEPTs, SOFT_SLOPEs
 6

Field	Value
SOFT_SLOPE	'000000' (0)
ADD_INTERCEPT	'000000' (0 dB)
DROP_INTERCEPT	'000000' (0 dB)
T_ADD	'011100' (-14 dB)
T_DROP	'100000' (-16 dB)
T_TDROPE	'0011' (4s)

7
 8

Table 4.2.2.4-2 Add Test – One Pilot (Test 1)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	-20	-20
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-5.8	-33	-33

9
 10

Table 4.2.2.4-3 Add Test – Two Pilots (Test 2)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	-20
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-8.4	-8.4	-35

11

- 12 i. Verify that the base station sends an *Extended Handoff Direction Message*, *General*
 13 *Handoff Direction Message*, or *Universal Handoff Direction Message* with Channel 1,
 14 Channel 2 and Channel 3 listed as the Active Set.
- 15 j. Set the test parameters for Test 3 in Table 4.2.2.4-4 while Channel 1, Channel 2, and
 16 Channel 3 are in soft handoff. Lower the level of Channel 3 until the mobile station
 17 has generated the *Pilot Strength Measurement Message*.

1
2

Table 4.2.2.4-4 Drop Test - Three Pilots (Test 3)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	7
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-10.1	-10.1	-10.1

3

- 4 k. Verify that the base station sends an *Extended Handoff Direction Message*, *General*
5 *Handoff Direction Message*, or *Universal Handoff Direction Message* with Channel 1
6 and Channel 2 listed as the Active Set.
- 7 l. Set test parameters for Test 4 as specified in Table 4.2.2.4-5. Lower level of Channel
8 until the mobile station has generated the *Pilot Strength Measurement Message*.
- 9 m. Verify that the base station sends an *Extended Handoff Direction Message*, *General*
10 *Handoff Direction Message*, or *Universal Handoff Direction Message* with only
11 Channel 1 listed as the Active Set.

12

13

Table 4.2.2.4-5 Drop Test - Two Pilots (Test 4)

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	7	7	-20
Pilot E_c/I_{or}	dB	-5	-5	-5
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75		
Pilot E_c/I_o	dB	-8.4	-8.4	-35

14

15

- n. End call.

16

17 4.2.2.5 Minimum Standard

18

The base station shall comply with the requirements in steps e, g, i, k, and m.

19

1 **4.3 Soft Handoff Tests During Link Failure**

2 **4.3.1 Mobile Station Test**

3 **4.3.1.1 Definition**

4 This test verifies a soft handoff during failure of the forward link and/or the reverse link. It verifies
 5 the proper functionality of N1m for Layer 3 message transmissions in assured mode requiring
 6 confirmation of delivery. Note that N1m equals 13 for P_REV > 5, N1m equals 9 for P_REV=4 or
 7 5, and N1m equals 3 for P_REV < 4. The link failure is simulated by instructing the base station
 8 not to acknowledge the *Pilot Strength Measurement Message* sent by the mobile station.

9 **4.3.1.2 Traceability (See [3]):**

- 10 *2.2.1.1.2.2: Requirements for Transmission and Retransmission Procedures*
- 11 *3.1.2.1.2.2 Requirements for Transmission and Retransmission Procedures*
- 12 *ANNEX A TIMERS AND CONSTANTS*
- 13 *2.6.1.1 System Determination Substate*
- 14 *2.6.4.3 Traffic Channel Substate*
- 15 *2.6.6.1.1: Types of Handoff* *2.6.6.2.5: Handoff Messages*
- 16 *2.6.6.2.7: Soft Handoff*
- 17 *3.6.4.1.3 Ordering of Messages*
- 18 *3.6.6.1.1: Types of Handoff*
- 19 *3.6.6.2.2: Call Processing During Handoff*
- 20 *3.6.6.2.4: Soft Handoff*
- 21 *3.7.2.3.2.44 General Extension Message*
- 22 *3.7.3.3.2.51 Radio Configuration Parameters Message*

23

24 **4.3.1.3 Call Flow Diagram**

25 None

26 **4.3.1.4 Method of Measurement**

27

28 **4.3.1.4.1 Tests with successful soft handoff completion**

- 29 a. Set up test as shown in [Annex A Figure 2](#).
 - 30 1. The Forward Channel from base station #1 has an arbitrary pilot PN
 - 31 offset index P_1 and is called Channel 1.
 - 32 2. The Forward Channel from base station #2 has an arbitrary pilot PN
 - 33 offset index P_2 and is called Channel 2.
- 34 b. Set the test parameters as specified in Table 4.3.1.4.1-1.

35

Table 4.3.1.4.1-1-1 Soft handoff During Link Failure Test Parameters

Parameter	Unit	Channel 1	Channel 2
\hat{I}_{or}/I_{oc}	dB	0	-10

Pilot E_C/I_{or}	dB	-7	-7
Traffic E_C/I_{or}	dB	-7	-7
I_{oc}	dBm/1.23 MHz	-75	-75
Pilot E_C/I_o	dB	-10.2	-20.2

- 1 c. Reverse link attenuation should be set to balance the forward and reverse links
2 (approximately 90 dB).
- 3 d. Set up a mobile station originated call on Channel 1.
- 4 e. Raise the level of Channel 2 in steps of 1 dB with a dwell time of 5 seconds after
5 each step until the mobile station has generated the *Pilot Strength Measurement*
6 *Message*.
- 7 f. Instruct the base station not to acknowledge the *Pilot Strength Measurement*
8 *Message* sent by the mobile station for the first (N1m-1) retransmissions.
- 9 g. For Test 1, instruct the base station to acknowledge only the N1mth *Pilot Strength*
10 *Measurement Message* sent by the mobile station by sending an *Extended Handoff*
11 *Direction Message* to allow a soft handoff with Channel 2.
- 12 h. Verify the following:
- 13 1. *Pilot Strength Measurement Message* is generated when the channel 2
14 Pilot E_C/I_o is at a level above T_ADD.
- 15 2. The mobile station sends N1m *Pilot Strength Measurement Message*.
- 16 3. Channel 1 and Channel 2 are in the active set at the action time of the
17 received handoff message from the base station.
- 18 4. Mobile station sends a *Handoff Completion Message* or *Extended*
19 *Handoff Direction Message*.
- 20 i. For Test 2, repeat steps b to h and instruct the base station to send the *General*
21 *Handoff Direction Message* in step g.
- 22 j. For Test 3, repeat steps b to h and instruct the base station to send the *Universal*
23 *Handoff Direction Message* in step g.
- 24 k. For Test 4, repeat steps b to h and instruct the base station to send an *Extended*
25 *Handoff Direction Message* in step g followed by a *Radio Configuration Parameters*
26 *Message* to the mobile station.
- 27 l. For Test 4, repeat steps b to h and instruct the base the *General Extension Message*,
28 containing *Extended Handoff Direction Message* and Radio Configuration
29 Parameters record in step g.

30 4.3.1.4.2 Tests with unsuccessful Soft Handoff completion

- 31 a. Set up test as shown in [Annex A Figure 2](#).
- 32 1. The Forward Channel from base station #1 has an arbitrary pilot PN
33 offset index P_1 and is called Channel 1.

- 1 2. The Forward Channel from base station #2 has an arbitrary pilot PN
2 offset index P_2 and is called Channel 2.
- 3 b. Set the test parameters as specified in Table 4.3.1.4.1-1.
- 4 c. Reverse link attenuation should be set to balance the forward and reverse links
5 (approximately 90 dB).
- 6 d. Set up a mobile station originated call on Channel 1.
- 7 e. Raise the level of Channel 2 in steps of 1 dB with a dwell time of 5 seconds after
8 each step until the mobile station has generated the *Pilot Strength Measurement*
9 *Message*.
- 10 f. Instruct the base station not to acknowledge any *Pilot Strength Measurement*
11 *Message* sent by the mobile station.
- 12 g. Verify the following:
 - 13 1. *Pilot Strength Measurement Message* is generated when the channel 2
14 Pilot E_c/I_0 is at a level above T_ADD .
 - 15 2. The mobile station sends only N1m *Pilot Strength Measurement*
16 *Message*.
 - 17 3. The soft handoff is unsuccessful.
 - 18 4. The mobile station enters the System Determination Substate.

19 4.3.1.5 Minimum Standard

20 The mobile station shall comply with the requirement in step h for Test 1, 2 and 3 in sections
21 4.3.1.4.1 and step g in section 4.3.1.4.2.

22 **4.3.2 Base Station Test**

23 None

24 **4.4 Search Window Size and Offset (Traffic State)**

25 **4.4.1 Mobile Station Tests**

26 4.4.1.1 Definition

27 A CDMA call is established on sector α of sectored base station #1. Delay is applied to sector β
28 and base station #2. The level of sector β is raised sufficiently high to ensure intersector handoff
29 is possible. The level of base station #2 is raised sufficiently high to ensure a soft handoff is
30 possible

31

32 In section 4.4.1.4.1, the pilot strength measurements of base station #2 and sector β are checked
33 against the search window size and search window offset settings for each of the neighbor pilots.
34 If the delay is greater than the search window size for the neighbor pilot then the mobile station
35 shall not send a *Pilot Strength Measurement Message*.

36

1 In section 4.4.1.4.2, the pilot strength measurements of base station #2 and sector β are checked
 2 against a common search window size (i.e. SRCH_WIN_N). If the delay is greater than the
 3 search window size for the neighbor pilot then the mobile station shall not send a *Pilot Strength*
 4 *Measurement Message*.

5 Formulas

6 Pilot_PN_sel = nearest Pilot PN in the neighbor set not to exceed the integer of
 7 PILOT_PN_PHASE/64.

8 Neighbor_Chip_Offset = PILOT_PN_PHASE-(Pilot_PN_sel*64)

9 Num_Chips = Set_Chip_Offset - Sim_Chip_Offset

$$\frac{\text{Num_chip} \times 244\text{m}}{300\text{m}/\mu\text{s}}$$

10 Chip_Delay (μs) =

11 PILOT_PN_PHASE is the pilot PN phase obtained from the mobile station log file in units of
 12 chips. PILOT_PN_PHASE is referenced to the zero offset Pilot PN sequence. Pilot_PN_sel
 13 selects the closest neighbor's Pilot PN and the value is subtracted from the PILOT_PN_PHASE
 14 to determine the residual chip delay (i.e. Neighbor_Chip_Offset). Set_Chip_Offset is the desired
 15 number of chip offsets for a particular test case. Sim_Chip_Offset is the inherent delay for a pilot
 16 due to the time alignment/calibration of the equipment. Chip_Delay is the actual delay in use the
 17 tester should vary with the test equipment (e.g. fader) to achieve the proper Set_Chip_Offset (this
 18 includes the inherent delay measured for Sim_Chip_Offset. When properly adjusted, the
 19 Set_Chip_Offset should equal to the Neighbor_Chip_Offset.

20 4.4.1.2 Traceability (See [4]):

21 2.6.6: *Handoff Procedures*

22 2.6.6.2.1: *Pilot Search*

23 Table 2.6.6.2.1: *Search Window Sizes*

24 Table 2.6.6.2.1-2: *Search Window Offset*

25 2.6.6.2.5.2: *Processing of Reverse Traffic Channel Handoff Messages*

26 2.7.2.3.2.5: *Pilot Strength Measurement Message*

27 2.7.2.3.2.34: *Extended Pilot Strength Measurement Message*

28 3.6.6: *Handoff Procedures*

29 3.7.2.3.2.1: *System Parameters Message*

30 3.7.2.3.2.22: *General Neighbor List Message*

31 3.7.2.3.2.34: *Universal Neighbor List Message*

32 4.4.1.3 Call Flow Example(s)

33 4.4.1.4 Method of Measurement

34 4.4.1.4.1 Method of Measurement with NGHBR_SRCH_MODE = '10'
 35 (search window size per neighbor)

36 Table 4.4.1.4.1-1 Test Cases for NGHBR_SRCH_MODE='10' (Traffic State)

Test Case #	Neighbor Message	P2 win size	P2 win offset	P2 Set_Chip_Offset	P3 win size	P3 win offset	P3 Set_Chip_Offset
1	GNLM	7	0	P3 win/4 +P3 offset	9	0	P3 win/4 +P3 offset

2	GNLM	7	0	P3 win/2 +P3 offset	9	0	P3 win/2 +P3 offset
3	GNLM	7	0	P3 win/2 +P3 offset +10 chips	9	0	P3 win/2 +P3 offset +10 chips
4	GNLM	7	0	P3 win/2 +P3 offset	7	1	P3 win/2 +P3 offset
5	GNLM	7	0	P3 win/2	7	4	P3 win/2
6	GNLM	8	0	P3 win/4 +P3 offset	10	0	P3 win/4 +P3 offset
7	GNLM	8	0	P3 win/2 +P3 offset	10	0	P3 win/2 +P3 offset
8	GNLM	8	0	P3 win/2 +P3 offset +10 chips	10	0	P3 win/2 +P3 offset +10 chips
9	GNLM	11	0	P3 win/4 +P3 offset	13	0	P3 win/4 +P3 offset
10	GNLM	11	0	P3 win/2 +P3 offset	13	0	P3 win/2 +P3 offset
11	GNLM	11	0	P3 win/2 +P3 offset +10 chips	13	0	P3 win/2 +P3 offset +10 chips
12	GNLM	12	0	P3 win/4 +P3 offset	14	0	P3 win/4 +P3 offset
13	GNLM	12	0	P3 win/2 +P3 offset	14	0	P3 win/2 +P3 offset
14	GNLM	12	0	P3 win/2 +P3 offset +10 chips	14	0	P3 win/2 +P3 offset +10 chips
15	GNLM	13	0	P3 win/4 +P3 offset	15	0	P3 win/4 +P3 offset
16	GNLM	13	0	P3 win/2 +P3 offset	15	0	P3 win/2 +P3 offset
17	GNLM	13	0	P3 win/2 +P3 offset +10 chips	15	0	P3 win/2 +P3 offset +10 chips
18	UNLM	7	0	P3 win/4 +P3 offset	9	0	P3 win/4 +P3 offset
19	UNLM	7	0	P3 win/2 +P3 offset	9	0	P3 win/2 +P3 offset
20	UNLM	7	0	P3 win/2 +P3 offset	9	0	P3 win/2 +P3 offset

				+10 chips			+10 chips
21	UNLM	7	0	P3 win/2 +P3 offset	7	1	P3 win/2 +P3 offset
22	UNLM	7	0	P3 win/2	7	4	P3 win/2
23	UNLM	8	0	P3 win/4 +P3 offset	10	0	P3 win/4 +P3 offset
24	UNLM	8	0	P3 win/2 +P3 offset	10	0	P3 win/2 +P3 offset
25	UNLM	8	0	P3 win/2 +P3 offset +10 chips	10	0	P3 win/2 +P3 offset +10 chips
26	UNLM	11	0	P3 win/4 +P3 offset	13	0	P3 win/4 +P3 offset
27	UNLM	11	0	P3 win/2 +P3 offset	13	0	P3 win/2 +P3 offset
28	UNLM	11	0	P3 win/2 +P3 offset +10 chips	13	0	P3 win/2 +P3 offset +10 chips
29	UNLM	12	0	P3 win/4 +P3 offset	14	0	P3 win/4 +P3 offset
30	UNLM	12	0	P3 win/2 +P3 offset	14	0	P3 win/2 +P3 offset
31	UNLM	12	0	P3 win/2 +P3 offset +10 chips	14	0	P3 win/2 +P3 offset +10 chips
32	UNLM	13	0	P3 win/4 +P3 offset	15	0	P3 win/4 +P3 offset
33	UNLM	13	0	P3 win/2 +P3 offset	15	0	P3 win/2 +P3 offset
34	UNLM	13	0	P3 win/2 +P3 offset +10 chips	15	0	P3 win/2 +P3 offset +10 chips

1

2

a. Set up test as shown in [Annex A Figure 3](#).

3

1. The Forward Channel from sector α of base station #1 has an arbitrary pilot PN offset index P1 and is called Channel 1.

4

5

2. The Forward Channel from sector β of base station #1 has an arbitrary pilot PN offset index P2 and is called Channel 2.

6

7

3. The Forward Channel from base station #2 has an arbitrary pilot PN offset index P3 and is called Channel 3.

8

9

b. Set the test parameters as specified in Table 4.4.1.4.1-2.

- 1 c. The Reverse Link attenuation should be set to balance the forward and reverse links
 2 (approximately 90 dB).

3 **Table 4.4.1.4.1-2 Test Parameters for Search Window per Neighbor (Traffic State)**

Parameter	Unit	Channel 1	Channel 2	Channel 3
\hat{I}_{or}/I_{oc}	dB	1	-20	-20
Pilot E_c/I_{or}	dB	-7	-7	-7
Traffic E_c/I_{or}	dB	-7	-7	-7
I_{oc}	dBm/1.23 MHz	-75	-75	-75
Pilot E_c/I_o	dB	-9.6	-30.6	-30.6

4
 5 Note: The Pilot E_c/I_o value is calculated from the parameters set in the table. It is not a settable
 6 parameter itself.

- 7 d. Set the following values in the *General Neighbor List Message* (GNLM):

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

8

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

9

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	9 (80 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

10

- 11 e. Determine the inherent delay of the channel simulator (i.e. Sim_Chip_Offset).
 12 f. For Tests 1, 6, 9, 12, 15, 18, 23, 26, 29 and 32, set the delay on both Channel 2 and
 13 on Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR of
 14 P3)/4 + SRCH_OFFSET_NGHBR of P3 (i.e Set_Chip_Offset of P2 is equal to
 15 Set_Chip_Offset of P3).
 16 g. Set up a mobile station originated call.
 17 h. Raise the level of Channel 2 to $\hat{I}_{or}/I_{oc} = +1$ dB without dropping the call.
 18 i. Raise the level of Channel 3 to $\hat{I}_{or}/I_{oc} = +1$ dB without dropping the call.
 19 j. End the call.
 20 k. Reset the test parameters as specified in Table 4.4.1.4.1-2.

- 1 I. Verify the following:
- 2 1. The mobile station shall generate a *Pilot Strength Measurement*
- 3 *Message* or an *Extended Pilot Strength Measurement Message* when
- 4 the Channel 2 pilot strength is raised up to the same pilot strength as
- 5 Channel 1 ($\hat{I}_{or}/I_{oc}=1\text{dB}$).
- 6 2. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of
- 7 the *Pilot Strength Measurement Message* or the *Extended Pilot Strength*
- 8 *Measurement Message* generated in step h shall equal the
- 9 Set_Chip_Offset of P2.
- 10 3. The mobile station shall also generate a *Pilot Strength Measurement*
- 11 *Message* or an *Extended Pilot Strength Measurement Message* when
- 12 the Channel 3 pilot strength is raised up to the same pilot strength as
- 13 Channel 1 ($\hat{I}_{or}/I_{oc}=1\text{ dB}$).
- 14 4. The neighbor_Chip_Offset of P3 calculated from PILOT_PN_PHASE of
- 15 the *Pilot Strength Measurement Message* or the *Extended Pilot Strength*
- 16 *Measurement Message* generated in step i shall equal the
- 17 Set_Chip_Offset of P3.
- 18 m. For Tests 2, 7 10, 13, 16, 19, 24, 27, 30 and 33, set the delay on both Channel 2 and
- 19 Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR of
- 20 P3)/2 + SRCH_OFFSET_NGHBR of P3.
- 21 n. Repeat steps g to k.
- 22 o. Verify the following:
- 23 1. The mobile station shall not generate a *Pilot Strength Measurement*
- 24 *Message* or an *Extended Pilot Strength Measurement Message* when
- 25 the Channel 2 pilot strength is raised up to the same pilot strength as
- 26 Channel 1 ($\hat{I}_{or}/I_{oc}=1\text{dB}$).
- 27 2. The mobile station shall generate a *Pilot Strength Measurement*
- 28 *Message* or an *Extended Pilot Strength Measurement Message* when
- 29 the Channel 3 pilot strength is raised up to the same pilot strength as
- 30 Channel 1 ($\hat{I}_{or}/I_{oc}=1\text{ dB}$).
- 31 3. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of
- 32 the *Pilot Strength Measurement Message* or the *Extended Pilot Strength*
- 33 *Measurement Message* generated in step i shall equal the
- 34 Set_Chip_Offset of P3.
- 35 p. For Tests 3, 8, 11, 14, 17, 20, 25, 28, 31 and 34, set the delay on both Channel 2
- 36 and Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR
- 37 of P3)/2 + SRCH_OFFSET_NGHBR of P3 + 10 chips.
- 38 q. Repeat steps g to k.
- 39 r. Verify that the mobile station does not generate a *Pilot Strength Measurement*
- 40 *Message* or an *Extended Pilot Strength Measurement Message* when either the

1 Channel 2 or Channel 3 pilot strength is raised up to the same pilot strength as
 2 Channel 1 ($\hat{I}_{or}/I_{oc}=1$ dB).

3 s. Set the following values in the *General Neighbor List Message*:

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

4

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

5

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	1 (window_size/2)

6

7

8 t. For Tests 4 and 21, set the delay on both Channel 2 and Channel 3 to a Chip_Delay
 9 such that $Set_Chip_Offset = (SRCH_WIN_NGHBR \text{ of } P3)/2 +$
 10 $SRCH_OFFSET_NGHBR \text{ of } P3$.

11 u. Repeat steps g to k.

12 v. Verify the following:

- 13 1. The mobile station shall not generate a *Pilot Strength Measurement*
 14 *Message* or an *Extended Pilot Strength Measurement Message* when
 15 the Channel 2 pilot strength is raised up to the same pilot strength as
 16 Channel 1 ($\hat{I}_{or}/I_{oc}=1$ dB).
- 17 2. The mobile station shall generate a *Pilot Strength Measurement*
 18 *Message* or an *Extended Pilot Strength Measurement Message* when
 19 the Channel 3 pilot strength is raised up to the same pilot strength as
 20 Channel 1 ($\hat{I}_{or}/I_{oc}=1$ dB).
- 21 3. The neighbor_Chip_Offset of P3 calculated from PILOT_PN_PHASE of
 22 the *Pilot Strength Measurement Message* or the *Extended Pilot Strength*
 23 *Measurement Message* generated in step i shall equal the
 24 Set_Chip_Offset of P3.

25 w. Set the following values in the *General Neighbor List Message*:

Field	Value
-------	-------

NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

1

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

2

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	4 (-window_size/2)

3

4

5 x. For Tests 5 and 22, set the delay on both Channel 2 and Channel 3 to a Chip_Delay
6 such that Set_Chip_Offset=(SRCH_WIN_NGHBR of P3)/2.

7 y. Repeat steps g to k.

8 z. Verify the following:

9

10 1. The mobile station shall generate a *Pilot Strength Measurement*
11 *Message* or an *Extended Pilot Strength Measurement Message* when
12 the Channel 2 pilot strength is raised up to the same pilot strength as
Channel 1 (for/loc=1dB).

13 2. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of
14 the *Pilot Strength Measurement Message* or the *Extended Pilot Strength*
15 *Measurement Message* generated in step h shall equal the
16 Set_Chip_Offset of P2.

17 3. The mobile station shall not generate a *Pilot Strength Measurement*
18 *Message* or an *Extended Pilot Strength Measurement Message* when
19 the Channel 3 pilot strength is raised up to the same pilot strength as
20 Channel 1 (for/loc=1 dB).

21 aa. For Tests 6, 7 and 8 repeat steps b to r with the following changes to the *General*
22 *Neighbor List Message*:

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

23

1

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	8 (60 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

2

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	10 (100 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

3

bb. For Tests 9, 10 and 11 repeat steps b to r with the following changes to the *General Neighbor List Message*:

4

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

5

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	11 (130 chips)
SRCH_OFFSET_NGHBR	0 (no offset)
Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	13 (226 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

6

7

8

cc. For Tests 12, 13 and 14 repeat steps b to r with the following changes to the *General Neighbor List Message*:

9

10

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

11

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	12 (160 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

1

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	14 (320 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

2

3

dd. For Tests 15, 16 and 17 repeat steps b to r with the following changes to the *General Neighbor List Message*:

4

5

Field	Value
NGHBR_CONFIG_PN_INCL	1 (for GNLM only)
NGHBR_SRCH_MODE	'10'
SRCH_OFFSET_INCL	1

6

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	13 (226 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

7

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	15 (452 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

8

9

10

ee. For Tests 18 to 22 repeat Tests 1 to 5, correspondingly with the exception that *Universal Neighbor List Message* is used instead of the *General Neighbor List Message*.

11

12

13

ff. For Tests 23, 24 and 25 repeat Tests 6, 7 and 8, correspondingly with the exception that *Universal Neighbor List Message* is used instead of the *General Neighbor List Message*.

14

15

16

gg. For Tests 26, 27 and 28 repeat Tests 9, 10 and 11, correspondingly with the exception that *Universal Neighbor List Message* is used instead of the *General Neighbor List Message*.

17

18

19

hh. For Tests 29, 30 and 31 repeat Tests 12, 13 and 14, correspondingly with the exception that *Universal Neighbor List Message* is used instead of the *General Neighbor List Message*.

20

21

- 1 ii. For Tests 32, 33 and 34 repeat Tests 15, 16 and 17, correspondingly with the
 2 exception that *Universal Neighbor List Message* is used instead of the *General*
 3 *Neighbor List Message*.

4 4.4.1.4.2 Method of Measurement with NGHBR_SRCH_MODE = '00' (same
 5 search window size for all neighbor)

6
 7

Table 4.4.1.4.2-1 Test Cases for NGHBR_SRCH_MODE='00' (Traffic State)

Test Case #	Neighbor Message	P2 win size	P2 Set_Chip_Offset	P3 win size	P3 Set_Chip_Offset
1	GNLM	7	SRCH_Win_N/2	7	SRCH_WIN_N/4
2	GNLM	7	SRCH_Win_N/2 + 10 chips	7	SRCH_WIN_N/4 + 10 chips
3	GNLM	10	SRCH_Win_N/2	10	SRCH_WIN_N/4
4	GNLM	10	SRCH_Win_N/2 + 10 chips	10	SRCH_WIN_N/4 + 10 chips
5	GNLM	13	SRCH_Win_N/2	13	SRCH_WIN_N/4
6	GNLM	13	SRCH_Win_N/2 + 10 chips	13	SRCH_WIN_N/4 + 10 chips
7	GNLM	14	SRCH_Win_N/2	14	SRCH_WIN_N/4
8	GNLM	14	SRCH_Win_N/2 + 10 chips	14	SRCH_WIN_N/4 + 10 chips
9	GNLM	15	SRCH_Win_N/2	15	SRCH_WIN_N/4
10	GNLM	15	SRCH_Win_N/2 + 10 chips	15	SRCH_WIN_N/4 + 10 chips
11	UNLM	7	SRCH_Win_N/2	7	SRCH_WIN_N/4
12	UNLM	7	SRCH_Win_N/2 + 10 chips	7	SRCH_WIN_N/4 + 10 chips
13	UNLM	10	SRCH_Win_N/2	10	SRCH_WIN_N/4

14	UNLM	10	SRCH_Win_N/2 + 10 chips	10	SRCH_WIN_N/4 + 10 chips
15	UNLM	13	SRCH_Win_N/2	13	SRCH_WIN_N/4
16	UNLM	13	SRCH_Win_N/2 + 10 chips	13	SRCH_WIN_N/4 + 10 chips
17	UNLM	14	SRCH_Win_N/2	14	SRCH_WIN_N/4
18	UNLM	14	SRCH_Win_N/2 + 10 chips	14	SRCH_WIN_N/4 + 10 chips
19	UNLM	15	SRCH_Win_N/2	15	SRCH_WIN_N/4
20	UNLM	15	SRCH_Win_N/2 + 10 chips	15	SRCH_WIN_N/4 + 10 chips

1

2

- a. Set up test as shown in [Annex A Figure 3](#).

3

1. The Forward Channel from sector α of base station #1 has an arbitrary pilot PN offset index P1 and is called Channel 1.

4

5

2. The Forward Channel from sector β of base station #1 has an arbitrary pilot PN offset index P2 and is called Channel 2.

6

7

3. The Forward Channel from base station #2 has an arbitrary pilot PN offset index P3 and is called Channel 3.

8

9

- b. Set the test parameters as specified in Table 4.4.1.4.1-2.

10

- c. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

11

12

- d. Set the following value in the *System Parameters Message*:

Field	Value
SRCH_WIN_N	7 (40 chips)

13

14

- e. Set the following values in the *General Neighbor List Message*:

15

Field	Value
NGHBR_SRCH_MODE	'00'

16

- 1 f. For Tests 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19, set the delay on Channel 2 to a
2 Chip_Delay such that $\text{Set_Chip_Offset of P2} = \text{SRCH_WIN_N}/2$, and set the delay on
3 Channel 3 to a Chip_Delay such that $\text{Set_Chip_Offset} = \text{SRCH_WIN_N}/4$.
- 4 g. Set up a mobile station originated call.
- 5 h. Raise the level of Channel 2 to $\hat{\text{Ior/loc}} = +1$ dB without dropping the call.
- 6 i. Raise the level of Channel 3 to $\hat{\text{Ior/loc}} = +1$ dB without dropping the call.
- 7 j. End the call.
- 8 k. Reset the test parameters as specified in Table 4.4.1.4.1-2.
- 9 l. Verify the following:
- 10 1. The mobile station shall generate a *Pilot Strength Measurement*
11 *Message* or an *Extended Pilot Strength Measurement Message* when
12 the Channel 2 pilot strength is raised up to the same pilot strength as
13 Channel 1 ($\hat{\text{Ior/loc}} = 1$ dB).
- 14 2. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of
15 the *Pilot Strength Measurement Message* or the *Extended Pilot Strength*
16 *Measurement Message* generated in step h shall equal the
17 Set_Chip_Offset of P2.
- 18 3. The mobile station shall also generate a *Pilot Strength Measurement*
19 *Message* or an *Extended Pilot Strength Measurement Message* when
20 the Channel 3 pilot strength is raised up to the same pilot strength as
21 Channel 1 ($\hat{\text{Ior/loc}} = 1$ dB).
- 22 4. The neighbor_Chip_Offset of P3 calculated from PILOT_PN_PHASE of
23 the *Pilot Strength Measurement Message* or the *Extended Pilot Strength*
24 *Measurement Message* generated in step i shall equal the
25 Set_Chip_Offset of P3.
- 26 m. For Tests 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20, set the delay on Channel 2 to a
27 Chip_Delay such that $\text{Set_Chip_Offset of P2} = (\text{SRCH_WIN_N}/2) + 10$ chips, and set
28 the delay on Channel 3 to a Chip_Delay such that
29 $\text{Set_Chip_Offset} = (\text{SRCH_WIN_N}/4) + 10$ chips.
- 30 n. Repeat steps g to k.
- 31 o. Verify the following:
- 32 1. The mobile station shall not generate a *Pilot Strength Measurement*
33 *Message* or an *Extended Pilot Strength Measurement Message* when
34 the Channel 2 pilot strength is raised up to the same pilot strength as
35 Channel 1 ($\hat{\text{Ior/loc}} = 1$ dB).
- 36 2. The mobile station shall generate a *Pilot Strength Measurement*
37 *Message* or an *Extended Pilot Strength Measurement Message* when
38 the Channel 3 pilot strength is raised up to the same pilot strength as
39 Channel 1 ($\hat{\text{Ior/loc}} = 1$ dB).

- 1 3. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of
 2 the *Pilot Strength Measurement Message* or the Extended *Pilot Strength*
 3 *Measurement Message* generated in step i shall equal the
 4 Set_Chip_Offset of P3.
- 5 p. For Tests 3 and 4 repeat steps b to o with SRCH_WIN_N set to 10 (100 chips).
 6 q. For Tests 5 and 6 repeat steps b to o with SRCH_WIN_N set to 13 (226 chips).
 7 r. For Tests 7 and 8 repeat steps b to o with SRCH_WIN_N set to 14 (320 chips).
 8 s. For Tests 9 and 10 repeat steps b to o with SRCH_WIN_N set to 15 (452 chips).
 9 t. Set the following values in the *Universal Neighbor List Message*:

Field	Value
NGHBR_SRCH_MODE	'00'
SRCH_WIN_N	7 (40 Chips)

- 11
- 12 u. For Tests 11 and 12 repeat steps b to o using parameter values in step t sent over
 13 the *Universal Neighbor List Message* instead of the *General Neighbor List Message*.
- 14 v. For Tests 13 and 14 repeat steps b to o with SRCH_WIN_N set to 10 (100 chips) in
 15 the *Universal Neighbor List Message* in step t.
- 16 w. For Tests 15 and 16 repeat steps b to o with SRCH_WIN_N set to 13 (226 chips) in
 17 the *Universal Neighbor List Message* in step t.
- 18 x. For Tests 17 and 18 repeat steps b to o with SRCH_WIN_N set to 14 (320 chips) in
 19 the *Universal Neighbor List Message* in step t.
- 20 y. For Tests 19 and 20 repeat steps b to o with SRCH_WIN_N set to 15 (452 chips) in
 21 the *Universal Neighbor List Message* in step t.

22 4.4.1.5 Minimum Standard

23

24 4.4.1.5.1 NGHBR_SRCH_MODE = '10' (search window size per neighbor):

25 Verify steps l, o and r for Tests 1 to 3, Tests 6 to 20 and Tests 23 to 34. Verify steps v and z for
 26 Tests 4 to 5 and Tests 21 to 22.

27

28 4.4.1.5.2 NGHBR_SRCH_MODE = '00' (same search window size for all 29 neighbor):

30 Verify step l for Tests 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19.

31 Verify step o for Tests 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20.

32

1 **4.4.2 Base Station Test**

2 None

3 **4.5 Hard Handoff Between Frequencies in the Same Band Class**

4 **4.5.1 Mobile Station Test**

5 4.5.1.1 Definition

6 This test verifies the mobile station and base station perform a hard handoff between different
7 CDMA channels in the same band class.

8 4.5.1.2 Traceability (See [4]):

9 *2.6.6.1.1: Types of Handoff*

10 *2.6.6.2.5: Handoff Messages*

11 *2.6.6.2.8: CDMA-to-CDMA Hard Handoff*

12 *3.6.6.1.1: Types of Handoff*

13 *3.6.6.2.2: Call Processing During Handoff*

14 *3.7.3.3.2.17: Extended Handoff Direction Message*

15 *3.7.3.3.2.31: General Handoff Direction Message*

16 *3.7.3.3.2.36: Universal Handoff Direction Message*

17 4.5.1.3 Call Flow Diagram

18 None

19 4.5.1.4 Method of Measurement

20 a. For Test 1, Set up the test as shown in [Annex A Figure 2](#).

21 1. The Forward Channel from base station #1 has an arbitrary pilot PN
22 offset index P1 and is called Channel 1.

23 2. Set up base station #2 to be on a different CDMA channel than base
24 station #1, but within the same band class. The Forward Channel from
25 base station #2 has an arbitrary pilot PN offset index P2 and is called
26 Channel 2.

27 3. The AWGN source should be on the frequency of Channel 2. (It is
28 advisable to achieve the maximum possible difference in frequency
29 separation between Channel 1 and Channel 2).

30 b. Set the test parameters as shown in Table 4.5.1.4-1.

31
32
33
34
35
36
37

1
2

Table 4.5.1.4-1 Hard handoff Test Parameters

Parameter	Unit	Channel 1	Channel 2
\hat{I}_{or}/I_{oc}	dBm	N/A	-5
Pilot E_c/I_{or}	dB	-7	-7
Traffic E_c/I_{or}	dB	-7	-7
I_{oc}	dBm/1.23 MHz	N/A	-75
Pilot E_c/I_o	dB	-7	-13.2

3

4 c. Set reverse link attenuation to balance forward and reverse links (approximately 90
5 dB).

6 d. Set up a mobile station originated call on Channel 1.

7 e. Verify user data in both directions.

8 f. Instruct base station #1 to send an *Extended Handoff Direction Message* to initiate
9 handoff from Channel 1 to Channel 2.

10 g. Verify the following:

11 1. The mobile station sends a *Handoff Completion Message* or an
12 *Extended Handoff Completion Message* as a response to the handoff
13 message sent in step f.

14 2. Only Channel 2 is in the Active Set.

15 h. End the call

16 i. Repeat steps d to h with the change that the base station is instructed to send the
17 *General Handoff Direction Message* in step f.18 j. Repeat steps d to h with the change that the base station is instructed to send the
19 *Universal Handoff Direction Message* in step f.20 k. For Test 2, repeat steps b through i for the case where it is a hard handoff to a soft
21 handoff on the same frequency with the following setup (see Figure 3.1.2-1: one
22 base station configured with two sectors active):23 1. The Forward Channel from base station #1 has an arbitrary pilot PN
24 offset index P1 and is called Channel 1.25 2. The Forward Channel from sector of base station #2 has an arbitrary
26 pilot PN offset index P2 and is called Channel 2.27 3. The Forward Channel from sector β of base station #2 has an arbitrary
28 pilot PN offset index P3 and is called Channel 3.

29 4.5.1.5 Minimum Standard

30 For both Test 1 and Test 2, verify step g.

1

2 **4.5.2 Base Station Test**

3 None

4 **4.6 Reserved**

5 **4.7 Hard handoff between Different Band Classes**

6 **4.7.1 None**

7 4.7.1.1 Definition

8 This test verifies a hard handoff between two different band classes. Both band classes are
9 supported by the mobile station and the base station.

10 4.7.1.2 Traceability (See [4]):

11 *2.6.6.1.1: Types of Handoff*

12 *2.6.6.2.5: Handoff Messages*

13 *2.6.6.2.8: CDMA-to-CDMA Hard Handoff*

14 *3.6.6.1.1: Types of Handoff*

15 *3.6.6.2.2: Call Processing During Handoff*

16 *3.7.3.3.2.17: Extended Handoff Direction Message*

17 *3.7.3.3.2.31: General Handoff Direction Message*

18 *3.7.3.3.2.36: Universal Handoff Direction Message*

19 (See [1]):

20 *2.1.1.1: Channel Spacing and Designation*

21 4.7.1.3 Call Flow Diagram

22 None

23 4.7.1.4 Method of Measurement

24 a. Set up test as shown in [Annex A Figure 2](#).

25 1. The Forward Channel from the base station 1 has an arbitrary pilot PN
26 offset index P1 and is called Channel 1 and operates in a different band
27 class than base station 2.

28 2. The Forward Channel from the base station 2 has an arbitrary pilot PN
29 offset index P2 and is called Channel 2 and operates in a different band
30 class than base station 1.

31 b. Set the test parameters as shown in Table 4.7.1.4-1

32 **Table 4.7.1.4-1 Hard Handoff: Band Class X to Band Class Y**

Parameter	Unit	Band Class X	Band Class Y
\hat{I}_{OR}/I_{OC}	dB	-5	-5
Pilot E_C/I_{OR}	dB	-7	-7
Traffic E_C/I_{OR}	dB	-7	-7
I_{OC}	dBm/1.23 MHz	-75	-75
Pilot E_C/I_O	dB	-13.2	-13.2

1

2

c. Set reverse link attenuation to balance forward and reverse links (approx. 90 dB).

3

d. Set up a call in Channel 1.

4

e. Verify user data in both directions.

5

f. Instruct the base station 1 to send an *Extended Handoff Direction Message* with proper parameters (refer to tables in Foreword) to the mobile station to initiate handoff to base station 2.

6

7

8

g. Verify that the mobile station's handoff to base station 2 is successful.

9

h. Instruct base station 2 to send an *Extended Handoff Direction Message* with proper parameters (refer to tables in Foreword) to the mobile station to initiate handoff to base station 1.

10

11

12

i. Verify that the mobile station's handoff to base station 1 is successful.

13

j. End the call.

14

k. Repeat steps d to j with the change that the base station is instructed to send the *General Handoff Direction Message* in both steps f and h.

15

16

l. Repeat steps d to j with the change that the base station is instructed to send the *Universal Handoff Direction Message* in both steps f and h.

17

18 4.7.1.5 Minimum Standard

19 Verify steps g and i.

20

21 4.7.2 Base Station Test

22 4.7.3 None

23 4.7.3.1 Definition

24 This test verifies the mobile station behavior when a hard handoff fails and:

25

1. Return on failure is allowed.

26

2. Return on failure is disallowed.

27 4.7.3.2 Traceability (See [4]):

28 2.6.4.2: Traffic Channel Initialization Substate

- 1 2.6.6.1.1: *Types of Handoff*
- 2 2.6.6.2.5: *Handoff Messages*
- 3 2.6.6.2.8.2: *Hard handoff With Return On Failure*
- 4 2.6.6.2.8.2.1: *Restoring the Configuration*
- 5 3.6.6.1: *Overview*
- 6 3.6.6.2.2: *Call Processing During Handoff*
- 7 3.7.3.3.2.31: *General Handoff Direction Message*
- 8 3.7.3.3.2.36: *Universal Handoff Direction Message*

9 4.7.3.3 Call Flow Diagram

10 None

11 4.7.3.4 Method of Measurement

- 12 a. Set up test as shown in [Annex A Figure 2](#).
 - 13 1. The Forward Channel from base station 1 has an arbitrary pilot PN offset
 - 14 index P1 and is called Channel 1.
 - 15 2. The Forward Channel from base station 2 has an arbitrary pilot PN offset
 - 16 index P2 and is called Channel 2.
- 17 b. Set the test parameters as shown in Table 4.8.1.4-1.

18 **Table 4.8.1.4-1 Hard handoff Test Parameters**

Parameter	Unit	Channel 1	Channel 2
\hat{I}_{Or}/I_{Oc}	dB	-5	-5
Pilot E_c/I_{Or}	dB	-7	-7
Traffic E_c/I_{Or}	dB	-7	<-20 (or none)
I_{Oc}	dBm/1.23 MHz	-75	-75
Pilot E_c/I_O	dB	-13.2	-12

20

- 21 c. Reverse link attenuation should be set to balance the forward and reverse links
- 22 (approximately 90 dB).
- 23 d. Set up a mobile station originated call on Channel 1.
- 24 e. Verify user data in both directions.
- 25 f. For Test 1, instruct the base station to initiate a handoff and allow for return on failure
- 26 by sending a *General Handoff Direction Message* with the following values:

RETURN_IF_HANDOFF_FAIL	'1'
------------------------	-----

- 27 g. Due to the low traffic gain level on Channel 2 (refer to Table 4.8.1.4-1), the mobile
- 28 station will attempt the hard handoff as directed by the base station, but not complete
- 29 it, and declare a hard handoff failure.

- 1 h. Verify the following:
- 2 1. The mobile station restores to the previous configuration.
- 3 2. The mobile station returns to Channel 1.
- 4 3. The mobile station sends a *Candidate Frequency Search Report*
- 5 *Message* to the base station within T56m seconds.
- 6 i. End the call.
- 7 j. Repeat steps d to i with the change that the base station is instructed to send the
- 8 *Universal Handoff Direction Message* in step f.
- 9 k. Set up a mobile station originated call on Channel 1.
- 10 l. Verify user data in both directions.
- 11 m. For Test 2, instruct the base station to initiate a handoff and disallow return on failure
- 12 by sending a *General Handoff Direction Message* with the following values:
- | | |
|------------------------|-----|
| RETURN_IF_HANDOFF_FAIL | '0' |
|------------------------|-----|
- 13 n. Due to the low traffic gain level on Channel 2 (refer to Table 4.8.1.4-1), the mobile
- 14 station will attempt a hard handoff as directed by the base station, but not complete it,
- 15 and declare a hard handoff failure.
- 16 o. Verify the following:
- 17 1. The mobile station does not restore to the previous configuration.
- 18 2. The mobile station does not return to Channel 1.
- 19 p. After the call has ended repeat steps j to n with the change that the base station is
- 20 instructed to send the *Universal Handoff Direction Message* in step l.

21 4.7.3.5 Minimum Standard

22 Verify steps h and o.

23 4.7.4 Base Station Test

24 None

25 4.8 Hard handoff with and without Return on Failure

26 4.8.1 Mobile Station Test

27 4.8.1.1 Definition

28 This test verifies the mobile station behavior when a hard handoff fails and:

- 29 3. Return on failure is allowed.
- 30 4. Return on failure is disallowed.

- 1 4.8.1.2 Traceability (See [4]):
- 2 2.6.4.2: Traffic Channel Initialization Substate
- 3 2.6.6.1.1: Types of Handoff
- 4 2.6.6.2.5: Handoff Messages
- 5 2.6.6.2.8.2: Hard handoff With Return On Failure
- 6 2.6.6.2.8.2.1: Restoring the Configuration
- 7 3.6.6.1: Overview
- 8 3.6.6.2.2: Call Processing During Handoff
- 9 3.7.3.3.2.31: General Handoff Direction Message
- 10 3.7.3.3.2.36: Universal Handoff Direction Message

11 4.8.1.3 Call Flow Diagram

12 None

13 4.8.1.4 Method of Measurement

- 14 a. Set up test as shown in [Annex A Figure 2](#).
 - 15 1. The Forward Channel from base station 1 has an arbitrary pilot PN offset
 - 16 index P1 and is called Channel 1.
 - 17 2. The Forward Channel from base station 2 has an arbitrary pilot PN offset
 - 18 index P2 and is called Channel 2.
- 19 b. Set the test parameters as shown in Table 4.8.1.4-1.

20
21 **Table 4.8.1.4-1 Hard handoff Test Parameters**

Parameter	Unit	Channel 1	Channel 2
\hat{I}_{Or}/I_{Oc}	dB	-5	-5
Pilot E_c/I_{Or}	dB	-7	-7
Traffic E_c/I_{Or}	dB	-7	<-20 (or none)
I_{Oc}	dBm/1.23 MHz	-75	-75
Pilot E_c/I_O	dB	-13.2	-12

- 22
- 23 c. Reverse link attenuation should be set to balance the forward and reverse links
- 24 (approximately 90 dB).
- 25 d. Set up a mobile station originated call on Channel 1.
- 26 e. Verify user data in both directions.
- 27 f. For Test 1, instruct the base station to initiate a handoff and allow for return on failure
- 28 by sending a *General Handoff Direction Message* with the following values:

RETURN_IF_HANDOFF_FAIL	'1'
------------------------	-----

- 1 g. Due to the low traffic gain level on Channel 2 (refer to Table 4.8.1.4-1), the mobile
2 station will attempt the hard handoff as directed by the base station, but not complete
3 it, and declare a hard handoff failure.
- 4 h. Verify the following:
- 5 1. The mobile station restores to the previous configuration.
- 6 2. The mobile station returns to Channel 1.
- 7 3. The mobile station sends a *Candidate Frequency Search Report*
8 *Message* to the base station within T56m seconds.
- 9 i. End the call.
- 10 j. Repeat steps d to i with the change that the base station is instructed to send the
11 *Universal Handoff Direction Message* in step f.
- 12 k. Set up a mobile station originated call on Channel 1.
- 13 l. Verify user data in both directions.
- 14 m. For Test 2, instruct the base station to initiate a handoff and disallow return on failure
15 by sending a *General Handoff Direction Message* with the following values:

RETURN_IF_HANDOFF_FAIL	'0'
------------------------	-----

- 16 n. Due to the low traffic gain level on Channel 2 (refer to Table 4.8.1.4-1), the mobile
17 station will attempt a hard handoff as directed by the base station, but not complete it,
18 and declare a hard handoff failure.
- 19 o. Verify the following:
- 20 1. The mobile station does not restore to the previous configuration.
- 21 2. The mobile station does not return to Channel 1.
- 22 p. After the call has ended repeat steps j to n with the change that the base station is
23 instructed to send the *Universal Handoff Direction Message* in step l.

24 4.8.1.5 Minimum Standard

25 Verify steps h and o.

26 4.8.2 Base Station Test

27 None

1 **4.9 Access Entry Handoff**

2 **4.9.1 Mobile Station Test**

3 4.9.1.1 Definition

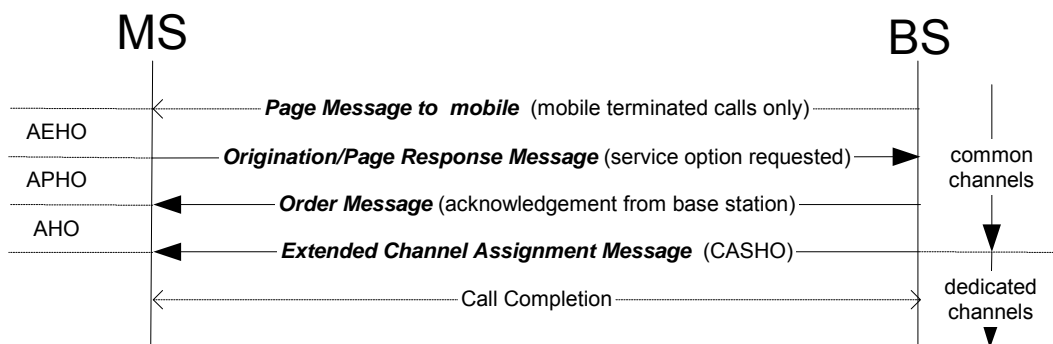
4 This tests mobile station operation. AEHO is permitted for mobile station terminated calls only.
 5 The mobile station may perform an AEHO to a neighboring base station after receiving a *General*
 6 *Page*, but before transmitting any access probes in response. In the short interval between the
 7 receiving the *General Page* and sending a *Page Response Message*, the mobile station may
 8 handoff to a stronger neighbor base station and transmit its *Page Response Message* to that new
 9 base station.
 10

11 4.9.1.2 Traceability (See [6]):

- 12 3.2.3.2 Access Handoff
- 13 3.2.3.1 Access Probe Handoff
- 14 (See [4]):
- 15 2.6.2.1.4 Idle handoff
- 16 2.6.3.1.7 Monitoring Pilots
- 17 2.6.2.3 Mobile station Station Page Match Operation
- 18 2.6.2.4 Mobile Station Order and Message Processing Operation
- 19 2.6.3 System Access State
- 20 2.6.6 Handoff Procedures 2.7.4.25 Capability Information
- 21 3.6.6 Handoff Procedures
- 22 Table D-1 T33m, T42m, Table D-2 N13m
- 23 3.6.2.3 Mobile Station Directed Messages
- 24 2.6.3.1.3.2 Access Handoff
- 25 2.6.3.3 Page Response Substate
- 26 2.6.3.5 Mobile Station Origination Attempt Substate
- 27 2.6.3.1.3.3 Access Probe Handoff
- 28 2.7.4.25 Capability Information
- 29 3.7.2.3.2.13 *Extended System Parameters Message*
- 30

31 4.9.1.3 Call Flow

32



33

1

2

3 4.9.1.4 Method of Measurement

- 4 a. Set up 2 base stations and test equipment with connections to the mobile station as
5 shown in [Annex A Figure 7](#).
- 6 b. Configure the setup to abruptly switch from State 1 to State 2 in Table 4.9.1.3-1. In
7 State 1, base station 1 is the dominant pilot as seen by the mobile station. In State 2,
8 base station 2 is dominant.

9

Table 4.9.1.4-1 – Signal States for 2-Base Station Handoffs

State			Base station 1	Base station 2
1	Pilot Ec/Io	dB	-3 to -11	Less than -18
2	Pilot Ec/Io	dB	Less than -18	-3 to -11

10

11

- 12 c. Configure base station 1 to list base station 2 as the first neighbor in its *Neighbor List*
13 *Message*, *Extended Neighbor List Message*, or *General Neighbor List Message*.
- 14 d. Configure both base stations to allow AEHO by including the following fields in their
15 *Extended System Parameters Message*.

16

Field	Value
NGHBR_SET_ENTRY_INFO	'1' (AEHO neighbor info included in this message)
ACC_ENT_HO_ORDER	'1', access entry handoffs are permitted
NGHBR_SET_ACCESS_INFO	'0' (AHO/APHO neighbor info not included in this message)
NGHBR_SET_SIZE	number of neighbors in the <i>neighbor list message</i>
ACCESS_ENTRY_HO [0]	'1' (enables the first neighbor in the <i>neighbor list message</i> for AEHO)

17

- 18 e. Configure the setup for State 1, and allow the mobile station to come to the idle state
19 on base station 1.
- 20 f. Attempt a mobile station terminated call.
- 21 g. During call setup, after the mobile station receives the *General Page* from base
22 station 1, quickly switch the setup to State 2. The time interval when AEHO may
23 occur after receipt of the *General Page* is equal to T33m (.3 seconds) plus any time
24 required to update overhead information (T41m = 3 seconds max), before sending a
25 *Page Response Message*.
- 26 h. Verify that the call is successful.
- 27 i. Verify that the mobile received a *General Page* from base station 1 and transmitted
28 its *Page Response Message* to base station 2.

29

1 4.9.1.5 Minimum Standard

2 The mobile station shall comply with requirements in step h and i.

3 **4.9.2 Base Station Test**

4 None

5 **4.10 Access Probe Handoff**

6 **4.10.1 Mobile Station Test**

7 4.10.1.1 Definition

8 This tests mobile station operation. APHO allows the mobile station to handoff to another stronger
9 base station after unacknowledged access probes, on mobile station originated or mobile station
10 terminated calls. In APHO, the mobile station suspends the access attempt on the first base
11 station and restarts the access attempt on the new base station, starting with the first probe of the
12 first probe sequence of new access sub-attempt.
13

14 4.10.1.2 Traceability (See [6]):

15 3.2.3.2 Access Handoff

16 3.2.3.1 Access Probe Handoff

17 (See [4]):

18 2.6.2.1.4 Idle handoff

19 2.6.3.1.7 Monitoring Pilots

20 2.6.2.3 Mobile Station Page Match Operation

21 2.6.2.4 Mobile Station Order and Message Processing Operation

22 2.6.3 System Access State

23 2.6.6 Handoff Procedures

24 2.7.4.25 Capability Information

25 3.6.6 Handoff Procedures

26 Table D-1 T33m, T42m, Table D-2 N13m

27 3.6.2.3 Mobile Station Directed Messages

28 2.6.3.1.3.2 Access Handoff

29 2.6.3.3 Page Response Substate

30 2.6.3.5 Mobile Station Origination Attempt Substate

31 2.6.3.1.3.3 Access Probe Handoff

32 2.7.4.25 Capability Information

33 3.7.2.3.2.13 Extended System Parameters Message

34

35 4.10.1.3 Call Flow Example(s)

36 See 4.10

37

1 4.10.1.4 Method of Measurement

- 2 a. Set up 2 base stations and test equipment with connections to the mobile station as
3 shown in [Annex A Figure 7](#).
- 4 b. Configure the setup to abruptly switch from State 1 to State 2 in Table 4.9.1.4-1. In
5 State 1, base station 1 is the dominant pilot as seen by the mobile station. In State 2,
6 base station 2 is dominant.
- 7 c. Configure base station 1 to list base station 2 as the first neighbor in its *Neighbor List*
8 *Message*, *Extended Neighbor List Message*, or *General Neighbor List Message*.
- 9 d. Configure both base stations to allow APHO using the following fields in the
10 *Extended System Parameters Message*:

11

Field	Value
NGHBR_SET_ENTRY_INFO	'0' (AEHO neighbor info not included in this message)
NGHBR_SET_ACCESS_INFO	'1' (AHO/APHO neighbor info included in this message)
ACCESS_HO	'0' (access handoff is not permitted)
ACCESS_PROBE_HO	'1' (access probe handoff is permitted)
ACC_HO_LIST_UPD	'0' (no access probe handoffs are allowed to pilots not listed in ACCESS_HO_LIST)
MAX_NUM_PROBE_HO	'0' (only one access probe handoff during this access attempt is allowed)
NGHBR_SET_SIZE	number of APHO neighbors in this base stations <i>neighbor list message</i>
ACCESS_HO_ALLOWED [0]	'1' (enables the first neighbor in the <i>neighbor list message</i> for AHO or APHO)

12

- 13 e. Configure the setup for State 1, and allow the mobile station to come to the idle state
14 on base station 1.
- 15 f. Disable the reverse link of base station 1.
- 16 g. Attempt a mobile station originated call.
- 17 h. During call setup, after the mobile station has sent at least one full access probe to
18 base station 1, quickly switch to State 2 to cause the mobile station to perform APHO
19 to base station 2.
- 20 i. Verify that the call is successful.
- 21 j. Verify that the mobile station sent at least one unacknowledged *Origination Message*
22 to base station 1, then sent an *Origination Message* and completed the call to base
23 station 2.

1 4.10.1.5 Minimum Standard

2 The mobile station shall comply with the requirements in step i and j.

3 **4.10.2 Base Station Test**

4 None

5 **4.11 Access Handoff**

6 **4.11.1 Mobile Station Test**

7 4.11.1.1 Definition

8 This tests for mobile station operation. AHO is permitted on mobile station originated or mobile
9 station terminated calls, after an acknowledged access probe. In a call origination AHO, neighbor
10 base stations asynchronously send *channel assignment messages* to the mobile station.
11

12 4.11.1.2 Traceability (See [6]):

13 *3.2.3.2 Access Handoff*

14 *3.2.3.1 Access Probe Handoff*

15 (See [4]):

16 *2.6.2.1.4 Idle handoff*

17 *2.6.3.1.7 Monitoring Pilots**2.6.2.3 Mobile Station Page Match Operation*

18 *2.6.2.4 Mobile Station Order and Message Processing Operation*

19 *2.6.3 System Access State*

20 *2.6.6 Handoff Procedures*

21 *2.7.4.25 Capability Information*

22 *3.6.6 Handoff Procedures*

23 *Table D-1 T33m, T42m, Table D-2 N13m*

24 *3.6.2.3 Mobile Station Directed Messages*

25 *2.6.3.1.3.2 Access Handoff*

26 *2.6.3.3 Page Response Substate*

27 *2.6.3.5 Mobile Station Origination Attempt Substate*

28 *2.6.3.1.3.3 Access Probe Handoff*

29 *2.7.4.25 Capability Information*

30 *3.7.2.3.2.13 Extended System Parameters Message*

31

32 4.11.1.3 Call Flow Example(s)

33 See 4.10

34 4.11.1.4 Method of Measurement

- 35 a. Set up 2 base stations and test equipment with connections to the mobile station as
36 shown in [Annex A Figure 7](#).

- 1 b. Configure the setup to abruptly switch from State 1 to State 2 in Table 4.9.1.4-1 In
2 State 1, base station 1 is the dominant pilot as seen by the mobile station. In State 2,
3 base station 2 is dominant.
- 4 c. Configure base station 1 to list base station 2 as the first neighbor in its *Neighbor List*
5 *Message*, *Extended Neighbor List Message*, or *General Neighbor List Message*.
- 6 d. Configure both base stations to allow AHO using the following fields in the *Extended*
7 *System Parameters Message*.

8

Field	Value
NGHBR_SET_ENTRY_INFO	'0' (AEHO neighbor info not included in this message)
NGHBR_SET_ACCESS_INFO	'1' (AHO/APHO neighbor set info included in this message)
ACCESS_HO	'1' (AHO is permitted)
ACCESS_HO_MSG_RSP	'1' (AHO is permitted for message response)
ACCESS_PROBE_HO	'0' (APHO is not permitted)
NGHBR_SET_SIZE	number of neighbors in the <i>neighbor list message</i>
ACCESS_HO_ALLOWED [0]	'1' (enables the first neighbor in the <i>neighbor list message</i> for AHO or APHO)

9

- 10 e. Configure the setup for State 1, and allow the mobile station to come to the idle state
11 on base station 1.
- 12 f. Attempt a mobile station originated call.
- 13 g. During call setup, after the mobile station has received acknowledgement of its
14 *Origination Message* from base station 1, quickly switch to state 2 to cause the
15 mobile station to perform an AHO to base station 2. The time interval when AHO is
16 possible, between receipt of acknowledgement *Order* and receipt of *Extended*
17 *Channel Assignment Message*, can be as short as .2 -.3 seconds or as long as T42m
18 = 12 seconds.
- 19 h. Verify that the call is successful.
- 20 i. Verify that the mobile station receives a base station acknowledgement *Order* from
21 base station 1, and receives the *Extended Channel Assignment Message* from base
22 station 2.

23 4.11.1.5 Minimum Standard

24 The mobile station shall comply with the requirements in step h and i.

25

26 4.11.2 Base Station Test

27 None

1 **4.12 Channel Assignment into A Soft HandOff**

2 **4.12.1 Mobile Station Test**

3 4.12.1.1 Definition

4 This test for mobile station operation. CASHO allows multiple pilots to be assigned in the
5 *Extended Channel Assignment Message* from the pilots reported in the *Origination Message* or
6 *Page Response Message*.

7
8 4.12.1.2 Traceability (See [4]):

9 *3.7.2.3.2.13 Extended System Parameters Message*

10 *2.6.3.1.7 Monitoring Pilots*

11 *2.6.3.3 Page Response Substate*

12

13 4.12.1.3 Call Flow Example(s)

14 None

15

16 4.12.1.4 Method of Measurement

- 17 a. Connect the mobile station to 2 base stations as shown in [Annex A Figure 7](#) whose
18 pilot E_c/I_o are above T_ADD in their *System Parameters Message*.
- 19 b. Allow the mobile station to come to the idle state on one of the base stations.
- 20 c. Make a mobile station originated call and a mobile station terminated call.
- 21 d. Verify that both base station pilots are reported in the *Origination Message* and *Page*
22 *Response Message*.
- 23 e. For both calls, verify that the mobile station receives an *Extended Channel*
24 *Assignment Message* assigning both pilots and calls complete normally.
- 25 f. Repeat the test for FL RC 11 and RL RC 8 channel assignment through *General*
26 *Extension Message* with $REV_ACKCH_GAIN_ADJ_ACS2PLUS$ included in the
27 Radio Configuration Parameters record.
- 28 g. Repeat the test for FL RC 11 and RL RC 8 channel assignment through Extended
29 Channel Assignment Message and a *Radio Configuration Parameters Message*
30 carrying the $REV_ACKCH_GAIN_ADJ_ACS2PLUS$ field.

31 4.12.1.5 Minimum Standard

32 The mobile station shall comply with the requirements in steps d and e.

33 **4.12.2 Base Station Test**

34 None

4.13 Traffic Channel Preamble During A Hard Handoff Between Frequencies in the Same Band

4.13.1 Mobile Station Test

4.13.1.1 Definition

The mobile station transitions between base stations with different CDMA frequency (channel) assignments in the same band. The Traffic Channel Preamble is a sequence of all-zero frames that is sent by the mobile station on the Reverse Traffic Channel as an aid to Traffic Channel acquisition. This test verifies that the mobile station uses a Reverse Traffic Channel preamble of the correct length.

4.13.1.2 Traceability (See [4]):

2.6.6.1.1: *Types of Handoff*

2.6.6.2.5: *Handoff Messages*

2.6.6.2.8: *CDMA-to-CDMA Hard Handoff*

3.6.6.1.1: *Types of Handoff*

3.6.6.2.2: *Call Processing During Handoff*

(See [6]):

1.3 *Test Modes*

4.13.1.3 Call Flow Example(s)

None

4.13.1.4 Method of Measurement

- a. Set up test as shown in [Annex A Figure 5](#).

1. The Forward Channel from base station 1 has an arbitrary pilot PN offset index P_1 and is called Channel 1.
2. The Forward Channel from base station 2 has an arbitrary pilot PN offset index P_2 and is called Channel 2.
3. The AWGN source should be on the frequency of Channel 2. (It is advisable to achieve the maximum possible difference in frequency separation between Channel 1 and Channel 2)

- b. Set the test parameters as shown in Table 4.13.1.4-1.

Table 4.13.1.4-1 Test Parameters

Parameter	Unit	Channel 1	Channel 2
\hat{I}_{or}	dBm/1.23 MHz	-70	-70
$\hat{I}_{or/loc}$	dBm	N/A	-5
Pilot E_c/I_{or}	dB	-7	-7
Traffic E_c/I_{or}	dB	-7	-7

- 1 c. Configure both base stations for the first test from table 4.13.1.4-2 that the mobile
- 2 station supports. Set both base stations to the same band class.

3
4

Table 4.13.1.4-2 hard handoff Test Configurations

Test Case	Base Station 1 For/Rev RC	Base Station 2 For/Rev RC	Available Service Options
1	RC1/RC1	RC1/RC1	2, 55, 54
2	RC1/RC1	RC2/RC2	55, 54
3	RC1/RC1	RC3/RC3	55, 54
4	RC1/RC1	RC4/RC3	55, 54
5	RC1/RC1	RC5/RC4	55, 54
6	RC2/RC2	RC1/RC1	55, 54
7	RC2/RC2	RC2/RC2	9, 55, 54
8	RC2/RC2	RC3/RC3	55, 54
9	RC2/RC2	RC4/RC3	55, 54
10	RC2/RC2	RC5/RC4	55, 54
11	RC3/RC3	RC1/RC1	55, 54
12	RC3/RC3	RC2/RC2	55, 54
13	RC3/RC3	RC3/RC3	32, 55, 54
14	RC3/RC3	RC4/RC3	32, 55, 54
15	RC3/RC3	RC5/RC4	32, 55, 54
16	RC4/RC3	RC1/RC1	55, 54
17	RC4/RC3	RC2/RC2	55, 54
18	RC4/RC3	RC3/RC3	32, 55, 54
19	RC4/RC3	RC4/RC3	32, 55, 54
20	RC4/RC3	RC5/RC4	32, 55, 54
21	RC5/RC4	RC1/RC1	55, 54
22	RC5/RC4	RC2/RC2	55, 54
23	RC5/RC4	RC3/RC3	32, 55, 54
24	RC5/RC4	RC4/RC3	32, 55, 54
25	RC5/RC4	RC5/RC4	32, 55, 54
26	RC11/RC8	RC11/RC8	32, 55, 54, 75
27	RC11/RC8	RC3/RC3	32, 55, 54, 75
28	RC11/RC8	RC4/RC3	32, 55, 54, 75
29	RC11/RC8	RC5/RC4	32, 55, 54, 75
30	RC3/RC3	RC11/RC8	32, 55, 54, 75
31	RC4/RC3	RC11/RC8	32, 55, 54, 75
32	RC5/RC4	RC11/RC8	32, 55, 54, 75

5
6
7
8

- d. Set up a mobile station originated call on Channel 1.
- e. Verify user data in both directions.

- 1 f. Instruct base station 1 to send a *General Handoff Direction Message* with
 2 NUM_PREAMBLE = 0 and proper parameters (refer to tables in Annex C) to initiate
 3 handoff from Channel 1 to Channel 2. Ensure the call stays connected during the
 4 handoff.
- 5 g. Verify that the Reverse Traffic Channel preamble length is correct for the value of
 6 NUM_PREAMBLE in the *General Handoff Direction Message*, as defined in table
 7 4.14.1.5-1.
- 8 h. Wait 20 seconds then send from base station 2 a *General Handoff Direction*
 9 *Message* with NUM_PREAMBLE = 4 and the proper parameters (refer to tables in
 10 Annex C) to initiate handoff from Channel 2 to Channel 1. Ensure the call stays
 11 connected during the handoff.
- 12 i. Verify that the Reverse Traffic Channel preamble length is correct for the value of
 13 NUM_PREAMBLE in the *General Handoff Direction Message*, as defined in table
 14 4.14.1.5-1.
- 15 j. Repeat steps f through i, but with following changes: In steps where base station is
 16 instructed to send a *General Handoff Direction Message*, instruct the base station to
 17 send a *Universal Handoff Direction Message*.
- 18 k. Repeat steps f through i, but with following changes: In steps where base station is
 19 instructed to send a *General Handoff Direction Message*, instruct the base station to
 20 send an *Extended Handoff Direction Message*.
- 21 l. End the call.
- 22 m. Repeat steps c through l for each test case that the mobile station supports.
- 23 n. Repeat steps c through m for each supported band class.
- 24

25 4.13.1.5 Minimum Standard

- 26 •The mobile station shall comply with the requirements in steps e, g and i.
 27 •Verify that the Reverse Traffic Channel preamble length as defined in table 4.13.1.5-1.

28
 29

Table 4.13.1.5-1 Reverse Traffic Channel Preamble Length

NUM_PREAMBLE	RC1, RC2 Preamble Length in 20 ms Increments:(Total Time)	RC>2 Preamble Length in 1.25 ms Increments:(Total Time)
0	0 (0 ms)	0 (0 ms)
4	4 (80 ms)	8 (10 ms)

30

31 4.13.2 Base Station Test

32 None

1 4.14 Hopping Pilot Beacon

2 4.14.1 Mobile Station Test

3 4.14.1.1 Definition

4 The mobile station transitions between base stations with different CDMA frequency (channel)
5 assignments in the same band.

6 The Hopping Pilot Beacon is a pilot beacon that changes CDMA Frequency periodically to
7 simulate multiple base stations operating on different frequencies. The transmission of the
8 hopping pilot beacon is discontinuous on any CDMA Channel. This test verifies that the mobile
9 station can successfully complete handoffs to different channels while the base station is in
10 hopping pilot beacon mode.

11 4.14.1.2 Traceability (See [4]):

12 *2.6.6.1.1: Types of Handoff*

13 *2.6.6.2.5: Handoff Messages*

14 *2.6.6.2.8: CDMA-to-CDMA Hard Handoff*

15 *2.7.4.25: Capability Information*

16 *3.6.1.2: Pilot Channel Operation*

17 *3.6.6.1.1: Types of Handoff*

18 *3.6.6.2.2: Call Processing During Handoff*

19 *3.7.2.3.2.22: General Neighbor List Message*

20 *3.7.2.3.2.26: Sync Channel Message*

21 (See [1]):

22 *3.1.3.2.5: Hopping Pilot Beacon*

23 4.14.1.3 Call Flow Example(s)

24 None

25 4.14.1.4 Method of Measurement

26 a. Configure base station for hopping pilot beacon.

27 b. Set up test as shown in [Annex A Figure 5](#).

28 1. The Forward Channel from base station 1 has an arbitrary pilot PN offset
29 index P_1 and is called Channel 1.

30 2. The Forward Channel from base station 2 has an arbitrary pilot PN offset
31 index P_2 and is called Channel 2.

32 3. The AWGN source should be on the frequency of Channel 2. (It is
33 advisable to achieve the maximum possible difference in frequency
34 separation between Channel 1 and Channel 2)

35 c. Set the test parameters as shown in table 4.13.1.4-1.

36 d. Configure both base stations for the first test from table 4.13.1.4-2 that the mobile
37 station supports. Set both base stations to the same band class.

38 e. Set up a mobile station originated call on Channel 1.

- 1 f. Verify user data in both directions.
- 2 g. Configure the *General Neighbor List Message* or *Extended Neighbor List Message*
3 for hopping pilot beacon. Instruct base station 1 to send a *General Handoff Direction*
4 *Message* with proper parameters (refer to tables in Annex C) to initiate handoff from
5 Channel 1 to Channel 2. Ensure the call stays connected during the handoff.
- 6 h. Configure the *General Neighbor List Message* or *Extended Neighbor List Message*
7 for hopping pilot beacon. Wait 20 seconds then instruct base station 2 to send a
8 *General Handoff Direction Message* with the proper parameters (refer to tables in
9 Annex C) to initiate handoff from Channel 2 to Channel 1. Ensure the call stays
10 connected during the handoff.
- 11 i. Repeat steps g through h, but with following changes: In steps where base station is
12 instructed to send a *General Handoff Direction Message*, instruct the base station to
13 send a *Universal Handoff Direction Message*.
- 14 j. Repeat steps g through h, but with following changes: In steps where base station is
15 instructed to send a *General Handoff Direction Message*, instruct the base station to
16 send an *Extended Handoff Direction Message*.
- 17 k. End the call.
- 18 l. Repeat steps d through k for each test case that the mobile station supports.
- 19 m. Repeat steps d through l for each supported band class.

20 4.14.1.5 Minimum Standard

21 The mobile station shall comply with the requirements in step f.

22

23 4.14.2 Base Station Test

24 None

25 4.15 Hard Handoff Between Frequencies with Different Radio 26 Configurations and different service options

27 4.15.1 Mobile Station Test

28 4.15.1.1 Definition

29 This test verifies that the mobile station can transition between base stations with different CDMA
30 frequency (channel) assignments in the same band, different radio configurations and different
31 service options.

32 4.15.1.2 Traceability (See [4]):

33 2.6.6.1.1: *Types of Handoff*

34 2.6.6.2.5: *Handoff Messages*

35 2.6.6.2.8: *CDMA-to-CDMA Hard Handoff*

36 3.6.6.1.1: *Types of Handoff*

1 3.6.6.2.2: Call Processing During Handoff
 2 (See [1]):

3 2.1.3.1: Reverse CDMA Channel Signals

4 3.1.3.1: Forward CDMA Channel Signals

5 (See [6]):

6 1.3 Test Modes

7 4.15.1.3 Call Flow Example(s)

8 None

9

10 4.15.1.4 Method of Measurement

11 a. Set up test as shown in [Annex A Figure 5](#).

12 1. The Forward Channel from base station 1 has an arbitrary pilot PN offset
 13 index P_1 and is called Channel 1. Base station 1 and base station 2 are
 14 on different frequency.

15 2. The Forward Channel from base station 2 has an arbitrary pilot PN offset
 16 index P_2 and is called Channel 2. Base station 1 and base station 2 are
 17 on different frequency.

18 3. The AWGN source should be on the frequency of Channel 2. (It is
 19 advisable to achieve the maximum possible difference in frequency
 20 separation between Channel 1 and Channel 2)

21 b. Set the test parameters as shown in Table 4.13.1.4-1.

22 c. Configure both base stations for the first test from table 4.15.1.4-1 that the mobile
 23 station supports. Set both base stations to the same band class.

24

Table 4.15.1.4-1 Test Radio Configurations

Test Case	Base Station 1 For/Rev RC	Base Station 2 For/Rev RC	Available Service Options
1	RC1/RC1	RC2/RC2	55, 54
2	RC1/RC1	RC3/RC3	55, 54
3	RC1/RC1	RC4/RC3	55, 54
4	RC1/RC1	RC5/RC4	55, 54
5	RC2/RC2	RC1/RC1	55, 54
6	RC2/RC2	RC3/RC3	55, 54
7	RC2/RC2	RC4/RC3	55, 54
8	RC2/RC2	RC5/RC4	55, 54
9	RC3/RC3	RC1/RC1	55, 54
10	RC3/RC3	RC2/RC2	55, 54
11	RC3/RC3	RC4/RC3	32, 55, 54
12	RC3/RC3	RC5/RC4	32, 55, 54
13	RC4/RC3	RC1/RC1	55, 54
14	RC4/RC3	RC2/RC2	55, 54

15	RC4/RC3	RC3/RC3	32, 55, 54
16	RC4/RC3	RC5/RC4	32, 55, 54
17	RC5/RC4	RC1/RC1	55, 54
18	RC5/RC4	RC2/RC2	55, 54
19	RC5/RC4	RC3/RC3	32, 55, 54
20	RC5/RC4	RC4/RC3	32, 55, 54
21	RC11/RC8	RC3/RC3	32, 55, 54, 75
22	RC11/RC8	RC4/RC3	32, 55, 54, 75
23	RC11/RC8	RC5/RC4	32, 55, 54, 75
24	RC3/RC3	RC11/RC8	32, 55, 54, 75
25	RC4/RC3	RC11/RC8	32, 55, 54, 75
26	RC5/RC4	RC11/RC8	32, 55, 54, 75
27	RC3/RC3	RC3/RC3	SO 3 on base station 1, SO 68 on base station 2
28	RC3/RC3	RC3/RC3, SO3	SO 3 on base station 2, SO 68 on base station 1
29	RC3/RC3	RC11/RC8	SO 68 on base station 1, SO 73 on base station 2
30	RC11/RC8	RC3/RC3	SO 68 on base station 2, SO 73 on base station 1

1

2

d. Set up a mobile station originated call on Channel 1.

3

e. Verify user data in both directions.

4

f. Instruct base station 1 to send a *General Handoff Direction Message* proper parameters (refer to tables in Annex C) to initiate handoff from Channel 1 to Channel 2. Ensure the call stays connected during the handoff.

5

6

g. Wait 20 seconds then instruct base station 2 to send a *General Handoff Direction Message* with the proper parameters (refer to tables in Annex C) to initiate handoff from Channel 2 to Channel 1. Ensure the call stays connected during the handoff.

7

8

9

h. Repeat steps f through g, but with following changes: In steps where base station is instructed to send a *General Handoff Direction Message*, instruct the base station to send a *Universal Handoff Direction Message*.

10

11

12

13

i. End the call.

14

j. Repeat steps c through i for each test case that the mobile station supports.

15

k. Repeat steps c through j for each supported band class.

1 4.15.1.5 Minimum Standard

2 The mobile station and base stations shall successfully execute the handoffs.
3 The mobile station shall comply with the requirements in the following steps: e, f, and g..
4

5 **4.15.2 Base Station Test**

6 None

7 **4.16 Handoff on Same Frequency with Different Radio**
8 **Configurations**

9 **4.16.1 Mobile Station Test**

10 4.16.1.1 Definition

11 This test verifies that the mobile station can transition between base stations with the same
12 CDMA frequency (channel) assignments in the same band and different radio configurations.
13 When the active set membership before and after the handoff are disjoint, the handoff is
14 performed as a hard handoff; when the active set membership before and after handoff is not
15 disjoint, except for the value of the radio configuration, the handoff is performed as a soft handoff.
16

17 4.16.1.2 Traceability (See [4]):

- 18 *2.6.6.1.1: Types of Handoff*
19 *2.6.6.2.5: Handoff Messages*
20 *2.6.6.2.8: CDMA-to-CDMA Hard Handoff*
21 *3.6.6.1.1: Types of Handoff*
22 *3.6.6.2.2: Call Processing During Handoff*
23 (See [1]):
24 *2.1.3.1: Reverse CDMA Channel Signals*
25 *3.1.3.1: Forward CDMA Channel Signals*

26 4.16.1.3 Call Flow Example(s)

27 None
28

29 4.16.1.4 Method of Measurement

- 30 a. Set up test as shown in [Annex A Figure 5](#).
- 31 1. The Forward Channel from base station 1 has an arbitrary pilot PN offset
32 index P_1 and is called Channel 1.
 - 33 2. The Forward Channel from base station 2 has an arbitrary pilot PN offset
34 index P_2 and is called Channel 2.
 - 35 3. The AWGN source should be added to both Channels.
- 36 b. Set the test parameters as shown in Table 4.16.1.4-1.

1

Table 4.16.1.4-1 Test Parameters

Parameter	Unit	Channel 1	Channel 2
\hat{I}_{or}	dBm/1.23 MHz	-70	-70
\hat{I}_{or}/I_{oc}	dBm	-5	-5
Pilot E_c/I_{or}	dB	-7	-7
Traffic E_c/I_{or}	dB	-7	-7

2

3

c. Configure both base stations for the first test from table 4.15.1.4-1 that the mobile station supports. Set both base stations to the same band class.

4

5

d. Set up a mobile station originated call on Channel 1.

6

e. Verify user data in both directions.

7

f. Instruct base station 1 to send a *General Handoff Direction Message* with proper parameters (refer to tables in Annex C) to initiate handoff from Channel 1 to Channel 2. Ensure the call stays connected during the handoff

8

9

10

g. Wait 20 seconds then instruct base station 2 to send a *General Handoff Direction Message* with the proper parameters (refer to tables in Foreword) to initiate handoff from Channel 2 to Channel 1. Ensure the call stays connected during the handoff.

11

12

13

h. Repeat steps f through g, but with following changes: In steps where base station is instructed to send a *General Handoff Direction Message*, instruct the base station to send a *Universal Handoff Direction Message*.

14

15

16

i. End the call.

17

j. Repeat steps c through i for each test case that the mobile station supports.

18

k. Repeat steps c through j for each supported band class.

19

l. Turn off base station 2. Configure base station 1 to send handoff messages without changing the active set, but changing the radio configuration. Thus the handoff messages simply assign a new radio configuration from the same base station.

20

21

22

m. Configure base station 1 for the first test from table 4.15.1.4-1 that the mobile station supports. Use base station 2's settings from the table for the second sector of base station 1.

23

24

25

n. Set up a mobile station originated call on Channel 1.

26

o. Verify user data in both directions.

27

p. Instruct base station 1 to send a *General Handoff Direction Message* with proper parameters to initiate a soft handoff. Ensure the call stays connected during the handoff.

28

29

30

q. Repeat step p, but with following changes: In steps where base station is instructed to send a *General Handoff Direction Message*, instruct the base station to send a *Universal Handoff Direction Message*.

31

32

33

r. End the call.

- 1 s. Repeat steps l through r for each test case that the mobile station supports.
- 2 t. Repeat steps l through s for each supported band class.

3 4.16.1.5 Minimum Standard

4 The mobile station and base stations shall successfully execute the handoffs.
5 The mobile station shall comply with the requirements in the following steps: f, g, n, and o.
6

7 4.16.2 Base Station Test

8 None

9 4.17 Hard handoff While in the Waiting for Mobile Station 10 Answer Substate

11 4.17.1 Mobile Station Test

12 4.17.1.1 Definition

13 This test verifies that if a hard handoff occurs while the mobile station is in the Waiting for Mobile
14 Station Answer Substate, the hard handoff will be completed successfully and the mobile station
15 enters the Conversation Substate on the new channel.
16

17 4.17.1.2 Traceability (See [4]):

- 18 2.6.4 *Mobile Station Control on the Traffic Channel State*
- 19 2.6.4.3.2 *Waiting for Mobile Station Answer Substate*
- 20 2.6.4.4 *Conversation Substate*
- 21 2.6.6.2.5.1 *Processing of the Forward Traffic Channel Handoff Messages*
- 22 2.6.6.2.8 *CDMA to CDMA Hard Handoff*
- 23 3.6.4.3.1 *Waiting for Order Substate*
- 24 3.6.6.2.2 *Call Processing during Handoff*
- 25 3.7.3.3.2.17 *Extended Handoff Direction Message*
- 26 3.7.3.3.2.31 *General Handoff Direction Message*
- 27 3.7.3.3.2.36 *Universal Handoff Direction Message*
- 28 *Table D-1 Time Constants*
- 29 (See [IR 1]):
- 30 3.1 *Standard Service Option Number Assignments*
- 31 3.2 *Proprietary Service Option Number Assignments*

32 4.17.1.3 Call Flow Example(s)

33 None

1 4.17.1.4 Method of Measurement

2 a. Connect the mobile station to the base station as shown in [Annex A figure 2](#) and set
3 the test parameters as specified in table 4.13.1.4-1. Set both base stations to the
4 same band class.

5 1. Base station #1 is a CDMA base station with frequency f_1 , PN offset P_1
6 and is referred to as Channel 1.

7 2. Base station #2 is a CDMA base station with frequency f_2 , PN offset P_2
8 and is referred to as Channel 2.

9 b. Ensure the mobile station is operating in the Idle State on Channel 1.

10 c. Page the mobile station with a supported service option. A voice service option may
11 be used for this test.

12 d. After receiving the *Page Response Message*, instruct the base station to send an
13 *Extended Channel Assignment Message* with the following parameters for traffic
14 channel, or enhanced traffic channel assignment:

15

Field	Value
ASSIGN_MODE	'000' or '100'
BYPASS_ALERT_ANSWER	'0'

16

17 e. While the mobile station is in the Waiting for Mobile Station Answer Substate (i.e.
18 ringing), instruct the base station to send an *General Handoff Direction Message*
19 directing the mobile station to Channel 2.

20 f. After the hard handoff has been completed and before T_{53m} (65 seconds), has
21 expired direct the user to answer the call.

22 g. Verify that the mobile station enters the Conversation Substate and user traffic is
23 present in both directions.

24 h. End the call.

25 i. Repeat steps b through h, but with following changes: In steps where base station is
26 instructed to send a *General Handoff Direction Message*, instruct the base station to
27 send a *Universal Handoff Direction Message*.

28 j. Repeat steps b through h, but with following changes: In steps where base station is
29 instructed to send a *General Handoff Direction Message*, instruct the base station to
30 send an *Extended Handoff Direction Message*.

31 k. Repeat steps b through j using different service options and all radio configurations
32 supported by the mobile station. For RC11/RC12 assignment on the forward
33 fundamental channel, repeat the test with *General Extension Message* in step d.

34 l. Repeat steps b through k, changing Channel 2 to a band class that is different from
35 Channel 1 but is supported by the mobile station.

1 4.17.1.5 Minimum Standard

2 The hard handoff shall be completed while the mobile station is in the Waiting for Mobile Station
3 Answer Substate. After the handoff is completed, the mobile station shall enter the Conversation
4 Substate on the new channel and user traffic in both directions shall be present. The mobile
5 station shall comply with the requirement in step g.
6

7 4.17.2 Base Station Test

8 None

9 4.18 Inter-Frequency Hard Handoff (CDMA to CDMA)

10 4.18.1 Mobile Station Test

11 4.18.1.1 Definition

12 This test verifies that the mobile station can perform an Inter-Frequency handoff to a CDMA
13 channel. In an Inter-Frequency Hard Handoff test (also known as the Mobile Assisted Hard
14 Handoff test), when the mobile station is directed by the base station to perform a search on a
15 Candidate Frequency, the mobile station will search for a pilot in the Candidate Frequency
16 Neighbor Set. The mobile station will report back to the base station any pilot detected in the
17 Candidate Frequency Neighbor Set with a pilot Ec/Io above the value defined by CF_T_ADD. The
18 base station should then direct the mobile station to the Candidate Frequency and complete the
19 hard handoff.

20 4.18.1.2 Traceability [4]

21 2.6.6.2.5 *Handoff Messages*
22 2.6.6.2.8 *CDMA-to-CDMA Hard Handoff*
23 2.7.2.3.2.20 *Candidate Frequency Search Report Message*
24 3.6.6.2.2 *Call Processing During Handoff*
25 3.7.7.3.3.2.27 *Candidate Frequency Search Request Message*
26 3.7.2.3.2.44 *General Extension Message*
27 3.7.3.3.2.51 *Radio Configuration Parameters Message*

28 4.18.1.3 Call Flow Example(s)

29 None

30 4.18.1.4 Method of Measurement

- 31 a. Set up test as shown in [Annex A figure 2](#).
- 32 1. The Forward Channel from base station 1 has a CDMA frequency
33 assignment F1 (any valid value), an arbitrary pilot PN offset index P_1 and
34 is called Channel 1.
 - 35 2. The Forward Channel from base station 2 has a CDMA frequency
36 assignment F2 (any valid value other than f_1 in the same band class), an

1 arbitrary pilot PN offset index P_2 and is called Channel 2.

2 b. Set the test parameters as specified in Table 4.18.1.4-1.

3

4

Table 4.18.1.4-1. Test Parameters for Inter-Frequency Hard handoff (CDMA to CDMA)

Parameter	Unit	Channel 1	Channel 2
\hat{I}_{or}	dBm/1.23 MHz	-77.9	-77.9
\hat{I}_{or}/I_{oc}	dBm	2.9	2.9
Pilot E_c/I_{or}	dB	-7	-7
Traffic E_c/I_{or}	dB	-7	N/A

5

6 c. Set up a mobile station originated call on Channel 1. If RC11/RC12 is assigned on
7 the forward fundamental channel, instruct the base station to send a *Radio*
8 *Configuration Parameters Message* or a *General Extension Message* carrying a
9 Radio Configuration Parameters Record setting the configuration parameters for the
10 RC11/RC12 and RC8 to non-default values.

11 d. Send from base station 1 a *Candidate Frequency Search Request Message* to the
12 mobile station to set an explicit action time with the following parameters:

13

Parameters	Value (Decimal)
USE_TIME	1 (use action time)
SEARCH_TYPE	1 (single search)
SEARCH_MODE	0 (CDMA)
CDMA_FREQ	F2
SF_TOTAL_EC_THRESH	31 (disabled)
SF_TOTAL_EC_IO_THRESH	31 (disabled)
CF_SRCH_WIN_N	8 (60 chips)
CF_T_ADD	28 (-14 dB)
NUM_PILOTS	1 (1 pilot)
CF_NGHR_SRCH_MODE	0 (no search priorities or search windows specified)
NGHBR_PN	P_2

14

15 e. Verify that the mobile station responds with a *Candidate Frequency Search Report*
16 *Message*.

17 f. Instruct base station 1 to send a *General Handoff Direction Message* to initiate
18 handoff from base station 1 to base station 2.

19 g. Verify user data in both directions. If RC11/RC12 is assigned on the forward
20 fundamental channel, verify that the mobile station initialization the configuration
21 parameters for the RC11/RC12 and RC 8 to the default values.

22 h. End the call.

- 1 i. Repeat steps c through h, but with following changes: In steps where base station is
- 2 instructed to send a *General Handoff Direction Message*, instruct the base station to
- 3 send a *Universal Handoff Direction Message*.
- 4 j. Repeat steps b through h, but with following changes: In steps where base station is
- 5 instructed to send a *General Handoff Direction Message*, instruct the base station to
- 6 send an *Extended Handoff Direction Message*.
- 7 k. Repeat steps c through j using all radio configurations and band classes supported
- 8 by the mobile station.

9 **4.18.1.5 Minimum Standard**

10 The mobile station and the base station shall successfully execute the handoff transitions. The

11 mobile station shall comply with the requirement in step g.

12

13 **4.18.2 Base Station Test**

14 None

15 **4.19 Inter-Frequency Hard Handoff (CDMA to Analog)**

16 **4.19.1 Mobile Station Test**

17 **4.19.1.1 Definition**

18 This test verifies that the mobile station can perform an Inter-Frequency handoff to analog (e.g.

19 AMPS). In an Inter-Frequency Hard Handoff test (also known as the Mobile Assisted Hard

20 Handoff test), when the mobile station is directed by the base station to perform a search on a

21 Candidate Frequency, the mobile station will search for an analog channel in the Candidate

22 Frequency Analog Search Set and shall measure the mean input power on the analog frequency.

23 The mobile station will report back to the base station the signal strength of the analog channel

24 searched. The base station should then direct the mobile station to the Analog Channel and

25 complete the hard handoff.

26

27 **4.19.1.2 Traceability [4]**

- 28 2.6.6.2.5 *Handoff Messages*
- 29 2.6.6.2.8 *CDMA-to-CDMA Hard Handoff*
- 30 2.6.6.10.2 *Candidate Frequency Analog Search Set*
- 31 2.7.2.3.2.21 *Candidate Frequency Search Report Message*
- 32 3.6.6.2.2 *Call Processing During Handoff*
- 33 3.7.7.3.3.2.27 *Candidate Frequency Search Request Message*

34 **4.19.1.3 Call Flow Example(s)**

35 None

36

1 4.19.1.4 Method of Measurement

- 2 a. Set up test as shown in Figure [Annex A figure 2](#).
- 3 1. The Forward Channel from base station 1 has a CDMA frequency
4 assignment F1, an arbitrary pilot PN offset index P_1 and is called
5 Channel 1.
- 6 2. The Forward Channel from base station 2 uses an analog frequency
7 called Channel 2.
- 8 b. Set the test parameters as specified in Tables 4.19.1.4-1 and 4.19.1.4-2

9
10

Table 4.19.1.4-1. Test Parameters for Inter-Frequency Hard Handoff (Channel 1)

Parameter	Unit	Channel 1
\hat{I}_{or}	dBm/1.23 MHz	-75
$\hat{I}_{or/loc}$	dBm	0
Pilot E_c/I_{or}	dB	-7
Traffic E_c/I_{or}	dB	-7

11
12
13

Table 4.19.1.4-2 Test Parameter for Inter-Frequency Handoff (Channel 2)

Analog Parameter	Unit	Channel 2
Voice Channel	dBm	-73
Co-Channel Interference	dB	-18

14
15
16
17
18

- c. Set up a mobile station originated voice call on Channel 1.
- d. Send from base station 1 a *Candidate Frequency Search Request Message* to the mobile station to set an explicit action time with the following parameters:

Parameters	Value (Decimal)
USE_TIME	1 (use action time)
SEARCH_TYPE	1 (single search)
SEARCH_MODE	1 (search for analog channels)
SF_TOTAL_EC_THRESH	31 (disabled)
SF_TOTAL_EC_IO_THRESH	31 (disabled)
NUM_ANALOG_FREQS	1
ANALOG_FREQ	Channel 2

19
20
21
22
23

- e. Verify that the mobile station responds with a *Candidate Frequency Search Report Message*.
- f. Instruct the base station 1 to send an *Analog Handoff Direction Message* to initiate handoff from base station 1 to base station 2.

- 1 g. Verify audio in both directions.
- 2 h. End the call.
- 3 i. Repeat steps c through h using all radio configurations and band classes on base
- 4 station 1 that are supported by the mobile station.

5 4.19.1.5 Minimum Standard

6 The mobile station and the base station shall successfully execute the handoff transitions. The
7 mobile station shall comply with the requirement in step g.

9 4.19.2 Base Station Test

10 None

11 4.20 Hard Handoff Between Frequencies with Different Protocol 12 Revisions

13 4.20.1 Mobile Station Test

14 4.20.1.1 Definition

15 This test verifies the mobile station is able perform a hard handoff between base stations
16 supporting using different protocol revisions (P_REV).

17 4.20.1.2 Traceability (See [4]):

- 18 2.6.6.1.1 *Types of Handoff*
- 19 2.6.6.2.5 *Handoff Messages*
- 20 2.6.6.2.8 *CDMA-to-CDMA Hard Handoff*
- 21 3.6.6.1.1 *Types of Handoff*
- 22 3.6.6.2.2 *Call Processing During Handoff*
- 23 3.7.3.3.2.17 *Extended Handoff Direction Message*
- 24 3.7.3.3.2.31 *General Handoff Direction Message*
- 25 3.7.3.3.2.36 *Universal Handoff Direction Message*

26 4.20.1.3 Call Flow Example(s)

27 None

28 4.20.1.4 Method of Measurement

- 29 a. Configure base station 1 and base station 2 with different protocol revisions that the
- 30 mobile station supports.
- 31 b. Set up test as shown in [Annex A Figure 5](#).
 - 32 1. The Forward Channel from base station one has an arbitrary pilot PN
 - 33 offset index P_1 and is called Channel 1.
 - 34 2. The Forward Channel from base station two has an arbitrary pilot PN
 - 35 offset index P_2 and is called Channel 2.

- 1 3. The AWGN source should be on the frequency of Channel 2. (It is
2 advisable to achieve the maximum possible difference in frequency
3 separation between Channel 1 and Channel 2)
- 4 c. Set the test parameters as shown in Table 4.13.1.4-1.
- 5 d. Set up a mobile station originated call on Channel 1.
- 6 e. Verify user traffic in both directions.
- 7 f. Send a *General Handoff Direction Message* with proper parameters (refer to tables in
8 Foreword) to initiate handoff from Channel 1 to Channel 2. Setting the P_REV field to
9 that equal to the P_REV of base station 2.
- 10 g. Verify that the handoff is successful and user traffic is present in both directions.
- 11 h. Repeat steps a through g for all protocol revisions that the mobile station supports.
- 12 i. Repeat steps a through h, but with following changes: In steps where base station is
13 instructed to send a *General Handoff Direction Message*, instruct the base station to
14 send a *Universal Handoff Direction Message*.
- 15 j. Repeat steps a through h, but with following changes: In steps where base station is
16 instructed to send a *General Handoff Direction Message*, instruct the base station to
17 send an *Extended Handoff Direction Message*.

18 4.20.1.5 Minimum Standard

19 The mobile station shall comply with the requirements in steps e, and g.

20

21 **4.20.2 Base Station Test**

22 None

23 **4.21 Soft Handoff With RCPM**

24 **4.21.1 Mobile Station Test**

25 4.21.1.1 Definition

26 This test verifies the proper operation of mobile station soft handoff with Radio Configuration
27 Parameters Message. The setting of parameters after soft handoff is verified.

28 4.21.1.2 Traceability (See [4]):

29 2.6.2.2.5: *Extended System Parameters Message*

30 2.6.6.2.5.1: *Processing of Forward Traffic Channel Handoff Messages*

31 2.6.6.2.5.2: *Processing of Reverse Traffic Channel Handoff Messages*

32 2.6.6.2.6.2: *Maintenance of the Candidate Set*

33 2.6.6.2.6.3: *Maintenance of the Neighbor Set*

34 2.6.6.2.8.2.1: *Restoring the Configuration*

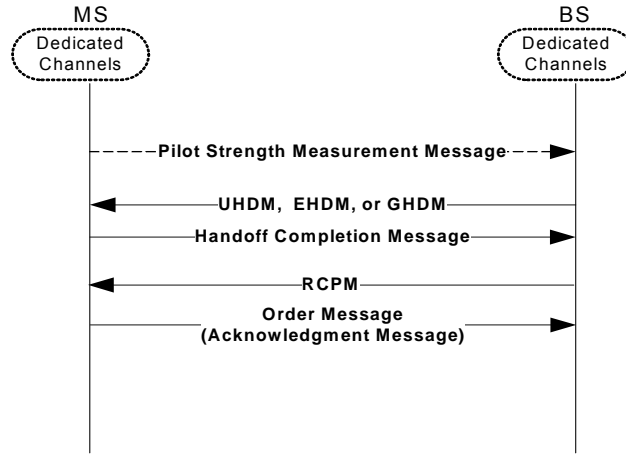
35 2.7.2.3.2.5: *Pilot Strength Measurement Message*

36 3.6.6.2.1.1: *System Parameters*

- 1 3.7.2.3.2.13: *Extended System Parameters Message*
- 2 3.7.3.3.2.17: *Extended Handoff Direction Message*
- 3 3.7.3.3.2.31: *General Handoff Direction Message*
- 4 3.7.3.3.2.36: *Universal Handoff Direction Message*
- 5 3.7.2.3.2.44 *General Extension Message*
- 6 3.7.3.3.2.51 *Radio Configuration Parameters Message*

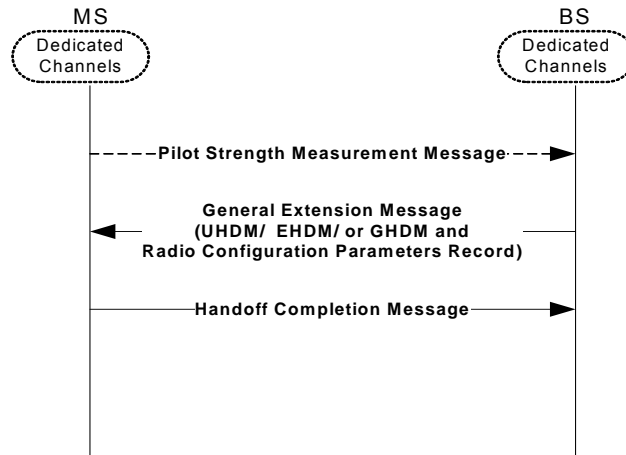
7 4.21.1.3 Call Flow Diagram

8



9

10



11

12

13

14 4.21.1.4 Method of Measurement

15 a. Set up test as shown in [Annex A Figure 3](#)

- 16 1. The Forward Channel from sector α of base station #1 has an arbitrary
- 17 pilot PN offset index P1 and is called Channel 1.
- 18 2. The Forward Channel from sector β of base station #1 has an arbitrary
- 19 pilot PN offset index P2 and is called Channel 2.

- 1 3. The Forward Channel from base station #2 has an arbitrary pilot PN
2 offset index P3 and is called Channel 3.
- 3 b. Reverse link attenuation should be set to balance the forward and reverse links
4 (approximately 90 dB).
- 5 c. Send a Page message to the mobile station.
- 6 d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP
7 and RC 8 in REV_FCH_RC_MAP in the *Page Response Message*.
- 8 e. Ensure that the mobile station includes SO 74 in the SO or ALT_SO or SO_BITMAP
9 field in the origination message.
- 10 f. Instruct the base station to send an *Extended Channel Assignment Message* with
11 FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.
- 12 g. Ensure that the mobile station initializes the traffic channel.
- 13 h. Instruct the base station to transmit *Service Connect Message* specifying the SO 74
14 in the SERVICE_OPTION field.
- 15 i. Ensure that the mobile station transmits *Service Connect Completion Message* to the
16 base station.
- 17 j. Ensure that the mobile station starts transmitting and receiving frames for voice
18 traffic.
- 19 k. Mute the mobile station such that the vocoder generates only one-eighth rate non-
20 critical frames or instruct the base station to transmit a Service Option Control
21 Message with CTL_REC_TYPE set to 0 and RTC_MODE set to '101' (fixed Rate
22 1/8th non-critical).
- 23 l. Instruct the base station to send a *Radio Configuration Parameters Message* to the
24 mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of '010'.
25 Ensure that the base station transmits the *Radio Configuration Parameters Message*
26 using assured L2 delivery.
- 27 m. Ensure that the access terminal transmits an *Order Message* acknowledging the
28 receipt of *Radio Configuration Parameters Message*.
- 29 n. Ensure that the mobile station starts using the parameters received in the *Radio*
30 *Configuration Parameters Message*. Note, this can be verified by the use of
31 REV_FCH_BLANKING_DUTYCYCLE value carried in the *Radio Configuration*
32 *Parameters Message* as out of every eight consecutive R-FCH frames the mobile
33 station sends only one 1/8th rate frame and blanks other seven frames.
- 34 o. Set test parameters for Test 1 as specified in Table 4.1.1.4-2 while only Channel 1 is
35 in the Active Set. Raise the level of Channel 2 in steps of 1 dB with a dwell time of
36 five seconds after each step until the mobile station has generated the *Pilot Strength*
37 *Measurement Message*.
- 38 p. Instruct the base station to send an *Extended Handoff Direction Message* to the
39 mobile station to allow a soft handoff between Channel 1 and Channel 2.

- 1 q. Verify the following:
- 2 1. The mobile station sends a *Handoff Completion Message* or an
- 3 *Extended Handoff Completion Message* as a response to handoff
- 4 message sent in step d.
- 5 2. Channel 1 and Channel 2 are in the Active Set.
- 6 3. For RC11/RC12 assignment on the forward fundamental channel, the
- 7 mobile station continues to use the parameters assigned in the *Radio*
- 8 *Configuration Parameters Message* that was sent in step l.
- 9 r. Instruct the base station to send a *Radio Configuration Parameters Message* to the
- 10 mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of '000' and
- 11 include the REV_ACKCH_GAIN_ADJ_ACS2PLUS. Ensure that the base station
- 12 transmits the *Radio Configuration Parameters Message* using assured L2 delivery.
- 13 s. Verify that the mobile station sends an *Order Acknowledgement* message to the base
- 14 station and starts using the parameters assigned in the *Radio Configuration*
- 15 *Parameters Message* in step r.
- 16 t. Set test parameters for Test 4 as specified in Table 4.1.1.4-5. Lower level of Channel
- 17 2 in steps of 1 dB with a dwell time of 30 seconds after each step until the mobile
- 18 station has generated the *Pilot Strength Measurement Message*. Record the level of
- 19 Pilot Ec/Io in the *Pilot Strength Measurement Message*.
- 20 u. Instruct the base station to send an *Extended Handoff Direction Message* to the
- 21 mobile station with only Channel 1 listed in the Active Set.
- 22 v. Verify the following:
- 23 1. The mobile station sends a *Handoff Completion Message* or an
- 24 *Extended Handoff Completion Message* as a response to the handoff
- 25 message sent in step s.
- 26 2. Only Channel 1 is in the Active Set.
- 27 3. For RC11/RC12 assignment on the forward fundamental channel, the
- 28 mobile station continues to use the parameters assigned in the *Radio*
- 29 *Configuration Parameters Message* that was sent in step r.
- 30 w. Instruct the base station to send a *Radio Configuration Parameters Message* to the
- 31 mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of '010' and
- 32 include the REV_ACKCH_GAIN_ADJ_ACS1. Ensure that the base station transmits
- 33 the *Radio Configuration Parameters Message* using assured L2 delivery.
- 34 x. Verify that the mobile station sends an *Order Acknowledgement* message to the base
- 35 station and starts using the parameters assigned in the *Radio Configuration*
- 36 *Parameters Message* in step w.

37 4.21.1.5 Minimum Standard

38 The mobile station shall comply with the requirements in steps q, s, v and x.

5 Power Control

5.1 Forward Traffic Channel Power Control

5.1.1 Mobile Station Test

5.1.1.1 Definition

This test verifies that the mobile station reports frame error rate statistics at specified intervals if the base station enables periodic reporting, and verifies that the mobile station reports frame error rate statistics when the frame error rate reaches a specified threshold if the base station enables threshold reporting.

5.1.1.2 Traceability (See [4]):

2.6.4.1.1 *Forward Traffic Channel Power Control*

2.7.2.3.2.6 *Power Measurement Report Message*

3.6.4.1.1 *Forward Traffic Channel Power Control*

3.7.3.3.2.10 *Power Control Parameters Message*

Applicability: Forward Link: RC 1 through RC 5; Reverse Link: RC 1 through RC 4

5.1.1.3 Call Flow Diagram

5.1.1.4 Method of Measurement

- a. Set up test as shown in [Annex A Figure 1](#).
- b. Set up a mobile station originated call using the test parameters for Test 1 as specified in Table 5.1.1.4-1.
- c. Set the AWGN source power so the forward link average FER is between 0.5 and 1.0%.
- d. Disable forward closed loop power control.
- e. Instruct the base station to send the *Power Control Parameters Message* to enable the threshold reporting and disable the periodic reporting according to the base station manufacturer's forward power control algorithm.

PWR_THRESH_ENABLE	'1' (Enable threshold reporting)
PWR_PERIOD_ENABLE	'0' (Disable periodic reporting)

- f. Using Attenuator 1, alternately increase and decrease AWGN source output power by 5 dB from the original power set in step c.
- g. Monitor forward link FER at the mobile station.

1
2

Table 5.1.1.4-1 Test Parameters for Forward Power Control Tests

Test Number	Forward RC	Reverse RC	Threshold/Periodic	Service Option	Channels	Forward Link Power [dBm/1.23 MHz]
1	1	1	Threshold	2, 54, 55, or 32798	F-FCH	-65
2	1	1	Periodic	2, 54, 55, or 32798	F-FCH	-65
3	2	2	Threshold	9, 54, 55, or 32799	F-FCH	-62
4	2	2	Periodic	9, 54, 55, or 32799	F-FCH	-62
5	3	3	Threshold	54, or 55	F-FCH	-65
6	3	3	Periodic	54, or 55	F-FCH	-65
7	3	3	Threshold	54, or 55	F-DCCH	-65
8	3	3	Periodic	54, or 55	F-DCCH	-65
9	4	3	Threshold	54, or 55	F-FCH	-65
10	4	3	Periodic	54, or 55	F-FCH	-65
11	4	3	Threshold	54, or 55	F-DCCH	-65
12	4	3	Periodic	54, or 55	F-DCCH	-65
13	5	4	Threshold	54, or 55	F-FCH	-62
14	5	4	Periodic	54, or 55	F-FCH	-62
15	5	4	Threshold	54, or 55	F-DCCH	-62
16	5	4	Periodic	54, or 55	F-DCCH	-62
17	3	3	N/A	54, or 55	F-FCH/F-SCH	-65
18	4	3	N/A	54, or 55	F-FCH/F-SCH	-65
19	5	4	N/A	54, or 55	F-FCH/F-SCH	-62
20	3	3	N/A	54, or 55	F-DCCH/F-SCH	-65
21	4	3	N/A	54, or 55	F-DCCH/F-SCH	-65
22	5	4	N/A	54, or 55	F-DCCH/F-SCH	-62
23	11	8	Threshold	74	F-FCH	-65
24	11	8	Periodic	74	F-FCH	-65

3 Note: All tests for RC other than FL RC 11 or RL RC 8 should be performed at full data rate or
4 at a variable rate. All tests for FL RC 11 and RL RC 8 should use non-critical Rate 1/8th frames
5 and with 'FOR_FCH_BLANKING_DUTYCYCLE' value of '010' (i.e. only one out of eight frames is

transmitted). Tests involving the Forward Supplemental Channels should only include 1 Forward Supplemental Channel.

3

h. Verify that the MS sends the *Power Measurement Report Message* when the bad frames received by the mobile station reaches the specified threshold. Note, when FL RC 11 is assigned, frames are evaluated as bad frames only when the transmission at the physical layer is guaranteed.

i. End the call.

j. Set up a mobile station originated call using the test parameters for Test 2 as specified in Table 5.1.1.4-1.

k. Instruct the base station to send the *Power Control Parameters Message* to enable the periodic reporting and disable the threshold reporting according to the base station manufacturer's forward power control algorithm.

PWR_THRESH_ENABLE	'0' (Disable threshold reporting)
PWR_PERIOD_ENABLE	'1' (Enable periodic reporting)

l. Repeat the steps e through g.

m. Verify that the mobile station sends the *Power Measurement Report Message* when the total frames received by the mobile station reach the specified report period.

n. End the call.

o. Repeat steps b through n except for using the test parameters for Tests 3 to 16, 23-24 as specified in Table 5.1.1.4-1.

p. Repeat steps b through c using the fundamental channel test parameters for Test 17 to Test 22 as specified in Table 5.1.1.4-1.

q. Instruct the base station to send the *Extended Supplemental Channel Assignment Message* including a Forward Supplemental Channel assignment and setting FOR_SCH_FER_REP to '1'.

r. Repeat the steps e through g.

s. Verify that the mobile station sends the *Power Measurement Report Message* at the end of the burst for both the fundamental channel and the Forward Supplemental Channel.

t. Repeat steps p through s for Tests 18 to 22 in Table 5.1.1.4-1.

u. End the call.

5.1.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps h, m and s.

5.1.2 Base Station Test

None

5.2 FFPC using different values of FPC_MODE (FPC_MODE = '000', '001', '010') and FPC_MODE (FPC_MODE = '000', '011', '010') with RC 8

5.2.1 Mobile Station Test

5.2.1.1 Definition

The mobile station accomplishes fast forward power control by transmitting the Reverse Power Control Subchannel to the base station on the Reverse Pilot Channel. The mobile station determines the information to be sent to the base station through inner and outer loop estimations. In outer loop estimation, the mobile station adjusts the Eb/Nt setpoint to the Eb/Nt value necessary to achieve the target FER on the Forward Traffic Channel. In inner loop estimation, the mobile station compares the received Eb/Nt to the setpoint and determines the value of the power control bit to be sent to the base station. There are 16 Power Control Groups every 20 ms on the Reverse Power Control Subchannel. This test verifies that the mobile station can process the various parameters in the *Extended Channel Assignment Message*, the *Extended Supplemental Channel Assignment Message*, and the *Service Connect Message*.

Table 5.2.1.1-1 Reverse Power Control Subchannel Configurations for RL RC 1 through 4

	Reverse Power Control Subchannel Allocations (Power Control Group Numbers)	
FPC_MODE	Primary Reverse Power Control Subchannel	Secondary Reverse Power Control Subchannel
'000'	0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	Not supported
'001'	0,2,4,6,8,10,12,14	1,3,5,7,9,11,13,15
'010'	1,5,9,13	0,2,3,4,6,7,8,10,11,12,14,15

Table 5.2.1.1-2 Reverse Power Control Subchannel Configurations for RL RC 8

FPC_MODE	Reverse Power Control Subchannel Allocations (Power Control Group Numbers 0-15)	
	Primary Reverse Power Control Subchannel	Secondary Reverse Power Control Subchannel
'000'	1,3,5,7,9,11,13,15	Not supported
'011'	3,7,11,15	Not supported
'010'	3,7,11,15	1,5,9,13
All other values	Reserved	Reserved

5.2.1.2 Traceability (See [1]):

2.1.3.1.11 Reverse Power Control Subchannel
(See [4]):

1 2.6.6.2.5.1, 3.6.6.2.2.12, 3.7.3.3.2.37 *Extended Supplemental Channel Assignment Message*
 2 2.6.2.4, 2.6.3.3, 2.6.3.5, 3.6.3.3, 3.6.3.5, 3.7.2.3.2.21 *Extended Channel Assignment Message*
 3 2.6.4.1.2, 2.6.4.1.2.2, 3.7.3.3.2.20, 3.7.5, 3.7.5.7, 3.7.5.20 *Service Connect Message*
 4 Applicability: Forward Link: RC 1 through RC 5, RC 11, RC 12; Reverse Link: RC 1 through RC 4,
 5 RC 8

6 5.2.1.3 Call Flow Example(s)

7 None

8 5.2.1.4 Method of Measurement

9 5.2.1.4.1 FPC_MODE '000'; F-FCH Only

- 10 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
 11 b. Set power levels as stated in [Annex B.1](#).
 12 c. Set up a mobile station originated call using Service Option 55 (Loopback Service
 13 Option) or Service Option 54 (Markov Service Option).
 14 d. Instruct the base station to send the *Extended Channel Assignment Message* with
 15 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 16 e. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to
 17 '0'.
 18 f. Monitor the forward link FER at the mobile station.
 19 g. Verify that the forward link FER on the FCH remains at approximately the target
 20 value.
 21 h. End the call at the mobile station.
 22 i. Repeat steps a through i above except that FOR_RC is set to RC4 and REV_RC is
 23 set to RC3 in step d.
 24 j. Repeat steps a through i above except that FOR_RC is set to RC5 and REV_RC is
 25 set to RC4 in step d.

26 5.2.1.4.2 FPC_MODE '000'; F-DCCH only

- 27 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
 28 b. Set power levels as stated in [Annex B.1](#).
 29 c. Set up a mobile station originated call using Service Option 32 (Test Data Service
 30 Option).

- 1 d. Instruct the base station to send the *Extended Channel Assignment Message* with
 2 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	FPC_DCCH_INIT_SETPT = '01000000' (8 dB)
FPC_DCCH_FER = '00010' (1%)	FPC_DCCH_MIN_SETPT = '00010000' (2 dB)
FPC_DCCH_MAX_SETPT = '10000000' (16 dB)	

- 3 e. Ensure the base station sends the *Service Connect Message* with FPC_INCL set to
 4 '0'.
 5 f. Monitor the forward link FER at the mobile station.
 6 g. Verify that the forward link FER on DCCH remains at approximately the target value.
 7 h. End the call at the mobile station.
 8 i. Repeat steps a through i above except for setting FOR_RC to RC4 and REV_RC to
 9 RC3 in step d.
 10 j. Repeat steps a through i above except for setting FOR_RC to RC5 and REV_RC to
 11 RC4 in step d.

12 5.2.1.4.3 FPC_MODE '001'; F-FCH and F-SCH

13 Note: Make sure that the base station is not power limited and does not DTX forward channels
 14 during these tests.

- 15 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
 16 b. Set power levels as stated in [Annex B.1](#). Set up a mobile station originated call using
 17 Service Option 32 (Test Data Service Option).
 18 c. Instruct the base station to send the *Extended Channel Assignment Message* with
 19 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 20 d. Instruct the base station to send the *Service Connect Message* with the parameters
 21 set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = '001'	

- 1 e. Instruct the base station to download SCH configuration and assign a Forward
2 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
3 *Message* and set the power control related fields as stated in follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '001'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

- 4 f. Monitor the forward link FER on FCH and SCH (during the burst assignment) at the
5 mobile station.
- 6 g. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remains
7 at approximately the target value.
- 8 h. End the call at the mobile station.
- 9 i. Repeat steps a through j above except that FOR_RC is set to RC4 and REV_RC is
10 set to RC3 in step d.
- 11 j. Repeat steps h through j above except that FOR_RC is set to RC5 and REV_RC is
12 set to RC4 in step d.

13 5.2.1.4.4 FPC_MODE '001' with F-DCCH and F-SCH

14 Note: Make sure that the base station is not power limited and does not DTX forward channels
15 during these tests.

- 16 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
- 17 b. Set power levels as stated in [Annex B.1](#). Set up a mobile station originated call using
18 Service Option 32 (Test Data Service Option).
- 19 c. Instruct the base station to send the *Extended Channel Assignment Message* with
20 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	FPC_DCCH_INIT_SETPT = '01000000' (8 dB)
FPC_DCCH_FER = '00010' (1%)	FPC_DCCH_MIN_SETPT = '00010000' (2 dB)
FPC_DCCH_MAX_SETPT = '10000000' (16 dB)	

- 21 d. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to
22 '0'.

- 1 e. Instruct the base station to download the SCH configuration and assign a Forward
 2 Supplemental Channel using the *Extended Supplemental Channel Assignment*
 3 *Message* and set the power control related information as follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '001'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

- 4 f. Monitor the forward link FER on both F-DCCH and F-SCH (during SCH assignment)
 5 at the mobile station.
- 6 g. Verify that the forward link FER on DCCH and SCH (during SCH assignment)
 7 remains at approximately the target value.
- 8 h. End the call at the mobile station.
- 9 i. Repeat steps a through j above except that FOR_RC is set to RC4 and REV_RC is
 10 set to RC3 in step d.
- 11 j. Repeat steps a through j above except that the FOR_RC is set to RC5 and REV_RC
 12 is set to RC4 in step d.

13 **5.2.1.4.5 FPC_MODE '010' with F-FCH and F-SCH**

14 Note: Make sure that the base station is not power limited and does not DTX forward channels
 15 during these tests.

- 16 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
- 17 b. Set power levels as stated in [Annex B.1](#). Set up a mobile station originated call using
 18 Service Option 32 (Test Data Service Option).
- 19 c. Instruct the base station to send the *Extended Channel Assignment Message* with
 20 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 21 d. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to
 22 '0'.
- 23 e. Instruct the base station to download SCH configuration and assign a Forward
 24 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
 25 *Message* with power control related parameters set as follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '010'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

- 1 f. Monitor the forward link FER on both FCH and SCH (during the SCH assignment) at
2 the mobile station.
- 3 g. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remains
4 at approximately the target value.
- 5 h. End the call at the mobile station.
- 6 i. Repeat steps a through j above except for step d to set FOR_RC to RC4 and
7 REV_RC to RC3.
- 8 j. Repeat steps a through j above except for step d to set FOR_RC to RC5 and
9 REV_RC to RC4.

10 5.2.1.4.6 FPC_MODE '010'; F-DCCH and F-SCH

11 Note: Make sure that the base station is not power limited and does not DTX forward channels
12 during these tests.

- 13 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
- 14 b. Set power levels as stated in [Annex B.1](#). Set up a mobile station originated call using
15 Service Option 32 (Test Data Service Option).
- 16 c. Instruct the base station to send the *Extended Channel Assignment Message* with
17 the parameters set as follows.

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	FPC_DCCH_INIT_SETPT = '01000000' (8 dB)
FPC_DCCH_FER = '00010' (1%)	FPC_DCCH_MIN_SETPT = '00010000' (2 dB)
FPC_DCCH_MAX_SETPT = '10000000' (16 dB)	

- 18 d. Instruct the base station to send the *Service Connect Message* with the parameters
19 set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '1'	GATING_RATE_INCL = '0'
FPC_MODE = '010'	

- 20 e. Instruct the base station to send SCH configuration and assign a Forward
21 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
22 *Message* with power control related parameters set as follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '010'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

1

- 2 f. Monitor forward link FER on both F-DCCH and F-SCH (during SCH burst
- 3 assignment) at the mobile station.
- 4 g. Verify that the forward link FERs on the DCCH and SCH (during SCH assignment)
- 5 remains at approximately the target value.
- 6 h. End the call at the mobile station.
- 7 i. Repeat steps a through j above except for step d to set FOR_RC to RC4 and
- 8 REV_RC to 3.
- 9 j. Repeat steps a through j above except for step d to set FOR_RC to RC5 and
- 10 REV_RC to 4.

11 5.2.1.4.7 FPC_MODE '000' or '011'; F-FCH Only, RC 8

- 12 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
- 13 b. Set power levels as stated in [Annex B.1](#).
- 14 c. Set up a mobile station originated call using Service Option 75 (Loopback Service
- 15 Option) or Service Option 74 (Flexible Markov Service Option).
- 16 d. Instruct the base station to send the *Extended Channel Assignment Message* with
- 17 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '01011' (RC 11)	REV_RC = '01000' (RC 8)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 18 e. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to
- 19 '0' and to send a *Radio Configuration Parameters Mesasge* with
- 20 REV_FCH_BLANKING_DUTYCYCLE set to '000'. Ensure that the RPC_MODE is
- 21 set to the default value of '00'.
- 22 f. Monitor the forward link FER at the mobile station.
- 23 g. Verify that the forward link FER on the FCH remains at approximately the target
- 24 value.
- 25 h. End the call at the mobile station.

- 1 i. Repeat the steps a-h with the exception that RPC_MODE is set to '01' in the *Radio*
 2 *Configuration Parameters Message* and FPC_INCL set to '1' and FPC_MODE set to
 3 '011' in the *Service Connect Message* in step e.
- 4 j. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE is
 5 set to the default value (or not included), RPC_MODE is set to '00' (or not included in
 6 the *Radio Configuration Parameters Message* and FPC_INCL set to '1' and
 7 FPC_MODE set to '011' in the *Service Connect Message* in step e.
- 8 k. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE is
 9 set to the default value (or not included), RPC_MODE is set to '01' in the *Radio*
 10 *Configuration Parameters Message* and FPC_INCL set to '1' and FPC_MODE set to
 11 '011' in the *Service Connect Message* in step e.
- 12 l. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE is
 13 set to '000', FOR_FCH_BLANKING_DUTYCYCLE is set to '010', RPC_MODE is set
 14 to '00' (or not included) in the *Radio Configuration Parameters Message* and
 15 FPC_MODE set to '000' (or not included) in the *Service Connect Message* in step e.

16 5.2.1.4.8 FPC_MODE '010'; F-FCH and F-SCH, RC 8

- 17 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
- 18 b. Set power levels as stated in [Annex B.1](#). Set up a mobile station originated call using
 19 Service Option 32 (TDSO).
- 20 c. Instruct the base station to send the *Extended Channel Assignment Message* with
 21 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '01011' (RC 11)	REV_RC = '01000' (RC 8)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 22 d. Instruct the base station to send and to send a *Radio Configuration Parameters*
 23 *Mesage* with REV_FCH_BLANKING_DUTYCYCLE set to '000' and to send the
 24 *Service Connect Message* with the parameters set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = '000'	

- 25 e. Instruct the base station to download SCH configuration and assign a Forward
 26 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
 27 *Message* and set the power control related fields as stated in follows:

1 5.3 Outer Loop Report

2 5.3.1 Mobile Station Test

3 5.3.1.1 Definition

4 This test verifies that the mobile station shall send the Outer Loop Report Message if the Outer
5 Loop Report Request Order is received.

6 5.3.1.2 Traceability (See [1]):

7 2.1.3.1.11 Reverse Power Control Subchannel

8 2.7.2.3.2.22 Outer Loop Report Message

9 (See [4]):

10

11 Applicability: Forward Link: RC 1 through RC 5, RC 11, RC 12; Reverse Link: RC 1 through RC 4,
12 RC 8

13 5.3.1.3 Call Flow Example(s)

14 None

15 5.3.1.4 Method of Measurement

- 16 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
- 17 b. Set power levels as stated in [Annex B.1](#). Set up a mobile station originated call using
18 Service Option 32 (Test Data Service Option).
- 19 c. Instruct the base station to send the *Extended Channel Assignment Message* with
20 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 21 d. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to
22 '0'. If repeating the test for FL RC 11 and RL RC 8, instruct the base station to send
23 and to send a *Radio Configuration Parameters Mesasge* with
24 REV_FCH_BLANKING_DUTYCYCLE set to '000' and ensure that RPC_MODE is set
25 to '00'.
- 26 e. Instruct the base station to download SCH configuration and assign a Forward
27 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
28 *Message* with power control related parameters set as follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '000'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

- 1 f. Monitor the forward link FER on both FCH and SCH (during the SCH assignment) at
- 2 the mobile station.
- 3 g. Instruct the base station to send Outer Loop Report Request Order.
- 4 h. Verify that the mobile station sends the Outer Loop Report Message and this
- 5 message contains FPC_FCH_CURR_SETPT and FPC_SCH_CURR_SETPT and
- 6 the current setpoints for both FCH and SCH reported by the mobile station shall be in
- 7 the range of the minimum setpoint and the maximum setpoint.
- 8 i. End the call at the mobile station.
- 9 j. Repeat steps a through i above except for the following steps:

- 10 1. Instruct the base station to send the *Extended Channel Assignment*
- 11 *Message* with the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	FPC_DCCH_INIT_SETPT = '01000000' (8 dB)
FPC_DCCH_FER = '00010' (1%)	FPC_DCCH_MIN_SETPT = '00010000' (2 dB)
FPC_DCCH_MAX_SETPT = '10000000' (16 dB)	

- 12 2. Monitor the forward link FER on both DCCH and SCH.
- 13 3. Verify that the mobile station sends the *Outer Loop Report Message* and
- 14 this message contains FPC_DCCH_CURR_SETPT and
- 15 FPC_SCH_CURR_SETPT and the current setpoints for both FCH and
- 16 SCH reported by the mobile station shall be in the range of the minimum
- 17 setpoint and the maximum setpoint.
- 18 k. Repeat steps a through i with FOR_RC = '01011' (RC 11) and REV_RC = '01000'
- 19 (RC 8) and the following scenarios:
- 20 1. FPC_MODE is set to '010' in the *Service Connect Message* and
- 21 FPC_MODE_SCH set to '010' in the *Extended Supplemental Channel*
- 22 *Assignment Message*.
- 23 2. RPC_MODE is set to '01' in the *Radio Configuration Parameters*
- 24 *Message* FPC_MODE is set to '010' in the *Service Connect Message*
- 25 and FPC_MODE_SCH set to '010' in the *Extended Supplemental*
- 26 *Channel Assignment Message*.
- 27 3. RPC_MODE is set to '01' in the *Radio Configuration Parameters*

- 1 Message FPC_MODE is set to '011' in the *Service Connect Message*
 2 and FPC_MODE_SCH set to '011' in the *Extended Supplemental*
 3 *Channel Assignment Message*.
- 4 4. REV_FCH_BLANKING_DUTYCYCLE set to its default value or not
 5 included and RPC_MODE is set to '01' in the *Radio Configuration*
 6 *Parameters Message*, FPC_MODE is set to '011' in the *Service Connect*
 7 *Message* and FPC_MODE_SCH set to '011' in the *Extended*
 8 *Supplemental Channel Assignment Message*.
- 9 5. REV_FCH_BLANKING_DUTYCYCLE set to its default value or not
 10 included and RPC_MODE is set to '00' or not included in the *Radio*
 11 *Configuration Parameters Message*, FPC_MODE is set to '011' in the
 12 *Service Connect Message* and FPC_MODE_SCH set to '011' in the
 13 *Extended Supplemental Channel Assignment Message*.

14 5.3.1.5 Minimum Requirement

15 The mobile station shall comply with steps h and j.

16 **5.3.2 Base Station Test**

17 None

18 **5.4 Fast Forward Power Control (FFPC) in Soft Handoff**

19 **5.4.1 Mobile Station Test**

20 5.4.1.1 Definition

21 The mobile station accomplishes fast forward power control by transmitting the Reverse Power
 22 Control Subchannel to the base station on the Reverse Pilot Channel. The mobile station
 23 determines the information to send to the base station through inner and outer closed loop
 24 estimations. In outer loop estimation, the mobile station adjusts the Eb/Nt setpoints to the Eb/Nt
 25 value necessary to achieve the target FER on the Forward Traffic Channel. In inner loop
 26 estimation, the mobile station compares the received Eb/Nt to the setpoint and determines the
 27 value of the power control bit to be sent to the base station. This test verifies that the mobile
 28 station can perform FFPC while in soft handoff. This test also verifies that the mobile station can
 29 process the various parameters in the *Extended Channel Assignment Message*, the *Extended*
 30 *Supplemental Channel Assignment Message*, the *Universal Handoff Direction Message*, and the
 31 *Service Connect Message*.

32 5.4.1.2 Traceability (See [1]):

33 *2.1.3.1.11 Reverse Power Control Subchannel*

34 (See [4]):

35 *2.6.6.2.5.1, 3.6.6.2.2.12, 3.7.3.3.2.37 Extended Supplemental Channel Assignment Message*

36 *2.6.2.4, 2.6.3.3, 2.6.3.5, 3.6.3.3, 3.6.3.5, 3.7.2.3.2.21 Extended Channel Assignment Message*

37 *2.6.4.1.2, 2.6.4.1.2.2, 3.7.3.3.2.20, 3.7.5, 3.7.5.7, 3.7.5.20 Service Connect Message*

38 Applicability: Forward Link: RC 1 through RC 5; Reverse Link: RC 1 through RC 4

- 1 5.4.1.3 Call Flow Example(s)
- 2 5.4.1.4 Method of Measurement
- 3 5.4.1.4.1 F-FCH in SHO and F-SCH not in SHO; FPC_MODE = 001,
- 4 FPC_MODE = 010 for RC 8

- 5 a. Set up the test as shown in [Annex A Figure 2](#).
- 6 b. Set power levels as stated in Table 5.4.1.4.1-1.

7 **Table 5.4.1.4.1-1 Test Parameters for Fast Forward Power Control**

Parameter	Unit	Base station #1	Base station #2
Pilot E_C/I_{Or}	dB	-7	-7
I_{oc}	dBm/1.23 MHz	-75	-75
I_{Or}/I_{oc}	dB	10	10
Pilot E_C/I_O	dB	-10.2	-20.2

- 8 c. Set up a mobile station originated call using Service Option 32 (Test Data Service
- 9 Option) on base station 1.
- 10 d. Instruct the base station to send the *Extended Channel Assignment Message* with
- 11 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 12 e. Instruct the base station to send the *Service Connect Message* with the parameters
- 13 set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = '001'	

- 14 f. Instruct the base station to download SCH configuration and assign a Forward
- 15 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
- 16 *Message* with the power control related parameters set as follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '001'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

- 1 g. Raise the level of base station #2 in steps of 1 dB with a dwell time of 5 seconds after
2 each step until the mobile station has generated the *Pilot Strength Measurement*
3 *Message*.
- 4 h. Instruct the base station to send the *Universal Handoff Direction Message* during F-
5 SCH assignment with the parameters set as follows:

CH_IND = '101' (FCH and Continuous Reverse Pilot)	NUM_PILOTS = '010'
For PILOT_PN = {base station 1}	PILOT_INCL = '1'
For PILOT_PN = {base station 2}	PILOT_INCL = '0'

- 6 i. Verify that the mobile station is not in a soft handoff with base station 2.
- 7 j. Set the test parameters as specified in Table 5.4.1.4.1-2 without dropping the call.

8 **Table 5.4.1.4.1-2 Test Parameters for Fast Forward Power Control**

Parameter	Unit	Channel 1	Channel 2
Pilot Ec/Ior	dB	-7	-7
Traffic Ec/Ior	dB	-7	-7
loc	dBm/1.23 MHz	-75	-75
Pilot Ec/Io	dB	-11.8	-11.8

- 9 k. Instruct the BS to send an UHDM to allow for base station 2 to be in SHO for the F-
10 FCH.
- 11 l. Monitor the forward link FER on both F-FCH and F-SCH (during F-SCH assignment)
12 at the mobile station.
- 13 m. Verify that the forward link FERs on FCH and SCH (during SCH assignment and
14 when SCH is directly power controlled) remains at approximately the target value.
- 15 n. End the call at the mobile station.
- 16 o. Repeat steps a through n with the following changes:
- 17 1. In step d use FOR_RC = '01011' (RC 11) and REV_RC = '01000' in the
18 *ECAM* and instruct the base station to send and to send a *Radio*
19 *Configuration Parameters Mesasge* with
20 REV_FCH_BLANKING_DUTYCYCLE set to '000' and ensure that
21 RPC_MODE is set to '00'.
- 22 2. In step e use FPC_INCL to '0'.
- 23 3. In step f to use FPC_MODE_SCH to '000'.

- 1 4. In step k the UHDM is sent in a *General Extension Message* along with
2 the Radio Configuration Parameters Record.
- 3 p. Repeat step o with the following changes:
- 4 1. FPC_MODE is set to '010' in the *Service Connect Message* and
5 FPC_MODE_SCH set to '010' in the *Extended Supplemental Channel*
6 *Assignment Message*.
- 7 2. RPC_MODE is set to '01' in the *Radio Configuration Parameters*
8 *Message* FPC_MODE is set to '010' in the *Service Connect Message*
9 and FPC_MODE_SCH set to '010' in the *Extended Supplemental*
10 *Channel Assignment Message*.
- 11 3. RPC_MODE is set to '01' in the *Radio Configuration Parameters*
12 *Message* FPC_MODE is set to '011' in the *Service Connect Message*
13 and FPC_MODE_SCH set to '011' in the *Extended Supplemental*
14 *Channel Assignment Message*.
- 15 4. REV_FCH_BLANKING_DUTYCYCLE set to its default value or not
16 included and RPC_MODE is set to '01' in the *Radio Configuration*
17 *Parameters Message*, FPC_MODE is set to '011' in the *Service Connect*
18 *Message* and FPC_MODE_SCH set to '011' in the *Extended*
19 *Supplemental Channel Assignment Message*.
- 20 5. REV_FCH_BLANKING_DUTYCYCLE set to its default value or not
21 included and RPC_MODE is set to '00' or not included in the *Radio*
22 *Configuration Parameters Message*, FPC_MODE is set to '011' in the
23 *Service Connect Message* and FPC_MODE_SCH set to '011' in the
24 *Extended Supplemental Channel Assignment Message*.
- 25
- 26 5.4.1.4.2 F-FCH in SHO and F-SCH not in SHO; FPC_MODE = '010'
- 27 a. Set up the test as shown in [Annex A Figure 2](#).
- 28 b. Set power levels as stated in Table 5.4.1.2.1-1.
- 29 c. Set up a mobile station originated call using Service Option 32 (Test Data Service
30 Option) with 100% frame activity on base station 1.
- 31 d. Instruct the base station to send the *Extended Channel Assignment Message* with
32 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 1 e. Instruct the base station to send the *Service Connect Message* with the parameters
2 set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = '010'	

- 3 f. Instruct the base station to download SCH configuration and assign a Forward
4 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
5 *Message* with the power control related parameters set as follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '010'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

- 6 g. Raise the level of base station 2 in steps of 1 dB with a dwell time of 5 seconds after
7 each step until the mobile station has generated the *Pilot Strength Measurement*
8 *Message*.

- 9 h. Instruct the base station to send the *Universal Handoff Direction Message* during F-
10 SCH assignment with parameters set as follows:

CH_IND = '101' (FCH and Continuous Reverse Pilot)	NUM_PILOTS = '010'
For PILOT_PN = {base station #1}	PILOT_INCL = '1'
For PILOT_PN = {base station #2}	PILOT_INCL = '0'

- 11 i. Verify that there are no forward supplemental channels running on base station 2.
12 j. Set the test parameters as specified in Table 5.4.1.2.1-2 without dropping the call.
13 k. Instruct the BS to send an UHDM to allow for base station 2 to be in SHO for the F-
14 FCH.
15 l. Monitor the forward link FER on both F-FCH and F-SCH (during F-SCH assignment)
16 at the mobile station.
17 m. Verify that the forward link FERs on FCH and SCH (during SCH assignment and
18 when SCH is directly power controlled) remain at approximately the target value.
19 n. End the call at the mobile station.

1 5.4.1.4.3 F-DCCH in SHO and F-SCH not in SHO; FPC_MODE = '001'

- 2 a. Set up the test as shown in [Annex A Figure 2](#).
- 3 b. Set power levels as stated in Table 5.4.1.2.1-1.
- 4 c. Set up a mobile station originated call using Service Option 32 (Test Data Service
5 Option) with 100% frame activity on base station 1.
- 6 d. Instruct the base station to send the *Extended Channel Assignment Message* with
7 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	FPC_DCCH_INIT_SETPT = '01000000' (8 dB)
FPC_DCCH_FER = '00010' (1%)	FPC_DCCH_MIN_SETPT = '00010000' (2 dB)
FPC_DCCH_MAX_SETPT = '10000000' (16 dB)	

- 8 e. Instruct the base station to send the *Service Connect Message* with the parameters
9 set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '1'	GATING_RATE_INCL = '0'
FPC_MODE = '001'	

- 10 f. Instruct the base station to download SCH configuration and assign a Forward
11 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
12 *Message* with the power control related parameters set as follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '001'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

- 13 g. Raise the level of base station #2 in steps of 1 dB with a dwell time of 5 seconds after
14 each step until the mobile station has generated the *Pilot Strength Measurement*
15 *Message*.
- 16 h. Instruct the base station to send the *Universal Handoff Direction Message* during F-
17 SCH assignment with parameters set as follows:

CH_IND = '110' (FCH and Continuous Reverse Pilot)	NUM_PILOTS = '010'
For PILOT_PN = {base station #1}	PILOT_INCL = '1'
For PILOT_PN = {base station #2}	PILOT_INCL = '0'

- 18 i. Verify that there are no forward supplemental channels running on base station 2.
- 19 j. Set the test parameters as specified in Table 5.4.1.2.1-2 without dropping the call.

- 1 k. Instruct the BS to send an UHDM to allow for base station 2 to be in SHO for the F-
2 FCH.
- 3 l. Monitor the forward link FER on both F-FCH and F-SCH (during F-SCH assignment)
4 at the mobile station.
- 5 m. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remain
6 at approximately the target value.
- 7 n. End the call at the mobile station.

8 5.4.1.4.4 F-DCCH in SHO and F-SCH not in SHO; FPC_MODE = '010'

- 9 a. Set up the test as shown in [Annex A Figure 2](#).
- 10 b. Set power levels as stated in Table 5.4.1.2.1-1.
- 11 c. Set up a mobile station originated call using Service Option 32 (Test Data Service
12 Option) with 100% frame activity on base station 1.
- 13 d. Instruct the base station to send the *Extended Channel Assignment Message* with
14 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = 10
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	FPC_DCCH_INIT_SETPT = '01000000' (8 dB)
FPC_DCCH_FER = '00010' (1%)	FPC_DCCH_MIN_SETPT = '00010000' (2 dB)
FPC_DCCH_MAX_SETPT = '10000000' (16 dB)	

- 15 e. Instruct the base station to send the *Service Connect Message* with the parameters
16 set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = '010'	

- 17 f. Instruct the base station to download SCH configuration and assign a Forward
18 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
19 *Message* with the power control related parameters set as follows:

FPC_INCL = '1'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_MODE_SCH = '010'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MIN_SETPT = '00010000' (2 dB)
FPC_SCH_FER = '01010' (5%)	

- 20 g. Raise the level of base station #2 in steps of 1 dB with a dwell time of 5 seconds after
21 each step until the mobile station has generated the *Pilot Strength Measurement*
22 *Message*.

- 1 h. Instruct the base station to send the *Universal Handoff Direction Message* during F-
 2 SCH assignment with parameters set as follows:

CH_IND = '110' (FCH and Continuous Reverse Pilot)	NUM_PILOTS = '010'
For PILOT_PN = {base station #1}	PILOT_INCL = '1'
For PILOT_PN = {base station #2}	PILOT_INCL = '0'

- 3 i. Verify that there are no forward supplemental channels running on base station #2.
 4 j. Set the test parameters as specified in Table 5.4.1.2.1-2 without dropping the call.
 5 k. Instruct the BS to send an UHDM to allow for base station 2 to be in SHO for the F-
 6 FCH.
 7 l. Monitor the forward link FER on both F-DCCH and F-SCH (during F-SCH
 8 assignment) at the mobile station.
 9 m. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remain
 10 at approximately the target value.
 11 n. End the call at the mobile station.

12 **5.4.1.5 Minimum Standard**

13 The mobile station shall comply with the requirements in steps i and m.

14 **5.4.2 Base Station Test**

15 None

16 **5.5 Change FPC_MODE During a Call**

17 **5.5.1 Mobile Station Test**

18 **5.5.1.1 Definition**

19 The mobile station accomplishes fast forward power control by transmitting the power control
 20 subchannel to the base station on the R-PICH. The mobile station determines the information to
 21 send to the base station through inner and outer closed loop estimations. In outer loop estimation,
 22 the mobile station adjusts the Eb/Nt setpoints to the Eb/Nt value necessary to achieve the target
 23 FER on the Forward Traffic Channel.

24 In inner loop estimation, the mobile station compares the received Eb/Nt to the setpoint and
 25 determines the value of the power control bit to be sent to the base station. This test verifies that
 26 the mobile station can process a change in FPC_MODE delivered by the Power Control
 27 Message.

28 **5.5.1.2 Traceability (See [1]):**

29 *2.1.3.1.11 Reverse Power Control Subchannel*
 30 (See [4]):

31 *2.6.4.1.1.3, 3.7.3.3.2.25 Power Control Message*

1 2.6.2.4, 2.6.3.3, 2.6.3.5, 3.6.3.3, 3.6.3.5, 3.7.2.3.2.21 *Extended Channel Assignment Message*
 2 2.6.4.1.2, 2.6.4.1.2.2, 3.7.3.3.2.20, 3.7.5, 3.7.5.7, 3.7.5.20 *Service Connect Message*
 3 Applicability: RC 3 and greater

4 5.5.1.3 Call Flow Example(s)

5 5.5.1.4 Method of Measurement

- 6 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
 7 b. Set power levels as stated in [Annex B.1](#).
 8 c. Set up a mobile station originated call using Service Option 32 (Test Data Service
 9 Option) with 100% frame activity.
 10 d. Instruct the base station to send the *Extended Channel Assignment Message* with
 11 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 12 e. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to
 13 '0'.
 14 f. Monitor forward link FER at the mobile station.
 15 g. Increase loc in 1 dBm/1.23 MHz steps every second for a total of 5 dBm/1.23 MHz at
 16 the AWGN source.
 17 h. Monitor traffic channel Ec/Ior and ensure power increases corresponding to noise
 18 power from the AWGN source.
 19 i. Instruct the base station send the Power Control Message with the parameters set as
 20 follows:

FPC_INCL = '1'	FPC_MODE = '010'
FPC_PRI_CHAN = '0'	FPC_OLPC_FCH_INCL = '1'
FPC_FCH_FER = '00100' (2%)	PWR_CNTL_STEP = "001" (0.5 dB)
FPC_FCH_MIN_SETPT = '00010000' (2 dB)	FPC_FCH_MAX_SETPT = '10000000' (16 dB)
FPC_OLPC_DCCH_INCL = '0'	
FPC_DCCH_MIN_SEPT = N/A	FPC_DCCH_MAX_SEPT = N/A
FPC_OLPC_SCH_M_INCL = '1'	FPC_SCH_M_FER = '00010' (1%)
FPC_MIN_SCH_M_SETPT = '00010000' (2 dB)	FPC_MAX_SCH_M_SETPT = '10000000' (16 dB)
NUM_SUP = 0	

- 1 j. Monitor forward link FER at the mobile station.
- 2 k. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remain
- 3 at approximately the target value.
- 4 l. End the call at the mobile station.

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7 5.5.1.5 Minimum Standard

8 The mobile station shall comply with the requirement in step k.

9 **5.5.2 Base Station Test**

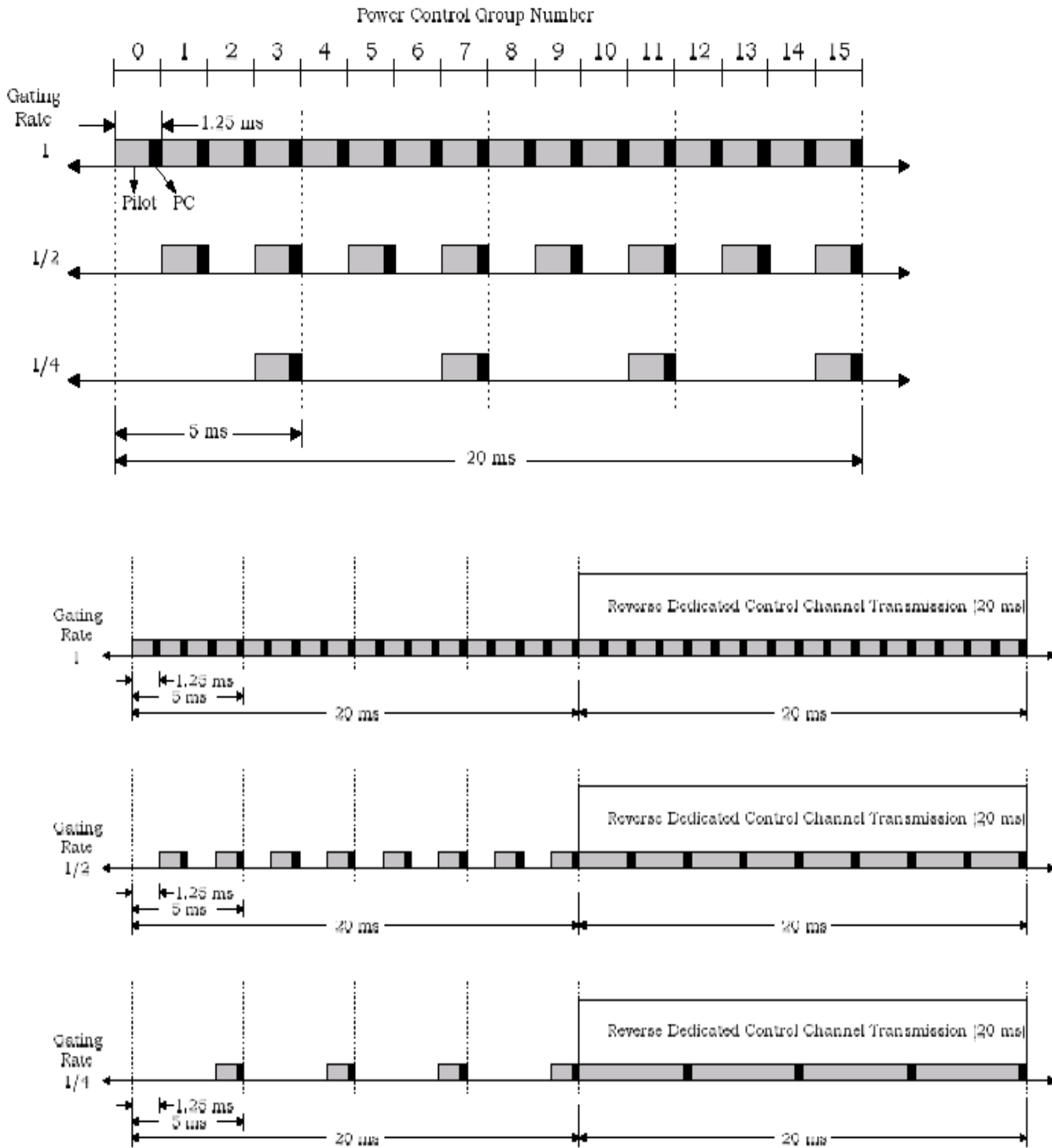
10 None

11 **5.6 R-PICH in Gated Transmission Mode - Gating with the**
12 **Reverse Dedicated Control Channel**

13 **5.6.1 Mobile Station Test**

14 5.6.1.1 Definition

15 The mobile station accomplishes fast forward power control by transmitting the power control
16 subchannel to the base station on the R-PICH. The power control subchannel can either be gated
17 (either at a rate of ½ or ¼) or not gated (a bit is transmitted on every PCG). Gating occurs only
18 when the Forward Dedicated Control Channel and the Reverse Dedicated Control Channel are
19 assigned and when there are no transmissions on the Reverse Dedicated Control Channel. This
20 test verifies that the mobile station can operate in the various gating transmission modes
21 specified in the *Service Connect Message*.



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 2 Figure 5.7.1.1-1 Reverse Pilot Gating with no Transmission on the Reverse Dedicated Control
 3 Channel [1] 2.1.3.2.3

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 5 Figure 5.7.1.1-2 Reverse Pilot Gating during
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1 5.6.1.2 Traceability (See [1]):

2 2.1.3.1.11 Reverse Power Control Subchannel

3 2.1.3.2.3 Reverse Dedicated Control Channel Transmission

4 (See [4]):

5 2.6.4.1.1.3, 3.7.3.3.2.25 Power Control Message

6 2.6.2.4, 2.6.3.3, 2.6.3.5, 3.6.3.3, 3.6.3.5, 3.7.2.3.2.21 Extended Channel Assignment Message

7 2.6.4.1.2, 2.6.4.1.2.2, 3.7.3.3.2.20, 3.7.5, 3.7.5.7, 3.7.5.20 Service Connect Message

8 Applicability: Forward Link: RC 1 through RC 5; Reverse Link: RC 1 through RC 4

9 5.6.1.3 Call Flow Example(s)

10 5.6.1.4 Method of Measurement

- 11 a. Connect base station and mobile station as shown in [Annex A Figure 1](#)
- 12 b. Set power levels as stated in [Annex B.1](#).
- 13 c. Set up a mobile station originated data call using Service Option 33.
- 14 d. Instruct the base station to send the *Extended Channel Assignment Message* has the
- 15 parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	FPC_DCCH_INIT_SETPT = '01000000' (8 dB)
FPC_DCCH_FER = '00010' (1%)	FPC_DCCH_MIN_SETPT = '00010000' (2 dB)
FPC_DCCH_MAX_SETPT = '10000000' (16 dB)	

- 16 e. Instruct the base station to send the *Service Connect Message* has the parameters
- 17 set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '1'	FPC_OLPC_DCCH_INCL = '0'
FPC_MODE = '000'	
GATING_RATE_INCL = '1'	PILOT_GATE_RATE = '01' (gating at ½)

- 18 f. Instruct the base station to send the *Extended Release Message* with CH_IND set to
- 19 '100' (continuous reverse Pilot Channel is released).
- 20 g. Instruct the mobile station not to transmit any data on the reverse link.
- 21 h. Monitor forward link FER at the mobile station.
- 22 i. Verify that the reverse Pilot Channel is gated at the specified rate and the forward link
- 23 FER on DCCH remains at approximately the target value.
- 24 j. Instruct the mobile station to send the *Data Burst Message* on the Reverse Dedicated
- 25 Control Channel.
- 26 k. Monitor the forward link FER at mobile station.

- 1 l. Verify that the reverse Pilot Channel is gated at the target rate if no transmissions are
- 2 on the Reverse Dedicated Control Channel and the reverse Pilot Channel is not
- 3 gated if there are transmissions on the Reverse Dedicated Control Channel.
- 4 m. Verify that the forward link FER on the DCCH is approximately the target value.
- 5 n. End the call at the mobile station. Repeat steps a through m above except for step f
- 6 to set PILOT_GATE_RATE to '10' (gating at 1/4).

7 **5.6.1.5 Minimum Standard**

8 The mobile station shall comply with the requirements in steps l, l, and m.

9 **5.6.2 Base Station Test**

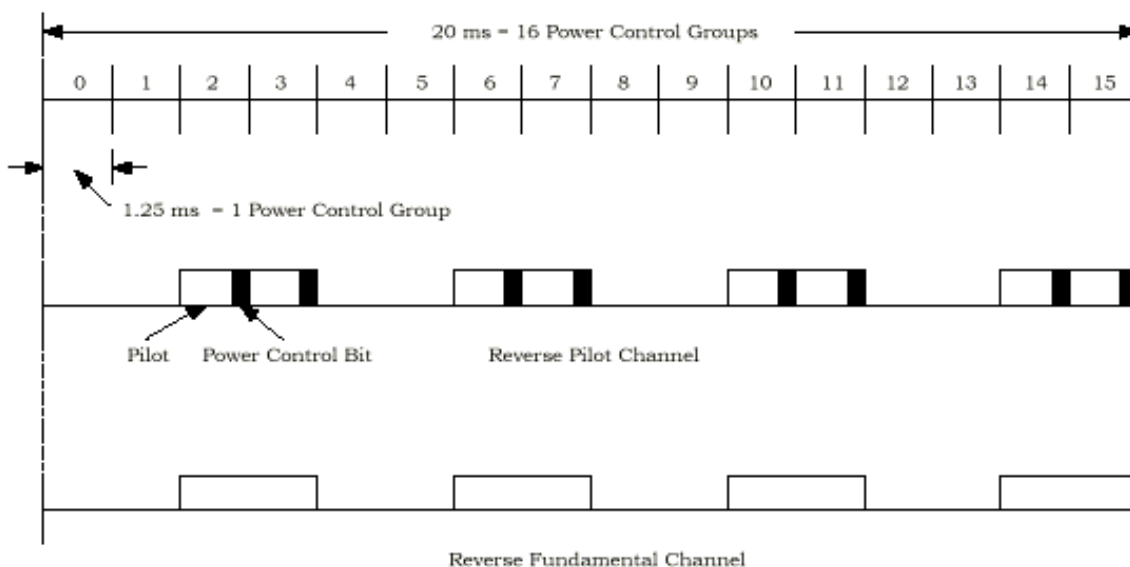
10 None

11 **5.7 R-PICH in Gated Transmission Mode - Gating with the**
 12 **Reverse Fundamental Channel**

13 **5.7.1 Mobile Station test**

14 **5.7.1.1 Definition**

15 The mobile station accomplishes fast forward power control by transmitting the power control
 16 subchannel to the base station on the R-PICH. The power control subchannel can either be gated
 17 or not gated. The R-FCH may be gated when no other Reverse Traffic Channel is assigned and
 18 the data rate is 1500 bps for RC 3 and RC5 or 1800 bps for RC4. When the R-FCH is operated in
 19 the gated mode and is at a data rate of 1500 bps for RC 3 and RC 5 or 1800bps for RC 4, the R-
 20 PICH shall have a transmission duty cycle of 50%. The R-PICH shall be transmitted in power
 21 control groups 2, 3, 6, 7, 10, 11, 14, and 15, and shall not be transmitted in power control
 22 groups 0, 1, 4, 5, 8, 9, 12, and 13.



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Figure 5.7.1.1-1 Gating with the R-FCH

5.7.1.2 Traceability (See [4]):

2.6.4.1.1.3, 3.7.3.3.2.25 *Power Control Message*
 2.6.6.2.5.1, 3.6.6.2.2.12, 3.7.3.3.2.37 *Extended Supplemental Channel Assignment Message*
 2.6.2.4, 2.6.3.3, 2.6.3.5, 3.6.3.3, 3.6.3.5, 3.7.2.3.2.21 *Extended Channel Assignment Message*
 2.6.4.1.2, 2.6.4.1.2.2, 3.7.3.3.2.20, 3.7.5, 3.7.5.7, 3.7.5.20 *Service Connect Message*
 Applicability: RC 3 and greater

5.7.1.3 Call Flow Example(s)

5.7.1.4 Method of Measurement

- a. Connect base station and mobile station as shown in [Annex A Figure 1](#)
- b. Set power levels as stated in [Annex B.1](#).
- c. Set up a mobile station originated call using Service Option 32 (Test Data Service Option) with rate 1500 bps only and set the REV_FCH_GATING_REQ field to '1' in the *Origination Message*.
- d. Instruct the base station to send the *Extended Channel Assignment Message* has the parameters set as follows and set the REV_PWR_CNTL_DELAY field according to the base station's implementation.

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	REV_FCH_GATING_MODE = '1'
REV_PWR_CNTL_DELAY_INCL = '1'	

- e. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to '0'.
- f. Ensure the Reverse Fundamental Channel is transmitted at 1500bps.
- g. Monitor forward link FER at the mobile station.
- h. Verify the Reverse Fundamental Channel is in gated mode and the Reverse Pilot Channel has a transmission duty cycle of 50%.
- i. Verify that the forward link FER on FCH remains at approximately the target value.
- j. End the call at the mobile station.
- k. Repeat steps a through l except for the step d to set FOR_RC to 4 and REV_RC to 4.

5.7.1.5 Minimum Standard

The mobile station shall comply with the requirement in steps h and i.

1 **5.7.2 Base Station Test**

2 None

3 **5.8 Forward Power Control With EIB or QIB While Transmitting**
 4 **Frames on the Forward Fundamental Channel (FPC_MODE**
 5 **= '011' or '100')**

6 **5.8.1 Mobile Station Test**

7 5.8.1.1 Definition

8 This test shall be performed on the Forward Fundamental Channel with FPC_MODE equal to
 9 '011' or '100'. In this test, QIB is same as EIB. The mobile station shall set the EIB or QIB to '0' on
 10 the Reverse Power Control Subchannel in the second transmitted frame following the detection of
 11 a good 20ms frame or the detection of at least one good 5ms frame without the detection of any
 12 bad 5 ms frames within 20ms (if the mobile station support 5ms frame size) on the Forward
 13 Fundamental Channel. Otherwise the mobile station shall set the EIB or QIB to '1' in the second
 14 transmitted 20 ms frame.

15 5.8.1.2 Traceability (See [1]):

16 2.1.3.1.10.1 Reverse Power Control Subchannel Structure

17 2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit

18 (See [4]):

19 2.6.4.1.1 Forward Traffic Channel Power Control

20 3.7.2.3.2.21 Extended Channel Assignment Message

21 5.8.1.3 Call Flow Example(s)

22 5.8.1.4 Method of Measurement

- 23 a. Set up test as shown in [Annex A Figure 1](#).
- 24 b. Set power ratios and levels as specified in [Annex B.1](#).
- 25 c. The Reverse Link attenuation should be set to balance the forward and reverse links
 26 (approximately 90 dB).
- 27 d. Set up a mobile station originated call.
- 28 e. Instruct the base station to send an *Extended Channel Assignment Message* with the
 29 parameters set as follows:

ASSIGN_MODE = '000' or '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	

- 30 f. Instruct the base station to send a *Service Connect Message* with the parameters set
 31 as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = '011'	

- 1 g. From the base station, send a sequence of alternating good and bad 20 ms frames
- 2 (50 frames or more) to the mobile station on the Forward Fundamental Channel.
- 3 h. Verify that the mobile station sends all '0's on the Reverse Power Control
- 4 Subchannel in the second transmitted 20ms frame following the detection of a good
- 5 20ms frame and sends all '1's on the Reverse Power Control Subchannel in the
- 6 second transmitted frame following the detection of a bad 20-ms frame.
- 7 i. End the call.
- 8 j. Repeat steps a through i except for the step d to set REV_RC to 3 and FOR_RC to 4.
- 9 k. Repeat steps a through i except for the step d to set REV_RC to 4 and FOR_RC to 5.
- 10 l. Set up a mobile station originated call.
- 11 m. Instruct the base station to send an *Extended Channel Assignment Message* with the
- 12 parameters set as follows:

ASSIGN_MODE = '000' or '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	

- 13 n. Instruct the base station to send a *Service Connect Message* with the parameters set
- 14 as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = '100'	FCH_FRAME_SIZE = '1'

- 15 o. From the base station, send a sequence of alternating 4 5ms good and 4 5ms bad
- 16 frames (50 frames or more), followed by a sequence of alternating 20ms good and
- 17 bad frames (50 frames or more), to the mobile station on the Forward Fundamental
- 18 Channel.
- 19 p. Verify that the mobile station sends all '0's on the Reverse Power Control
- 20 Subchannel in the second transmitted frame following the detection of a good 20ms
- 21 frame or the detection of at least one good 5ms frame without the detection of any
- 22 bad 5 ms frames within 20ms, and, otherwise, sends all '1's on the Reverse Power
- 23 Control Subchannel.
- 24 q. End the call.
- 25 r. Repeat steps l through q except for step m to set REV_RC to 3 and FOR_RC to 4.
- 26 s. Repeat steps l through q except for step m to set REV_RC to 4 and FOR_RC to 5.

1 5.8.1.5 Minimum Standard

2 The mobile station shall comply with the requirements in steps h and p.

3 **5.8.2 Base Station Test**

4 None

5 **5.9 Forward Power Control With EIB While Transmitting Frames**
 6 **on the Forward Dedicated Control Channel (FPC_MODE =**
 7 **'011')**

8 **5.9.1 Mobile Station Test**

9 5.9.1.1 Definition

10 This test shall be performed on the Forward Dedicated Control Channel with FPC_MODE equal
 11 to '011'. The mobile station shall set the EIB to '0' on the Reverse Power Control Subchannel in
 12 the second transmitted 20ms frame following the detection of a good 20ms frame or the detection
 13 of at least one good 5ms frame without the detection of any bad 5 ms frames within 20ms on the
 14 Forward Dedicated Control Channel. Otherwise, the mobile station shall set the EIB to '1' in the
 15 second transmitted 20 ms frame.

16 5.9.1.2 Traceability (See [1]):

17 *2.1.3.1.10.1 Reverse Power Control Subchannel Structure*

18 *2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit*

19 (See [4]):

20 *2.6.4.1.1 Forward Traffic Channel Power Control*

21 *3.7.2.3.2.21 Extended Channel Assignment Message*

22 5.9.1.3 Call Flow Example(s)

23 5.9.1.4 Method of Measurement

- 24 a. Set up test as shown in [Annex A Figure 1](#).
- 25 b. Set power ratios and levels as specified in [Annex B.1](#).
- 26 c. The Reverse Link attenuation should be set to balance the forward and reverse links
 27 (approximately 90 dB).
- 28 d. Set up a mobile station originated data call by using SO33.
- 29 e. Instruct the base station to send an *Extended Channel Assignment Message* with the
 30 parameters set as follows:

ASSIGN_MODE = '000' or '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	

- 1 f. Instruct the base station to send a *Service Connect Message* with the parameters set
 2 as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '1'	GATING_RATE_INCL = '0'
FPC_MODE = '011'	DCCH_FRAME_SIZE = '11'

- 3 g. From the base station, send a sequence of alternating 4 5ms good and 4 5ms bad
 4 frames (50 frames or more), followed by a sequence of alternating 20ms good and
 5 bad frames (50 frames or more), to the mobile station on the Forward Fundamental
 6 Channel.
 7 h. Verify that the mobile station sends all '0's on the Reverse Power Control
 8 Subchannel in the second transmitted frame following the detection of a good 20ms
 9 frame or the detection of at least one good 5ms frame without the detection of any
 10 bad 5 ms frames within 20ms, and, otherwise, sends all '1's on the Reverse Power
 11 Control Subchannel.
 12 i. End the call.
 13 j. Repeat steps d through i except for step e to set REV_RC to 3 and FOR_RC to 4.
 14 k. Repeat steps d through i except for step e to set REV_RC to 4 and FOR_RC to 5.

15 **5.9.1.5 Minimum Standard**

16 The mobile station shall comply with the requirement in step h.

17 **5.9.2 Base Station Test**

18 None

19 **5.10 Forward Power Control With QIB on the Forward Dedicated**
 20 **Control Channel (FPC_MODE = '100')**

21 **5.10.1 Mobile Station Test**

22 **5.10.1.1 Definition**

23 This test shall be performed on the Forward Dedicated Control Channel with FPC_MODE equal
 24 to '100'. The mobile station shall set the QIB to '0' on the Reverse Power Control Subchannel in
 25 the second transmitted frame following the detection of a 20ms period with sufficient signal quality
 26 on the Forward Dedicated Control Channel. The mobile station shall set the QIB to '1' on the
 27 Reverse Power Control Subchannel in the second transmitted frame following the detection of a
 28 20ms period with insufficient signal quality on the Forward Dedicated Control Channel. When
 29 transmitting active frames on the Forward Dedicated Control Channel only, the QIB will be the

1 same as the EIB When the frame is inactive (i.e. only the power control bits are transmitted in a
2 frame), the Quality Indicator Bit indicates the channel quality.

3 5.10.1.2 Traceability (See [1]):

4 2.1.3.1.10.1 Reverse Power Control Subchannel Structure

5 2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit

6 (See [4]):

7 2.6.4.1.1 Forward Traffic Channel Power Control

8 2.6.4.1.1 Forward Traffic Channel Power Control

9 3.7.2.3.2.21 *Extended Channel Assignment Message*

10 5.10.1.3 Call Flow Example(s)

11 5.10.1.4 Method of Measurement

- 12 a. Set up test as shown in [Annex A Figure 1](#).
- 13 b. Set power ratios and levels as specified in [Annex B.1](#).
- 14 c. The Reverse Link attenuation should be set to balance the forward and reverse links
15 (approximately 90 dB).
- 16 d. Set up a mobile station originated data call by using Service Option 33.
- 17 e. Instruct the base station to send an *Extended Channel Assignment Message* with the
18 parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	

- 19 f. Instruct the base station to send a *Service Connect Message* with the parameters set
20 as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '1'	GATING_RATE_INCL = '0'
FPC_MODE = '100'	FPC_OLPC_DCCH_INCL = '0'

- 21 g. Instruct the base station to send a sequence of alternating good and bad 20ms
22 frames (50 frames or more) to the mobile station on the Forward Dedicated Control
23 Channel.
- 24 h. Verify the mobile station set the QIB to '0' in the second transmitted frame following
25 the detection of a good 20ms frame on the Forward Dedicated Control Channel and
26 set the QIB to '1' in the second transmitted frame following the detection of a bad
27 20ms frame.
- 28 i. Instruct the base station to send a sequence of good and inactive 20ms frames (50
29 frames or more) by enabling and disabling the transmission of 20ms frames. During
30 the period of sending inactive 20ms frames, only the power control bits are
31 transmitted in full power on the Forward Dedicated Control Channel.

- 1 j. Verify that the mobile station sets the QIB to '0' in the second transmitted 20ms frame
- 2 following the detection of a 20ms period with sufficient signal quality on the Forward
- 3 Dedicated Control Channel and set the QIB to '1' in the second transmitted 20ms
- 4 frame following the detection of a 20ms period with insufficient quality .
- 5 k. End the call.
- 6 l. Repeat steps d through k except for step e to set REV_RC to 3 and FOR_RC to 4.
- 7 m. Repeat steps d through k except for step e to set REV_RC to 4 and FOR_RC to 5.

8 5.10.1.5 Minimum Standard

9 The mobile station shall comply with the requirements in steps h and j.

10 **5.10.2 Base Station Test**

11 None

12 **5.11 Forward Power Control With QIB derived from the Forward**

13 **Fundamental Channel or Dedicated Control Channel and**

14 **EIB derived from Supplemental Channel (FPC_MODE =**

15 **'101')**

16 **5.11.1 Mobile Station Test**

17 5.11.1.1 Definition

18 This test shall be performed with FPC_MODE equal to '101'. The mobile station shall transmit

19 QIB derived from the Forward Fundamental Channel or Forward Dedicated Control Channel on

20 the Primary Reverse Power Control Subchannel and shall transmit EIB derived from Forward

21 Supplemental Channel on the Secondary Reverse Power Control Subchannel. The transmission

22 of the QIB and EIB shall start at the second 20 ms frame of the Reverse Traffic Channel following

23 the corresponding Forward Traffic Channel frame in which QIB or EIB is determined.

24 5.11.1.2 Traceability (See [1]):

25 2.1.3.1.10.1 Reverse Power Control Subchannel Structure

26 2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit

27 (See [4]):

28 2.6.4.1.1 Forward Traffic Channel Power Control

29 2.6.4.1.1 Forward Traffic Channel Power Control

30 3.7.2.3.2.21 *Extended Channel Assignment Message*

31 5.11.1.3 Call Flow Example(s)

32 5.11.1.4 Method of Measurement

- 33 a. Set up test as shown in [Annex A Figure 1](#).
- 34 b. Set power ratios and levels as specified in [Annex B.1](#).

- 1 c. The Reverse Link attenuation should be set to balance the forward and reverse links
 2 (approximately 90 dB).
 3 d. Set up a mobile station originated data call by using Service Option 33.
 4 e. Instruct the base station to send an *Extended Channel Assignment Message* with the
 5 parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	

- 6 f. Instruct the base station to send a *Service Connect Message* with the parameters set
 7 as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = '101'	FCH_FRAME_SIZE = '1'

- 8 g. Instruct the base station to download SCH configuration and assign a Forward
 9 Supplemental Channel with an infinite duration by using the *Extended Supplemental*
 10 *Channel Assignment Message* with the power control related parameters set as
 11 follows:

FPC_INCL = '1'	FPC_SEC_CHAN = '0'
FPC_MODE_SCH = '101'	NUM_SUP = '00'

- 12 h. Instruct the base station to send a sequence of alternating 4 5ms good and 4 5ms
 13 bad frames (50 frames or more), followed by a sequence of alternating 20ms good
 14 and bad frames (50 frames or more) to the mobile station on the Forward
 15 Fundamental Channel. Instruct the base station to send a sequence of alternating
 16 good and bad 20ms frames (50 frames or more) on the Forward Supplemental
 17 Channel.
 18 i. Verify that the mobile station sets the QIB to '0' on the Primary Reverse Power
 19 Control Subchannel in the second transmitted 20ms frame following the detection of
 20 a good 20ms frame or detection of at least one good 5ms frame without detection of
 21 any bad 5 ms frames within 20ms on the Forward Fundamental Channel; otherwise,
 22 the mobile station sets the QIB to '1'. Verify that the mobile station sets EIB to '0' on
 23 the Secondary Reverse Power Control Subchannel starting at the second 20ms
 24 frame after a detected good frame and otherwise sets EIB to '1' on the Secondary
 25 Reverse Power Control Subchannel on the Forward Supplemental Channel.
 26 j. End the call.
 27 k. Repeat steps d through j except for step e to set REV_RC to 3 and FOR_RC to 4.
 28 l. Repeat steps d through j except for step e to set REV_RC to 4 and FOR_RC to 5.
 29 m. Repeat steps d through l except for the following steps:

- 1 1. Step e: Set CH_IND = '10';
- 2 2. Step f: Set FPC_PRI_CHAN = '1' and DCCH_FRAME_SIZE = '11';
- 3 3. Step h: Instruct the base station to send a sequence of alternating good
- 4 and bad 20ms frames (50 frames or more), followed by a sequence of
- 5 alternating 4 5ms good and 4 5ms bad frames (50 frames or more), and
- 6 then followed by a sequence of good and inactive 20ms frames (50
- 7 frames or more) on the Forward Dedicated Control Channel by enabling
- 8 and disabling the transmission of 20ms frames. During the period of
- 9 sending inactive 20ms frames, only the power control bits are transmitted
- 10 in full power on the Forward Dedicated Control Channel. Instruct the
- 11 base station to send a sequence of alternating good and bad 20ms
- 12 frames (50 frames or more) to the mobile station on the Forward
- 13 Supplemental Channel.
- 14 4. Step i: Verify that the mobile station set the QIB to '0' on the Primary
- 15 Reverse Power Control Subchannel in the second transmitted 20ms
- 16 frame following the detection of a good 20ms frame, or detection of at
- 17 least one good 5ms frame without detection of any bad 5 ms frames
- 18 within 20ms, or detection of a 20ms period with sufficient signal quality
- 19 on the Forward Dedicated Control Channel; otherwise the mobile station
- 20 sets the QIB to '0'. Verify that the mobile station sets the EIB to '0' on the
- 21 Secondary Reverse Power Control Subchannel starting at the second
- 22 20ms frame after a detected good frame and otherwise sets EIB to '1' on
- 23 the Secondary Reverse Power Control Subchannel.

24 5.11.1.5 Minimum Standard

25 The mobile station shall comply with the requirements in steps i and m.

26 **5.11.2 Base Station Test**

27 None

28 **5.12 Forward Power Control With 400 bps data rate on the**

29 **Forward Fundamental Channel or Forward Dedicated**

30 **Control Channel and EIB derived from Supplemental**

31 **Channel (FPC_MODE = '110')**

32 **5.12.1 Mobile Station Test**

33 5.12.1.1 Definition

34 This test shall be performed with FPC_MODE equal to '110'. The mobile station shall transmit the

35 Primary Reverse Power Control Subchannel at a 400 bps data rate based on the Forward

36 Fundamental Channel or Forward Dedicated Control Channel, and shall transmit EIB derived

37 from Forward Supplemental Channel on the Secondary Reverse Power Control Subchannel. The

38 transmission of the power control bits on the Primary Reverse Power Control Subchannel is

39 based on inner and outer closed loop estimations. The transmission of the EIB on the Secondary

1 Reverse Power Control Subchannel shall start at the second frame (20ms frame) of the Reverse
 2 Traffic Channel following the end of the corresponding Forward Supplemental Channel frame
 3 from which the EIB is derived.

4 5.12.1.2 Traceability (See [1]):

5 2.1.3.1.10.1 Reverse Power Control Subchannel Structure

6 2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit

7 (See [4]):

8 2.6.4.1.1 Forward Traffic Channel Power Control

9 2.6.4.1.1 Forward Traffic Channel Power Control

10 3.7.2.3.2.21 *Extended Channel Assignment Message*

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12 5.12.1.3 Call Flow Example(s)

13 5.12.1.4 Method of Measurement

- 14 a. Set up test as shown in [Annex A Figure 1](#).
- 15 b. Set power ratios and levels as specified in [Annex B.1](#).
- 16 c. The Reverse Link attenuation should be set to balance the forward and reverse links
 17 (approximately 90 dB).
- 18 d. Set up a mobile station originated data call by using Service Option 33.
- 19 e. Instruct the base station to send an *Extended Channel Assignment Message* with the
 20 parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 21 f. Instruct the base station to send a *Service Connect Message* with the parameters set
 22 as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	FPC_OLPC_DCCH_INCL = '0'
FPC_MODE = '110'	GATING_RATE_INCL = '0'

- 23 g. Instruct the base station to download SCH configuration and assign a Forward
 24 Supplemental Channel with an infinite duration by using the *Extended Supplemental*
 25 *Channel Assignment Message* with the power control related parameters set as
 26 follows:

FPC_INCL = '1'	FPC_SEC_CHAN = '0'
FPC_MODE_SCH = '110'	NUM_SUP = '00'

- 1 h. Monitor the forward link FER on the Forward Fundamental Channel at the mobile
- 2 station.
- 3 i. Verify that the forward link FER on the FCH is approximately the target value.
- 4 j. Instruct the base station to send a sequence of alternating good and bad 20ms
- 5 frames (50 frames or more) to the mobile station on the Forward Supplemental
- 6 Channel.
- 7 k. Verify that the mobile station sets the EIB to '0' on the Secondary Reverse Power
- 8 Control Subchannel, starting at the second 20ms after the detection of a good 20ms
- 9 frame on the Forward Supplemental Channel and set the EIB to '1' on the Secondary
- 10 Reverse Power Control Subchannel starting at the second 20ms frame after following
- 11 the detection of a bad 20ms frame on the Forward Supplemental Channel.
- 12 l. End the call.
- 13 m. Repeat steps d through l except for step e to set REV_RC to 3 and FOR_RC to 4.
- 14 n. Repeat steps d through l except for step e to set REV_RC to 4 and FOR_RC to 5.
- 15 o. Set up a mobile station originated data call by using Service Option 33.
- 16 p. Instruct the base station to send an *Extended Channel Assignment Message* with the
- 17 parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '00011' (RC 3)	REV_RC = '00011' (RC 3)
CH_IND = '10'	FPC_DCCH_INIT_SETPT = '01000000' (8 dB)
FPC_DCCH_FER = '00010' (1%)	FPC_DCCH_MIN_SETPT = '00010000' (2 dB)
FPC_DCCH_MAX_SETPT = '10000000' (16 dB)	

- 18 q. Instruct the base station to send a *Service Connect Message* with the parameters set
- 19 as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '1'	FPC_OLPC_DCCH_INCL = '0'
FPC_MODE = '110'	GATING_RATE_INCL = '0'

- 20 r. Instruct the base station to download SCH configuration and assign a Forward
- 21 Supplemental Channel with an infinite duration by using the *Extended Supplemental*
- 22 *Channel Assignment Message* with the power control related parameters set as
- 23 follows:

FPC_INCL = '1'	FPC_SEC_CHAN = '1'
FPC_MODE_SCH = '110'	NUM_SUP = '00'

- 1 s. Monitor the forward link FER on the Forward Dedicated Control Channel at the
2 mobile station.
- 3 t. Verify that the forward link FER on the DCCH remains at approximately the target
4 value.
- 5 u. Instruct the base station to send a sequence of alternating good and bad 20ms
6 frames (50 frames or more) to the mobile station on the Forward Supplemental
7 Channel.
- 8 v. Verify that the mobile station set the EIB to '0' on the Secondary Reverse Power
9 Control Subchannel starting at the second 20ms after following the detection of a
10 good 20ms frame on the Forward Supplemental Channel and set the EIB to '1' on the
11 Secondary Reverse Power Control Subchannel starting at the second 20ms frame
12 after following the detection of a bad 20ms frame on the Forward Supplemental
13 Channel.
- 14 w. End the call.
- 15 x. Repeat steps q through aa except for step r to set REV_RC to 3 and FOR_RC to 4.
- 16 y. Repeat steps q through aa except for step r to set REV_RC to 4 and FOR_RC to 5.

17 5.12.1.5 Minimum Standard

18 The mobile station shall comply with the requirements in steps i, k, t and v.

19 5.12.2 Base Station Test

20 None

22 5.13 SCH Power Control Modes with RC 11 and RC 8

23 5.13.1 Mobile Station Test

24 5.13.1.1 Definition

25 This test verifies various power control mode assignments using *Radio Configuration Parameters*
26 *Message* and *Extended Supplemental Channel Assignment Message*.

27 5.13.1.2 Traceability (See [1]):

28 2.1.3.1.11 *Reverse Power Control Subchannel*

29 (See [4]):

30 2.6.6.2.5.1, 3.6.6.2.2.12, 3.7.3.3.2.37 *Extended Supplemental Channel Assignment Message*

31 2.6.2.4, 2.6.3.3, 2.6.3.5, 3.6.3.3, 3.6.3.5, 3.7.2.3.2.21 *Extended Channel Assignment Message*

32 2.6.4.1.2, 2.6.4.1.2.2, 3.7.3.3.2.20, 3.7.5, 3.7.5.7, 3.7.5.20 *Service Connect Message*

1 5.13.1.3 Call Flow Examples

2 5.13.1.4 Method of Measurement

- 3 a. Connect base station and mobile station as shown in [Annex A Figure 1](#).
- 4 b. Set power levels as stated in [Annex B.1](#). Set up a mobile station originated call using
- 5 Service Option 32.
- 6 c. Instruct the base station to send the *Extended Channel Assignment Message* with
- 7 the parameters set as follows:

ASSIGN_MODE = '100'	GRANTED_MODE = '10'
FOR_RC = '01011' (RC 11)	REV_RC = '01000' (RC 8)
CH_IND = '01'	FPC_FCH_INIT_SETPT = '01000000' (8 dB)
FPC_FCH_FER = '00010' (1%)	FPC_FCH_MIN_SETPT = '00010000' (2 dB)
FPC_FCH_MAX_SETPT = '10000000' (16 dB)	

- 8 d. Instruct the base station to send and to send a *Radio Configuration Parameters*
- 9 *Mesage* with REV_FCH_BLANKING_DUTYCYCLE set to '000' and to send the
- 10 *Service Connect Message* with the parameters set as follows:

FPC_INCL = '0'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '0'	GATING_RATE_INCL = '0'
FPC_MODE = not included	

- 11 e. Instruct the base station to download SCH configuration and assign a Forward
- 12 Supplemental Channel by using the *Extended Supplemental Channel Assignment*
- 13 *Message* and set the power control related fields as stated in follows:

FPC_INCL = '0'	FPC_SCH_INIT_SETPT = '01000000' (8 dB)
FPC_SCH_INIT_SETPT_OP = '0'	FPC_SCH_MAX_SETPT = '10000000' (16 dB)
FPC_SCH_FER = '01010' (5%)	FPC_SCH_MIN_SETPT = '00010000' (2 dB)

- 14 f. Verify that the mobile station and base station are able to send and receive frames
- 15 and that the FER on the channel being power controlled directly is close to the target
- 16 FER.
- 17 g. Repeat steps a-f with the exception that FPC_MODE is set to '010'.
- 18 h. Repeat steps a-f with the exception that RPC_MODE is set to '01' and FPC_MODE
- 19 is set to '011'.
- 20 i. Repeat steps a-f with the exception that RPC_MODE is set to '01' and FPC_MODE
- 21 is set to '010'.
- 22 j. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set
- 23 to the default value, RPC_MODE is set to '01' and FPC_MODE is set to '010'.
- 24 k. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set
- 25 to the default value, RPC_MODE is set to '01' and FPC_MODE is set to '010'.

- 1 I. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set
2 to the default value, RPC_MODE is set to default value of '00' and FPC_MODE is set
3 to '010'.

4 **5.13.1.5 Minimum Standard**

5 The mobile station shall comply with the requirement in step f for all cases.

6

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1 6 Registration

2 6.1 Power-Up Registration

3 6.1.1 Mobile Station Test

4 6.1.1.1 Definition

5 These tests verify the proper power-up registration functionality.

6 The mobile station registers when it powers on, switches from using a different frequency block,
7 switches from using a different band class, switches from using an alternative operating mode, or
8 switches from using the analog system. To prevent multiple registrations when power is quickly
9 turned on and off, the mobile station delays T57m seconds before registering, after entering the
10 Mobile Station Idle State.

11 6.1.1.2 Traceability (See [4]):

12 *2.6.5.1.1: Power-Up Registration*

13 *2.6.5.5.1.3: Entering the Mobile Station Idle State*

14 *2.6.5.5.2.1: Idle Registration Procedures*

15 *2.7.1.3.2.1: Registration Message*

16 *3.6.5: Registration*

17 *3.7.2.3.2.1: System Parameters Message*

18 *3.7.2.3.2.30 ANSI-41 System Parameters Message*

19 6.1.1.2.1 Call Flow Example(s)

20 None

21 6.1.1.3 Method of Measurement

22 6.1.1.3.1 Power-up Registration Disabled

- 23 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 24 b. Instruct the base station to set POWER_UP_REG = 0 in the *System Parameters*
25 *Message*.
- 26 c. Power on the mobile station.
- 27 d. Verify that the mobile station does not attempt power-up registration for at least 1
28 minute after the mobile station enters the Mobile Station Idle State.
- 29 e. If the mobile station supports the F-BCCH, repeat steps a through d substituting
30 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

31

32 6.1.1.3.2 Power-up Registration Enabled

- 33 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).

- 1 b. Instruct the base station to set POWER_UP_REG = 1 in the *System Parameters*
- 2 *Message*.
- 3 c. Power on the mobile station.
- 4 d. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0001'.
- 5 e. If the mobile station supports the F-BCCH, repeat steps a through d substituting
- 6 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

7 6.1.1.3.3 Power-up Registration entering from a different operating mode

- 8 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#). (Base
- 9 station 1 is a CDMA base station and base station 2 is a non-CDMA base station.
- 10 b. Allow the mobile station to operate in the idle state on base station 2.
- 11 c. Instruct base station 1 to set POWER_UP_REG = 1 in the *System Parameters*
- 12 *Message*.
- 13 d. Force the mobile station to acquire base station 1.
- 14 e. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0001'.
- 15 f. If the mobile station supports the F-BCCH, repeat steps a through e substituting
- 16 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

17 6.1.1.3.4 Power-up Registration entering into different Band Class

- 18 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#). (Base
- 19 station 1 and base station 2 are CDMA base stations using different band classes)
- 20 b. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the
- 21 *System Parameters Message*.
- 22 c. Power on the mobile station.
- 23 d. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0001'.
- 24 e. Force the mobile station to acquire base station 2.
- 25 f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0001'.
- 26 g. Force the mobile station to acquire base station 1.
- 27 h. Verify that the mobile station performs power-up registration on base station 1.
- 28 i. If the mobile supports the F-BCCH, repeat steps a through i substituting *ANSI – 41*
- 29 *System Parameters Message* for *System Parameters Message*.

30 6.1.1.3.5 Power-up Registration entering into different Frequency Blocks

- 31 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#). (Base
- 32 station 1 and base station 2 are CDMA base stations using frequencies from different
- 33 blocks in the same Band Class.) Instruct both base station 1 and base station 2 to set
- 34 POWER_UP_REG = 1 in the *System Parameters Message* while ensuring all other
- 35 forms of registration are disabled.

- 1 b. Power on the mobile station.
- 2 c. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0001'.
- 3 d. Force the mobile station to acquire base station 2.
- 4 e. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0001'.
- 5 f. Repeat steps a through f assigning base station 1 and base station 2 to CDMA
- 6 channels in different frequency blocks of the same band class.
- 7 g. If the mobile station supports the F-BCCH, repeat steps a through g substituting
- 8 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

9 6.1.1.4 Minimum Standard

10 6.1.1.4.1 Power-up Registration Disabled

11 The mobile station shall comply with step d.

12 6.1.1.4.2 Power-up Registration Enabled

13 The mobile station shall comply with step d.

14 6.1.1.4.3 Power-up Registration entering from a different operating mode

15 The mobile station shall comply with step e.

16 6.1.1.4.4 Power-up Registration entering into different Band Class

17 The mobile station shall comply with steps d, f and h.

18 6.1.1.4.5 Power-up Registration entering into different Frequency Blocks

19 The mobile station shall comply with steps d and f.

20 **6.1.2 Base Station Test**

21 None

22

23 **6.2 Power - Down Registration**

24

25 **6.2.1 Mobile Station Test**

26

27 6.2.1.1 Definition

28 These tests verify power-down registration functionality.

29 This test verifies the mobile station performs Power-Down Registration only if it has previously
30 registered in the current serving system, identified by its SID and NID.

1 6.2.1.2 Traceability (See [4]):

2 2.6.5.1.1: *Power-Up Registration*

3 2.6.5.1.2: *Power-Down Registration*

4 2.6.5.5.2.1: *Idle Registration Procedures*

5 2.7.1.3.2.1: *Registration Message*

6 3.6.5: *Registration*

7 3.7.2.3.2.1: *System Parameters Message*

8 3.7.2.3.2.30 *ANSI – 41 System Parameters Message*

9

10 6.2.1.3 Call Flow Diagram

11 None

12

13 6.2.1.4 Method of Measurement

14 6.2.1.4.1 Power-down Registration Disabled

- 15 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 16 b. Enable power-up registration (by setting POWER_UP_REG = 1 in the *System*
- 17 *Parameters Message* ensure all other forms of registration are disabled.
- 18 c. Power on the mobile station.
- 19 d. Verify that the mobile station performs a power-up registration.
- 20 e. Power down the mobile station.
- 21 f. Verify that power-down registration does not occur.
- 22 g. If the mobile station supports the F-BCCH, repeat steps a through f substituting *ANSI*
- 23 *– 41 System Parameters Message* for *System Parameters Message*.

24 6.2.1.4.2 Power-down Registration of a Currently Registered Mobile Station

- 25 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 26 b. Enable power-up registration and power-down registration by setting
- 27 POWER_UP_REG = 1 and POWER_DOWN_REG = 1 in the *System Parameters*
- 28 *Message*. Ensure all other forms of registration are disabled.
- 29 c. Power on the mobile station.
- 30 d. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0011'.
- 31 e. Power down the mobile station.
- 32 f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0011'.
- 33 g. If the mobile supports the F-BCCH, repeat steps a through f substituting *ANSI – 41*
- 34 *System Parameters Message* for *System Parameters Message*.

- 1 6.2.1.4.3 Power-down Registration of an Unregistered Mobile Station.
- 2 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#). (Base
- 3 station 1 and base station 2 are CDMA base stations using a different SID/NID).
- 4 b. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 and
- 5 POWER_DOWN_REG = 1 in the *System Parameters*. Ensure all other forms of
- 6 registration are disabled.
- 7 c. Power on the mobile station.
- 8 d. Verify that power-up registration on base station 1.
- 9 e. Force the mobile station to acquire base station 2 and verify that the mobile station
- 10 does not register on Base Station 2.
- 11 f. Power down the mobile station.
- 12 g. Verify that power-down registration does not occur on base station 2.
- 13 h. If the mobile station supports the F-BCCH, repeat steps a through g substituting
- 14 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

15 6.2.1.5 Minimum Standard

16 6.2.1.5.1 Power-down Registration Disabled.

17 The mobile station shall comply with steps d and f.

18 6.2.1.5.2 Power-down Registration of a Currently Registered Mobile Station.

19 The mobile station shall comply with steps d and f.

20 6.2.1.5.3 Power-down Registration of an Unregistered Mobile Station in a

21 New System/Network.

22 The mobile station shall comply with steps d, e and g.

23 6.2.2 Base Station

24 None

25 6.3 Distance-Based Registration

26 6.3.1 Mobile Station Test

27 6.3.1.1 Definition

28 These tests verify proper distance-based registration functionality. The mobile station registers

29 when the distance between the current base station and the base station in which it last

30 registered exceeds a threshold.

31 6.3.1.2 Traceability (See [4]):

32 2.6.5.1.1 Power-Up Registration

33 2.6.5.1.4: Distance-Based Registration

- 1 3.6.5 Registration
- 2 3.7.2.3.2.1: System Parameters Message
- 3 3.7.2.3.2.30 ANSI – 41 System Parameters Message
- 4 3.7.2.3.2.31 MC-RR Parameters Message to Traceability

5 6.3.1.3 Call Flow Diagram

6 None

7 6.3.1.4 Method of measurement

8

9 6.3.1.4.1 Distance-Based Registration Disabled

- 10 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 11 b. Configure base station 1 and base station 2 with REG_DIST, BASE_LAT, and
- 12 BASE_LONG parameters indicated in Test Case 1 in Table 6.3.1.4.1-1.
- 13 c. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the
- 14 System Parameters Message.
- 15 d. Power on the mobile station on base station 1.
- 16 e. Verify that power-up registration occurs.
- 17 f. Force the mobile station to perform an idle handoff to base station 2 by reducing
- 18 base station 2 forward link attenuation, then increasing base station 1 forward link
- 19 attenuation.
- 20 g. Verify that the mobile station does not perform distance-based registration.
- 21 h. If the mobile station supports the F-BCCH, repeat steps a through g substituting
- 22 ANSI – 41 System Parameters Message for System Parameters Message.

23 **Table 6.3.1.4.1-1 BTS Distance based LAT/LONG System Parameters Message or the ANSI – 41**
 24 **System Parameters Message Configuration**

Parameters	Test Case 1	Test Case 2	Test Case 3
BTS 1 BASE_LAT (sec/4)	0X4	0X4	0X4
BTS 1 BASE_LONG (sec/4)	0X4	0X4	0X4
BTS 2 BASE_LAT (sec/4)	0X400	0X400	0X400
BTS 2 BASE_LONG (sec/4)	0X400	0X400	0X400
REG_DIST	0X0	0X50	0X10

25

26 6.3.1.4.2 Distance Threshold Not Exceeded

- 27 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 28 b. Configure base station 1 and base station 2 with REG_DIST, BASE_LAT, and
- 29 BASE_LONG parameters indicated in Test Case 2 in Table 6.3.1.4.1-1.
- 30 c. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the
- 31 System Parameters Message .

- 1 d. Power on the mobile station.
- 2 e. Verify that power-up registration occurs.
- 3 f. Force the mobile station to perform an idle handoff to base station 2 by reducing
- 4 base station 2 forward link attenuation, then increasing base station 1 forward link
- 5 attenuation.
- 6 g. Verify that the mobile station does not perform distance-based registration.
- 7 h. If the mobile station supports the F-BCCH, repeat steps a through g substituting
- 8 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

9 6.3.1.4.3 Distance Threshold Exceeded

- 10 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 11 b. Configure base station 1 and base station 2 with REG_DIST, BASE_LAT, and
- 12 BASE_LONG parameters indicated in Test Case 3 in Table 6.3.1.4.1-1.
- 13 c. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the
- 14 *System Parameters Message*.
- 15 d. Power on the mobile station.
- 16 e. Verify that power-up registration occurs.
- 17 f. Force mobile station to perform an idle handoff to base station 2 by reducing base
- 18 station 2 forward link attenuation, then increasing base station 1 forward link
- 19 attenuation.
- 20 g. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0110'.
- 21 h. If the mobile station supports the F-BCCH, repeat steps a through g substituting
- 22 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

23 6.3.1.5 Minimum Standard

24 6.3.1.5.1 Distance-based Registration Disabled

25 The mobile station shall comply with the requirements in steps e and g.

26 6.3.1.5.2 Distance Threshold Not Exceeded

27 The mobile station shall comply with the requirements in steps e and g.

28 6.3.1.5.3 Distance Threshold Exceeded

29 The mobile station shall comply with the requirements in steps e and g.

30 **6.3.2 Base Station Test**

31 None

1 **6.4 Timer-Based Registration**

2 **6.4.1 Mobile Station Test**

3 6.4.1.1 Definition

4 These tests verify proper timer - based registration functionality.

5 The mobile station registers when a timer expires.

6 Timer-based registration is performed when the counter reaches a maximum value

7 (REG_COUNT_MAX) that is controlled by the base station via the REG_PRD field of the *System*

8 *Parameters Message* or *ANSI-41 System Parameters Message*. The counter is reset when the

9 mobile station powers on and when the mobile station switches from different band classes,

10 different serving systems, different frequency blocks, and alternate operating modes. The counter

11 is also reset after each successful registration.

12

13 6.4.1.2 Traceability (See [4]):

14 2.6.5.1.2: *Power-Down Registration*

15 2.6.5.1.3: *Timer-Based Registration*

16 2.7.1.3.2.1: *Registration Message*

17 3.6.5: *Registration*

18 3.7.2.3.2.1: *System Parameters Message*

19 3.7.2.3.2.30 *ANSI – 41 System Parameters Message*

20 6.4.1.3 Call Flow Diagram

21 None

22 6.4.1.4 Method of Measurement

23 6.4.1.4.1 Timer-based Registration Disabled

24 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).

25 b. Instruct the base station to set POWER_UP_REG =1 and set REG_PRD = 0 in the
26 *System Parameters Message*.

27 c. Power on the mobile station.

28 d. Verify that power-up registration occurs.

29 e. Verify that the mobile station does not perform timer-based registration.

30 f. If the mobile station supports the F-BCCH, repeat steps a through e substituting
31 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

32 6.4.1.4.2 Lowest Timer Value

33 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).

34 b. Instruct the base station to set POWER_UP_REG = 0 and set REG_PRD = 29 (12.16
35 seconds) in the *System Parameters Message*.

36 c. Power on the mobile station.

- 1 d. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0000' at
2 approximately 12 second intervals.
- 3 e. If the mobile station supports the F-BCCH, repeat steps a through e substituting
4 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

5 6.4.1.4.3 Mid-range Timer Value

- 6 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 7 b. Instruct the base station to set POWER_UP_REG =0 and set REG_PRD = 38 (57.93
8 seconds) in the *System Parameters Message*.
- 9 c. Power on the mobile station.
- 10 d. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0000' at
11 approximately 58 second intervals.
- 12 e. If the mobile station supports the F-BCCH, repeat steps a through d substituting
13 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

14 6.4.1.4.4 Timer-Based Registration on Different Band Classes

- 15 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 16 b. Set the values from table 6.4.1.4.4 -1 for BS 1 and BS 2 in the *System Parameters*
17 *Message*. Ensure all other forms of registration are disabled.
- 18 c. Power on the mobile station.
- 19 d. Verify that timer-based registration occurs on BS 1 at approximately 12 second
20 intervals.
- 21 e. Force the mobile station to acquire base station 2.
- 22 f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0000' at
23 approximately 58 second intervals.
- 24 g. If the mobile station supports the F-BCCH, repeat steps a through f substituting *ANSI*
25 *– 41 System Parameters Message* for *System Parameters Message*.

26 **Table 6.4.1.4.4-1 Registration period settings for different Band Classes**

Parameter	BTS 1	BTS 2
Forward Link Channel Frequency	1935.00 MHz (Ch. 100)	881.52MHz (Ch. 384)
REG_PRD	29	38

27

28 6.4.1.4.5 Timer-Based Registration on Different Frequency Blocks

- 29 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 30 b. Set the values from table 6.4.1.4.5 -1 for BS 1 and BS 2 in the *System Parameters*
31 *Message*. Ensure all other forms of registration are disabled.

- 1 c. Power on the mobile station.
- 2 d. Verify that timer-based registration occurs on BS 1 at approximately 12 second
- 3 intervals.
- 4 e. Force the mobile station to acquire Base station 2.
- 5 f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0000' at
- 6 approximately 58 second intervals.
- 7 g. If the mobile station supports the F-BCCH, repeat steps a through g substituting
- 8 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

Table 6.4.1.4.5-1 Registration period settings for Different Frequency Blocks

Parameter	BTS 1	BTS 2
Forward Link Channel Frequency	1935.00 MHz (Ch. 100, Blk. A)	1963.75 MHz (Ch. 675, Blk. B)
REG_PRD	29	38

10
11

12 **6.4.1.5 Minimum Standard**

13 **6.4.1.5.1 Timer-based Registration Disabled**

14 The mobile station shall comply with steps d and e.

15 **6.4.1.5.2 Lowest Timer Value**

16 The mobile station shall comply with step d.

17 **6.4.1.5.3 Mid-Range Timer Value**

18 The mobile station shall comply with step d.

19 **6.4.1.5.4 Timer-Based Registration on Different Band Classes**

20 The mobile station shall comply with steps d and f.

21 **6.4.1.5.5 Timer-Based Registration on Different Frequency Blocks**

22 The mobile station shall comply with steps d and f.

23

24 **6.4.2 Base Station Test**

25 None

1 6.5 Parameter-Change Registration

2 6.5.1 Mobile Station Test

3 6.5.1.1 Definition

4 These tests verify proper parameter-change registration functionality. Parameter-change
5 registration is performed when a mobile station modifies any of the following stored parameters or
6 system changes:

- 7 • The preferred slot cycle index (SLOT_CYCLE_INDEX)
- 8 • The station class mark (SCM)
- 9 • The call termination enabled indicators (MOB_TERM_HOME,
10 MOB_TERM_FOR_SID, and MOB_TERM_FOR_NID)
- 11 • The mobile station's SID_NID_LIST does not match the base station's SID and NID.

12 6.5.1.2 Traceability (See [4]):

13 *2.6.5.1.6: Parameter-Change Registration*

14 *3.6.5: Registration*

15 *3.7.2.3.2.1: System Parameters Message*

16 *3.7.2.3.2.30 ANSI – 41 System Parameters Message*

17 6.5.1.3 Call flow

18 None

19 6.5.1.4 Method of Measurement

20 6.5.1.4.1 Parameter-Change Registration Disabled

- 21 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 22 b. Instruct the base station to set POWER_UP_REG=1 and POWER_DOWN_REG =
23 1. Ensure all other forms of registration are disabled (set equal to 0) in the in the
24 *System Parameters Message*.
- 25 c. Power on the mobile station and allow the mobile station to acquire the network.
- 26 d. After approximately thirty seconds power down the mobile station.
- 27 e. Verify that the mobile station performs a power up and a power down registration.
- 28 f. Instruct the base station to disable power up registration by setting
29 POWER_UP_REG=0.
- 30 g. Change the SLOT_CYCLE_INDEX in the mobile station.
- 31 h. Power up the mobile station and verify that parameter-change registration does not
32 occur.
- 33 i. If the mobile station supports the F-BCCH, repeat steps a through h substituting
34 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

1 6.5.1.4.2 Parameter-Change Registration Per SLOT_CYCLE_INDEX

- 2 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 3 b. Instruct the base station to set PARAMETER_REG = 1. Ensure all other forms of
- 4 registration are disabled (set equal to 0) in the in the *System Parameters Message*.
- 5 c. Power on the mobile station and allow time for the mobile station to acquire the
- 6 network.
- 7 d. Change the SLOT_CYCLE_INDEX in the mobile station (if mobile station supported).
- 8 e. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0100'.
- 9 f. If the mobile station supports the F-BCCH, repeat steps a through e substituting
- 10 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

11 6.5.1.4.3 Parameter-Change Registration Per SCM (if supported)

- 12 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 13 b. Instruct the base station to set PARAMETER_REG = 1. Ensure all other forms of
- 14 registration are disabled (set equal to 0) in the in the *System Parameters Message*.
- 15 c. Power on the mobile station and allow time for the mobile station to acquire the
- 16 network.
- 17 d. Change the value of the SCM (if mobile station supported).
- 18 e. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0100'.
- 19 f. If the mobile station supports the F-BCCH, repeat steps a through e substituting
- 20 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

21 6.5.1.4.4 Parameter-Change Registration Per MOB_TERM

- 22 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 23 b. Instruct the base station to set PARAMETER_REG = 1. Ensure all other forms of
- 24 registration are disabled (set equal to 0) in the in the *System Parameters Message*.
- 25 c. Enable MOB_TERM_HOMEp, MOB_TERM_FOR_SID and MOB_TERM NID in the
- 26 mobile station.
- 27 d. Power on the mobile station and allow the mobile station to acquire the network.
- 28
- 29 e. Set MOB_TERM_HOME = 0 in the mobile station (if mobile station supported).
- 30 f. Verify that the parameter-change registration occurs.
- 31 g. Set MOB_TERM_FOR_SID = 0 in the mobile station (if mobile station supported).
- 32 h. Verify that the parameter-change registration occurs.
- 33 i. Set MOB_TERM_FOR_NID = 0 in the mobile station (if mobile station supported).
- 34 j. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0100'.

- 1 k. If the mobile station supports the F-BCCH, repeat steps a through j substituting *ANSI*
2 *– 41 System Parameters Message* for *System Parameters Message*.

3 6.5.1.4.5 Parameter-Based Registration per SID-NID List change

- 4 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#). (Base
5 station 1 and base station 2 are CDMA base stations using different SID
6 configurations).
7 b. Instruct both base stations to set POWER_UP_REG=1 and PARAMETER_REG = 1.
8 Ensure all other forms of registration are disabled (set equal to 0) in the in the
9 *System Parameters Message*.
10 c. Power on the mobile station and verify that the mobile station acquires base station
11 1.
12 d. Verify that power up registration occurs on BS 1.
13 e. Force the mobile station to acquire BS 2.
14 f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0100'.
15 g. Repeat steps a through f changing the NID instead if the SID.
16 h. If the mobile station supports the F-BCCH, repeat steps a through g substituting
17 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

18 6.5.1.5 Minimum Standard

19 6.5.1.5.1 Parameter-Change Registration Disabled

20 The mobile shall comply with steps e and h.

21 6.5.1.5.2 Parameter-Change Registration Per SLOT_CYCLE_INDEX

22 The mobile station shall comply with step e.

23 6.5.1.5.3 Parameter-Change Registration Per SCM (if supported)

24 The mobile station shall comply with step e.

25 6.5.1.5.4 Parameter-Change Registration Per MOB_TERM

26 The mobile station shall comply with steps f, h and j.

27 6.5.1.5.5 Parameter-Based Registration per SID-NID List change

28 The mobile station shall comply with steps c, d and f.

29 **6.5.2 Base Station Test**

30 None

1 **6.6 Zone-Based Registration**

2 **6.6.1 Mobile Station Test**

3 6.6.1.1 Definition

4 These tests verify proper Zone-based registration functionality. The mobile station registers when
 5 it enters a new zone that is not on its internally stored list of visited registration zones. The mobile
 6 station does not register when it performs an idle handoff into a zone that is on its internally
 7 stored list of visited zones. The mobile station should properly delete entries from its internally
 8 stored list of visited registration zones.

9 6.6.1.2 Traceability (See [4]):

- 10 2.6.5.1.1 Power-Up Registration
- 11 2.6.5.1.5: Zone-Based Registration
- 12 3.6.5: Registration
- 13 3.7.2.3.2.1: System Parameters Message
- 14 3.7.2.3.2.30 ANSI -41 System Parameters Message

15 6.6.1.3 Call Flow Diagram

16 None

17 6.6.1.4 Method of Measurement

18 **Table 6.6.1.4-1 System Parameters Message test case setup**

Parameters	Test Case 1	Test Case 2	Test Case 3	Test Case 4	
BTS 1 REG_ZONE	0x1	0x1	0x1	0x1	
BTS 2 REG_ZONE	0x2	0x2	0x2	0x2	
ZONE_TIMER	0x0	0x0	0x0	0x1	
TOTAL_ZONES	0x0	0x2	0x2	0x1	

19
20

21 6.6.1.4.1 Zone-Based Registration Disabled

- 22 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 23 b. Configure the *System Parameters Message* on base stations 1 and 2 with the
24 REG_ZONE settings from table 6.6.1.4-1 test case 1.
- 25 c. Enable power-up registration (set POWER_UP_REG = 1 in the *System Parameters*
26 *Message*).
- 27 d. Allow for the mobile station to perform a power up registration on base station 1.
- 28 e. Force the mobile station to perform an idle handoff to base station 2 by reducing the
29 base station 2 forward link attenuation, while at the same time increasing the base
30 station 1 forward link attenuation.
- 31 f. Verify that zone-based registration does not occur.

- 1 g. If the mobile station supports the F-BCCH, repeat steps a through f substituting *ANSI*
2 *– 41 System Parameters Message* for *System Parameters Message*.

3 6.6.1.4.2 Zone-Based Registration Enabled

- 4 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 5 b. Configure the *System Parameters Message* on base stations 1 and 2 with the
6 settings from table 6.6.1.4-1 test case 2.
- 7 c. Enable power-up registration (set POWER_UP_REG = 1 in the *System Parameters*
8 *Message*).
- 9 d. Power on the mobile station and allow it to perform a power up registration on base
10 station 1. (The mobile station should now be registered in zone 1 and the only entry
11 in the mobile station's ZONE_LIST).
- 12 e. Force the mobile station to perform an idle handoff to base station 2 by reducing the
13 base station 2 forward link attenuation, while at the same time increasing the base
14 station 1 forward link attenuation.
- 15 f. Verify the mobile station sends a *Registration Message* with REG_TYPE =
16 '0010'. (The mobile station should now be registered in zone 2. Zone 1 and Zone 2
17 should be in the mobile station's ZONE_LIST).
- 18 g. Before the period of time specified by ZONE_TIMER has elapsed (one minute) and
19 the mobile station deletes zone 1 from it's ZONE_LIST, force the mobile station to
20 perform an idle handoff back to base station 1.
- 21 h. Verify that zone-based registration does not occur. (Zone 1 is still in the mobile
22 station's ZONE_LIST).
- 23 i. If the mobile station supports the F-BCCH, repeat steps a through h substituting
24 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

25 6.6.1.4.3 Zone-Based Registration Timer

- 26 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 27 b. Configure the *System Parameters Message* on base stations 1 and 2 with the
28 settings from table 6.6.1.4-1 test case 3.
- 29 c. Enable power-up registration (set POWER_UP_REG = 1 in the *System Parameters*
30 *Message*).
- 31 d. Power on the mobile station and allow it to perform a power up registration on base
32 station 1. (The mobile station should now be registered in zone 1 and the only entry
33 in the mobile station's ZONE_LIST).
- 34 e. Force the mobile station to perform an idle handoff to base station 2 by reducing the
35 base station 2 forward link attenuation, while at the same time increasing the base
36 station 1 forward link attenuation.

- 1 f. Verify the mobile station sends a *Registration Message* with REG_TYPE =
 2 '0010'.(The mobile station should now be registered in zone 2. Zone 1 and Zone 2
 3 should be in the mobile station's ZONE_LIST).
- 4 g. Wait for the period of time specified by ZONE_TIMER to elapse (one minute, after
 5 which the mobile station should delete zone 1 from ZONE_LISTs).
- 6 h. Force the mobile station to perform an idle handoff to base station #1.
- 7 i. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0010'.
- 8 j. If the mobile station supports the F-BCCH, repeat steps a through i substituting *ANSI/*
 9 *– 41 System Parameters Message* for *System Parameters Message*.

10 6.6.1.4.4 Mobile Station ZONE_LIST Deletion

- 11 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 12 b. Configure the *System Parameters Message* on base stations 1 and 2 with the
 13 settings from table 6.6.1.4-1 test case 4.
- 14 c. Enable power-up registration (set POWER_UP_REG = 1 in the Systems Parameters
 15 Message).
- 16 d. Power on the mobile station and allow it to perform a power up registration on base
 17 station 1. (The mobile station should now be registered in zone 1 and the only entry
 18 in the mobile station's ZONE_LIST).
- 19 e. Force the mobile station to perform an idle handoff to base station 2 by reducing the
 20 base station 2 forward link attenuation, while at the same time increasing the base
 21 station 1 forward link attenuation.
- 22 f. Verify the mobile station sends a *Registration Message* with REG_TYPE =
 23 '0010'.(The mobile station is now registered in zone 2, and only zone 2 should be in
 24 mobile station's ZONE_LIST because the mobile station was forced to delete zone 1
 25 from ZONE_LISTs to make room for zone 2).
- 26 g. Force the mobile station to perform an idle handoff back to base station 1.
- 27 h. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0010'.
- 28 i. If the mobile station supports the F-BCCH, repeat steps a through h substituting
 29 *ANSI – 41 System Parameters Message* for *System Parameters Message*.

30 6.6.1.5 Minimum Standard

31 6.6.1.5.1 Zone-Based Registration Disabled

32 The mobile station shall comply with step f.

33 6.6.1.5.2 Zone-Based Registration Enabled

34 The mobile station shall comply with steps f and h.

35 6.6.1.5.3 Zone-Based Registration Timer

36 The mobile station shall comply with steps f and i.

1 6.6.1.5.4 Mobile Station ZONE_LIST Deletion

2 The mobile station shall comply with steps f and h.

3 **6.6.2 Base Station Test**

4 None

5

- 1 This page intentionally left blank.

1 7 Authentication

2 7.1 Shared Secret Data (SSD) Initialized when A-Key is Changed

3 7.1.1 Mobile Station Test:

4 7.1.1.1 Definition

5 This test verifies that when the A-Key is changed at both the base station and mobile station,
6 authentication of mobile station registrations, originations, and terminations and the Unique
7 Challenge-Response Procedure are successful.

8 7.1.1.2 Traceability (See [4]):

9 2.3.12.1: (MS) Authentication

10 2.6.5.1.3: Timer-Based Registration

11 3.3.1: (BS) Authentication

12

13 7.1.1.3 Call Flow Diagram

14 None

15 7.1.1.4 Method of Measurement

- 16 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 17 b. Power on the mobile station.
- 18 c. Initialize the A-Key to the same value in the mobile station and base station.
- 19 d. Ensure timer-based registration is enabled with the registration period (REG_PRD)
20 set to 29.
- 21 e. Verify that the mobile station sends a *Registration Message* with REG_TYPE set to
22 '0000' (i.e. timer-based registration) and which includes AUTHR, RANDC and
23 COUNT.
- 24 f. Verify that the registration authentication is successful at the base station.
- 25 g. Set up a mobile station originated call.
- 26 h. Verify user data in both directions.
- 27 i. End the call.
- 28 j. Set up a mobile station terminated call.
- 29 k. Verify that correct user data is received in both directions.
- 30 l. Configure the base station to initiate a Unique Challenge-Response Procedure while
31 on the f/r-dsch.

- 1 m. Verify that upon receiving an Authentication Challenge Message, the mobile station
- 2 sends an Authentication Challenge Response Message and the Unique Challenge-
- 3 Response Procedure is successful.
- 4 n. End the call.
- 5 o. Configure the base station to initiate a Unique Challenge-Response Procedure while
- 6 on the f/r-csch.
- 7 p. Verify that upon receiving an Authentication Challenge Message, the mobile station
- 8 sends an Authentication Challenge Response Message and the Unique Challenge-
- 9 Response Procedure is successful.

10 7.1.1.5 Minimum Standard

11 The mobile station shall comply with the requirements in the following steps: e, m and p.

12 7.1.2 Base Station Test:

13 None

14 7.2 Shared Secret Data Update

15 7.2.1 Mobile Station Test:

16 7.2.1.1 Definition

17 This test verifies the mobile station and base station can perform a Shared Secret Data update on

18 the f/r-csch and f/r-dsch.

19

20 7.2.1.2 Traceability (See [4]):

21 2.3.12.1.4: *Unique Challenge-Response Procedure*

22 2.3.12.1.5: *Updating the Shared Secret Data (SSD)*

23 2.6.5.1.3: *Timer-Based Registration*

24 2.7.1.3.2.6: *Authentication Challenge Response Message*

25 3.7.2.3.2.1: *System Parameters Message (f-csch)*

26 3.7.2.3.2.10: *Authentication Challenge Message (f-csch)*

27 7.2.1.3 Call Flow Diagram

28 None

29 7.2.1.4 Method of Measurement

- 30 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 31 b. Power on the mobile station.
- 32 c. Initialize the A-Key to the same value in both the mobile station and base station.
- 33 d. Configure the base station to initiate a Shared Secret Data update on the f/r-csch.
- 34 e. Verify the following:

- 1 1. Upon receiving a SSD Update Message, the mobile station sends a
- 2 Base Station Challenge Order.
- 3 2. Upon receiving a Base Station Challenge Confirmation Order, the mobile
- 4 station sends a SSD Update Confirmation Order.
- 5 3. That the SSD Update Procedure is successful.
- 6 f. Ensure timer-based registration is enabled with the registration period (REG_PRD)
- 7 set to 29.
- 8 g. Wait for the mobile station to send the *Registration Message* with REG_TYPE set to
- 9 '0000' (i.e. timer-based registration).
- 10 h. Verify that the *Registration Message* includes AUTHR, COUNT and RANDC.
- 11 i. Verify that registration authentication is successful at the base station.
- 12 j. Set up a mobile station originated call.
- 13 k. Verify that correct user data is received in both directions.
- 14 l. Configure the base station to initiate a Unique Challenge-Response Procedure on
- 15 the f/r-dsch.
- 16 m. Verify that upon receiving an Authentication Challenge Message, the mobile station
- 17 sends a Authentication Challenge Response Message and the Unique Challenge-
- 18 Response Procedure is successful.
- 19 n. End the call.
- 20 o. Configure the base station to initiate a Unique Challenge-Response Procedure on
- 21 the f/r-csch.
- 22 p. Verify that upon receiving an Authentication Challenge Message, the mobile station
- 23 sends an Authentication Challenge Response Message and the Unique Challenge-
- 24 Response Procedure is successful.
- 25 q. Repeat steps c through p but with the following exception: In step c, Set up a call and
- 26 initiate a Shared Secret Data update on the f/r-dsch, and then end the call.

27 7.2.1.5 Minimum Standard

28 The mobile station shall comply with the requirements in the following steps: e, h, m, p, q.
29

30 7.2.2 Base Station Test:

31 None

1 7.3 Mismatched A-Keys

2 7.3.1 Mobile Station Test:

3 7.3.1.1 Definition

4 This test verifies that when there is an A_KEY mismatch, authentication of registrations,
5 originations, terminations, and Unique Challenge-Response procedures will fail.

6 7.3.1.2 Traceability (See [4]):

7 2.3.12.1.4: *Unique Challenge-Response Procedure*

8 2.3.12.1.5: *Updating the Shared Secret Data (SSD)*

9 2.7.1.3.2.6: *Authentication Challenge Response Message*

10 2.7.2.3.2.2: *Authentication Challenge Response Message (r-dsch)*

11 3.7.2.3.2.10: *Authentication Challenge Message (f-csch)*

12 3.7.2.3.2.11: *SSD Update Message (f-csch)*

13 3.7.3.3.2.2: *Authentication Challenge Message (f-dsch)*

14 3.7.3.3.2.13: *SSD Update Message (f-dsch)*

15 7.3.1.3 Call Flow Diagram

16 None

17 7.3.1.4 Method of Measurement

- 18 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 19 b. Power on the mobile station.
- 20 c. Initialize the A-Key to the same value in the mobile station and base station.
- 21 d. Configure the base station to initiate a Shared Secret Data update on the f/r-csch.
- 22 e. Set up a mobile station originated call.
- 23 f. Verify that correct user data is received in both directions.
- 24 g. End the call.
- 25 h. Change the A-Key in the mobile station.
- 26 i. Ensure timer-based registration is enabled with the registration period (REG_PRD)
27 set to 29.
- 28 j. Wait for the mobile station to send a *Registration Message* with REG_TYPE set to
29 '0000' (i.e. timer-based registration).
- 30 k. Verify that the *Registration Message* includes AUTHR, COUNT and RANDC.
- 31 l. At the base station, verify that registration authentication fails due to an AUTHR
32 mismatch.
- 33 m. Set up a mobile station originated call.
- 34 n. Verify that the call request was denied.
- 35 o. Set up a mobile station terminated call.

- 1 p. Verify that the call fails due to an AUTHR mismatch.
- 2 q. At the base station, initiate a Shared Secret Data Update Procedure on the f-csch.
- 3 r. Verify that the SSD Update Procedure fails with an AUTHBS mismatch.
- 4 s. Initiate at the base station a Unique Challenge-Response Procedure on the f-csch.
- 5 t. Verify that the Unique Challenge-Response Procedure fails with an AUTHU
- 6 mismatch.

7 7.3.1.5 Minimum Standard

8 The mobile station shall comply with the requirements in the following steps: k, p, r, t.

9

10 7.3.2 Base Station Test:

11 None

12 7.4 Activating Voice Privacy on Call Set up

13 7.4.1 Mobile Station Test:

14 7.4.1.1 Definition

15 This test verifies that Voice Privacy can be activated at call setup by the mobile station

16 subscriber.

17 7.4.1.2 Traceability (See [4]):

- 18 2.3.12.3: *(MS) Voice Privacy*
- 19 2.6.4.1.6: *(MS) Long Code Transition Request Processing*
- 20 2.7.1.3.2.4: *Origination Message*
- 21 2.7.1.3.2.5: *Page Response Message*
- 22 2.7.3: *(MS) Orders*
- 23 3.3.3: *(BS) Voice Privacy*
- 24 3.6.4.1.5: *(BS) Long Code Transition Request Processing*
- 25 3.6.4.3: *Traffic Channel Substate*
- 26 3.6.4.4: *Release Substate*
- 27 3.7.4: *(BS) Orders*

28 7.4.1.3 Call Flow Diagram

29 None

30 7.4.1.4 Method of Measurement

- 31 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 32 b. Ensure authentication is enabled. The AUTH field of the *Access Parameters*
- 33 *Message* is set to '01' .
- 34 c. Power on the mobile station.

- 1 d. Enable Voice Privacy in the mobile station and ensure the base station is configured
- 2 to use voice privacy.
- 3 e. Set up a mobile station originated call and verify that in the *Origination Message* the
- 4 Voice Privacy Mode Indicator (PM) is set to '1'.
- 5 f. Configure the base station to send a Long Code Transition Request Order
- 6 (ORDQ='00000001') on the f-dsch.
- 7 g. Verify that the mobile station responds with a Long Code Transition Response Order
- 8 (ORDQ='00000011')
- 9 h. If supported on the user interface, verify that the mobile station indicates to the user
- 10 that Voice Privacy is active.
- 11 i. Verify that correct user data is received in both directions.
- 12 j. Set up a mobile station terminated call and verify that in the *Page Response*
- 13 *Message* that the voice privacy indicator (PM) is set to '1' then repeat steps f
- 14 through.i
- 15 k. Repeat step a to j by using *ANSI-41 RAND message* in step b.

16 7.4.1.5 Minimum Standard

17 The mobile station shall comply with the requirements in the following steps: e, g, h, k.

18

19 7.4.2 BS Conformance:

20 None

21 7.5 Activating Voice Privacy at the Mobile Station When a Call Is

22 Active

23 7.5.1 Mobile Station Test:

24 7.5.1.1 Definition

25 This test verifies that Voice Privacy can be activated at the mobile station when a call is active.

26 7.5.1.2 Traceability (See [4]):

- 27 2.3.12.3: (MS) Voice Privacy
- 28 2.6.4.1.6: Long Code Transition Request Processing
- 29 2.7.1.3.2.4: Origination Message
- 30 2.7.1.3.2.5: Page Response Message
- 31 2.7.3: (MS) Orders
- 32 3.3.3: (BS) Voice Privacy
- 33 3.6.4.1.5: (BS) Long Code Transition Request Processing
- 34 3.6.4.3.1: Traffic Channel Substate
- 35 3.6.4.4: Release Substate
- 36 3.7.4: (BS) Orders

1 7.5.1.3 Call Flow Diagram

2 None

3 7.5.1.4 Method of Measurement

- 4 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 5 b. Configure the base station to use Voice Privacy.
- 6 c. Ensure authentication is enabled. The AUTH field of the *Access Parameters*
- 7 *Message* is set to '01'.
- 8 d. Power on the mobile station.
- 9 e. Set up a mobile station originated call.
- 10 f. Enable voice privacy at the mobile station. Verify that the mobile station sends a
- 11 Long Code Transition Request Order with ORDQ set to '00000001'.
- 12 g. Upon receiving a Long Code Transition Request Order with ORDQ set to '00000001',
- 13 verify that the mobile station responds with a Long Code Transition Response Order
- 14 (ORDQ='00000011').
- 15 h. If supported on the user interface, verify that the mobile station indicates Voice
- 16 Privacy is active.
- 17 i. Verify that correct user data is received in both directions.
- 18 j. End the call.
- 19 k. Repeat step a to j by using *ANSI-41 RAND message* in step b

20 7.5.1.5 Minimum Standard

21 The mobile station shall comply with the requirements in the following steps: f, g, h.

22

23 **7.5.2 BS Conformance:**

24 None

25 **7.6 Signaling Message Encryption on Forward Traffic Channel**

26 **7.6.1 Mobile Station Test:**

27 7.6.1.1 Definition

28 This test verifies that Signaling Message Encryption on the f-dsch is performed correctly.

29 7.6.1.2 Traceability (See [4]):

30 2.3.12.2: (MS) Signaling Message Encryption

31 2.7.4.4: (MS) Calling Party Number

32 3.3.2: (BS) Encryption

33 3.7.2.3.2.8: Channel Assignment Message (f-csch)

1 3.7.3.3.2.3: *Alert With Information Message (f-dsch)*

2 3.7.5.3: *(BS) Calling Party Number*

3 7.6.1.3 Call Flow Diagram

4 None

5 7.6.1.4 Method of Measurement

6 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).

7 b. Activate the Calling Party Number (CPN) feature for the mobile station subscriber.

8 c. Ensure authentication is enabled. The AUTH field of the *Access Parameters*
9 *Message* is set to '01'.

10 d. Power on the mobile station.

11 e. Enable Signaling Message Encryption on the base station.

12 f. Set up a mobile station terminated call.

13 g. Verify that the ENCRYPT_MODE field is set to '01' or '10' in the transmitted *Channel*
14 *Assignment Message* or *Extended Channel Assignment Message*.

15 h. Verify that the CPN information is displayed on the mobile station during the alerting
16 state.

17 i. Verify that user correct data is received in both directions.

18 j. End the call.

19 k. Repeat step a to j by using *ANSI-41 RAND message* in step c.

20 7.6.1.5 Minimum Standard

21 The mobile station shall comply with the requirements in the following steps: h and i.

22

23 **7.6.2 BS Conformance:**

24 None

25 **7.7 Signaling Message Encryption on Reverse Traffic Channel**

26 **7.7.1 MS Conformance:**

27 7.7.1.1 Definition

28 This test verifies that Signaling Message Encryption on the r-dsch is performed correctly.

29 7.7.1.2 Traceability (See [4]):

30 2.3.12.2: *(MS) Signaling Message Encryption*

31 2.7.2.3.2.7: *Send Burst DTMF Message*

32 3.3.2: *(BS) Encryption*

33 3.7.2.3.2.8: *Channel Assignment Message (f-csch)*

1 7.7.1.3 Call Flow Diagram

2 None

3 7.7.1.4 Method of Measurement

- 4 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 5 b. Ensure authentication is enabled. The AUTH field of the *Access Parameters*
- 6 *Message* is set to '01' .
- 7 c. Power on the mobile station.
- 8 d. Configure the mobile station to send a *Send Burst DTMF Message*.
- 9 e. Enable Signaling Message Encryption on the base station.
- 10 f. Set up a mobile station call to a voice mail system or a paging system.
- 11 g. Verify that the ENCRYPT_MODE field is set to '01' or '10' in the transmitted *Channel*
- 12 *Assignment Message* or *Extended Channel Assignment Message*.
- 13 h. Enter the appropriate pin code as burst DTMF tones.
- 14 i. Verify the following:
- 15 1. Required fields in the appropriate messages are encrypted and can be
- 16 correctly decrypted. For example, certain fields of the Burst DTMF
- 17 Message will be encrypted; but verification can be done on other
- 18 messages as well.
- 19 2. The ENCRYPTION field in these messages is set to the same value as
- 20 the ENCRYPT_MODE field received in the *Channel Assignment*
- 21 *Message* or *Extended Channel Assignment Message*.
- 22 j. Verify that either the voice mail system recognizes the DTMF tones and plays the
- 23 message back, or that the paging system accepts the pin and sends out the page.
- 24 k. End the call.
- 25 l. Repeat step a to k by using *ANSI-41 RAND message* in step b.

26 7.7.1.5 Minimum Standard

27 The mobile station shall comply with the requirements in the following step: i.

28

29 **7.7.2 BS Conformance:**

30 None

31

1 **7.8 Hard Handoff between Base Stations with Signaling**
 2 **Message Encryption Active.**

3 **7.8.1 Mobile Station Test:**

4 None

5 **7.8.2 BS Conformance:**

6 **7.8.2.1 Definition**

7 This test verifies that when Signaling Message Encryption is used, the new base station activates
 8 encryption upon handoff.

9 **7.8.2.2 Traceability (See [4]):**

- 10 2.3.12.2: *(MS) Signaling Message Encryption*
- 11 2.6.6.2.8: *CDMA-to-CDMA Hard Handoff*
- 12 2.7.4.4: *(MS) Calling Party Number.*
- 13 3.3.2: *(BS) Encryption*
- 14 3.6.6.2.2.2: *Extended Handoff Direction Message (call processing).*
- 15 3.6.6.2.2.10: *General Handoff Direction Message (call processing).*
- 16 3.6.6.2.2.11: *Universal Handoff Direction Message (call processing).*
- 17 3.7.2.3.2.8: *Channel Assignment Message (f-csch)*
- 18 3.7.3.3.2.14: *Flash With Information Message (f-dsch).*
- 19 3.7.3.3.2.17: *Extended Handoff Direction Message (f-dsch).*
- 20 3.7.3.3.2.31: *General Handoff Direction Message (f-dsch).*
- 21 3.7.3.3.2.36: *Universal Handoff Direction Message (f-dsch).*
- 22 3.7.5.3: *(BS) Calling Party Number.*

23 **7.8.2.3 Call Flow Diagram**

24 None

25 **7.8.2.4 Method of Measurement**

- 26 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 27 b. Activate Call Waiting and Caller ID on base station 2.
- 28 c. Ensure authentication is enabled. The AUTH field of the *Access Parameters*
 29 *Message* is set to '01' or the ANSI-41 RAND Message is being transmitted.
- 30 d. Power on the mobile station.
- 31 e. Enable Signaling Message Encryption on both base stations.
- 32 f. Set up a mobile station originated call.
- 33 g. Verify that ENCRYPT_MODE field is set to '01' or '10' in the transmitted *Channel*
 34 *Assignment Message* or *Extended Channel Assignment Message*.
- 35 h. Verify user data in both directions.
- 36 i. Trigger a hard handoff from base station 1 to base station 2.

- 1 j. Verify that ENCRYPT_MODE field is set to '01' or '10' in the transmitted *Extended*
- 2 *Handoff Direction Message, General Handoff Direction Message, or Universal*
- 3 *Handoff Direction Message.*
- 4 k. Set up another call to the mobile station and listen for the Call Waiting tone.
- 5 l. Verify that base station 2 sends a *Flash With Information Message* with
- 6 ENCRYPTION='01'.
- 7 m. Verify that correct user data is received in both directions.
- 8 n. End the call.

9 7.8.2.5 Minimum Standard

10 The base station shall comply with the requirements in the following steps: g, j, l.

11 **7.9 Authentication Upon Originations**

12 **7.9.1 Mobile Station Test:**

13 7.9.1.1 Definition

14 This test verifies the mobile station can successfully Authenticate upon origination.

15 7.9.1.2 Traceability (See [4]):

- 16 2.3.12.1.5: *Updating the Shared Secret Data (SSD)*
- 17 2.7.1.3.2.6: *Authentication Challenge Response Message*
- 18 2.7.2.3.2.2: *Authentication Challenge Response Message (r-dsch)*
- 19 3.7.2.3.2.10: *Authentication Challenge Message (f-csch)*
- 20 3.7.2.3.2.11: *SSD Update Message (f-csch)*
- 21 3.7.3.3.2.2: *Authentication Challenge Message (f-dsch)*
- 22 3.7.3.3.2.13: *SSD Update Message (f-dsch)*

23 7.9.1.3 Call Flow Diagram

24 None

25 7.9.1.4 Method of Measurement

- 26 a. Connect the base station and mobile station as shown in [Annex A Figure 1](#).
- 27 b. Power on the mobile station.
- 28 c. Initialize the A-Key to the same value in both the mobile station and base station.
- 29 d. Configure the base station to initiate a Shared Secret Data update on the f/r-csch.
- 30 e. Verify that the SSD Update Procedure is successful.
- 31 f. Set up a mobile station originated call (seven digits).
- 32 g. Verify that correct user data is received in both directions and that authentication is
- 33 successful.

- 1 h. End the call.
- 2 i. Set up a mobile station originated call (three digits such as *73).
- 3 j. Verify that correct user data is received in both directions and that authentication is
- 4 successful.
- 5 k. End the call.
- 6 l. Set up a mobile station originated call (four digits such as *123).
- 7 m. Verify that correct user data is received in both directions and that authentication is
- 8 successful.
- 9 n. End the call.

10 7.9.1.5 Minimum Standard

11 The mobile station shall comply with the requirements in the following steps: e, g, j, m.

12

13 **7.9.2 BS Conformance:**

14 None

15 **7.10 Hard Handoff from CDMA to Analog with Signaling**

16 **Message Encryption Active**

17 **7.10.1 Mobile Station Test:**

18 None

19

20 **7.10.2 Base Station Test:**

21 7.10.2.1 Definition

22 This test verifies that when Signaling Message Encryption is used, the new base station activates

23 Analog Signaling Message Encryption upon handoff.

24 7.10.2.2 Traceability (See [4]):

25 2.3.12.2: *(MS) Signaling Message Encryption*

26 2.6.6.2.9: *CDMA-Analog HO*

27 2.7.4.4: *(MS) Calling Party Number.*

28 3.3.2: *(BS) Encryption*

29 3.6.4.3: *Traffic Channel Substate*

30 3.7.2.3.2.8: *Channel Assignment Message (f-csch)*

31 3.7.3.3.2.3: *Alert with Information Message (f-dsch)*

32 3.7.3.3.2.6: *Analog Handoff Direction Message*

33 3.7.5.3: *(BS) Calling Party Number.*

1 7.10.2.3 Call Flow Diagram

2 None

3 7.10.2.4 Method of Measurement

- 4 a. Connect the base station and mobile station as shown in [Annex A Figure 2](#).
- 5 b. Activate Call Waiting and Caller ID on base station 2.
- 6 c. Ensure authentication is enabled. The AUTH field of the *Access Parameters*
- 7 *Message* is set to '01' or the ANSI-41 RAND Message is being transmitted.
- 8 d. Power on the mobile station.
- 9 e. Enable Signaling Message Encryption on both base stations.
- 10 f. Set up a mobile station originated call.
- 11 g. Verify that the ENCRYPT_MODE field is set to '01' or '10' in the transmitted *Channel*
- 12 *Assignment Message* or *Extended Channel Assignment Message*.
- 13 h. Verify that correct user data is received in both directions.
- 14 i. Cause a CDMA to an analog hard handoff from base station 1 to base station 2.
- 15 j. Verify that ENCRYPT_MODE='01' and MEM='1' in the *Analog Handoff Direction*
- 16 *Message*.
- 17 k. Set up another call to the mobile station and listen for the Call Waiting tone.
- 18 l. Verify that base station 2 sends an encrypted *Alert with Information Message*
- 19 (AMPS).
- 20 m. Verify that correct user data is received in both directions.
- 21 n. End the call.

22 7.10.2.5 Minimum Standard

23 The base station shall comply with the requirements in the following steps: g, j, l.

24

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8 Service Redirection test cases

8.1 Global Service Redirection between Band Classes

8.1.1 Mobile Station Test

8.1.1.1 Definition

This test verifies that when a mobile station receives a *Global Service Redirection Message* directing it to another band class, the mobile station acquires the appropriate system.

8.1.1.2 Traceability (See [4]):

2.6.1.1.2 *System Selection Using Current Redirection Criteria*

2.6.2.2 *Response to Overhead Information Operation*

2.6.2.2.6 *Global Service Redirection Message*

3.7.2.3.2.1 *System Parameters Message*

3.7.2.3.2.18 *Global Service Redirection Message*

8.1.1.3 Call Flow Example(s)

None

8.1.1.4 Method of Measurement

- a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this test case, base station 1 and base station 2 are in different band classes.
- b. Verify that the mobile station is operating in the *Mobile Station Idle State* on base station 1.
- c. Send a *Global Service Redirection Message* from the current base station with:

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
EXCL_P_REV_MS	'0'
RECORD_TYPE	'00000010'
BAND_CLASS	Target Band Class
EXPECTED_SID	Target SID
EXPECTED_NID	Target NID
NUM_CHAN	Number of Channels
CDMA_CHAN	Target Channel(s)

- d. Verify that the mobile station enters the *System Determination Substate* of the mobile station *Initialization State* and acquires the system to which it was redirected.
- e. Set up a mobile station originated call. Verify user traffic in both directions.

- 1 f. End the call.
- 2 g. Repeat steps b and c with the mobile station operating in the *Mobile Station Idle*
- 3 *State* on base station 1 with the following modifications to the *Global Service*
- 4 *Redirection Message*:

Field	Value
EXCL_P_REV_MS	'1'

- 6
- 7 h. Verify the following:
- 8 • If the MOB_P_REV is greater than or equal six, verify that the mobile station
- 9 remains in the Mobile Station Idle State on the current system,
- 10 • If MOB_P_REV is less than six, verify the mobile station acquires the target
- 11 system.

12 **8.1.1.5 Minimum Standard**

13 The mobile station shall comply with steps d and h.

14 **8.1.2 Base Station Test**

15 None

16 **8.2 Global Service Redirection between CDMA and a Non-CDMA**

17 **System**

18 **8.2.1 Mobile Station Test**

19 **8.2.1.1 Definition**

20 This test verifies that when a mobile station receives a *Global Service Redirection Message*

21 directing it from CDMA to a Non-CDMA system, the mobile station acquires that system. The

22 mobile station should only be redirected to Non-CDMA systems it supports. An example would be

23 an analog system defined in [21].

24 **8.2.1.2 Traceability (See [4]):**

25 2.6.1.1.2 *System Selection Using Current Redirection Criteria*

26 2.6.2.2 *Response to Overhead Information Operation*

27 2.6.2.2.6 *Global Service Redirection Message*

28 3.7.2.3.2.1 *System Parameters Message*

29 3.7.2.3.2.18 *Global Service Redirection Message*

30 **8.2.1.3 Call Flow Example(s)**

31 None

1 8.2.1.4 Method of Measurement

- 2 a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this
3 test case, base station 1 is a CDMA base station and base station 2 is a Non-CDMA
4 base station.
- 5 b. Ensure the mobile station is operating in the *Mobile Station Idle State* on base station
6 1.
- 7 c. Send a *Global Service Redirection Message* from the current base station with the
8 non-CDMA base station with the following parameters:

9

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
EXCL_P_REV_MS	'0'
RECORD_TYPE	'00000001' [North American Amps] '00000011' [TACS] '00000100' [JTACS] '00000101' (DS-41) Note: Only field settings corresponding to the applicable analog modes which MS supports should be exhausted.
If RECORD_TYPE='00000001', the base station shall include the following fields	
EXPECTED_SID	Target SID
IGNORE_CDMA	'0'
SYS_ORDERING	'000'
MAX_REDIRECT_DELAY	'00000'

10

- 11 d. Verify that the mobile station enters the *System Determination Substate* of the *Mobile*
12 *Station Initialization State* and acquires the system to which it was redirected.
- 13 e. Set up a mobile station originated call. Verify user traffic in both directions.
- 14 f. End the call.
- 15 g. Verify that the mobile station does not acquire the system from which it was
16 redirected.
- 17 h. For RECORD_TYPE='00000001', repeat steps b through f for each of the following
18 SYS_ORDERING values and base station 2 system values.

19

SYS_ORDERING	Description	Base Station 2
'001'	Attempt to obtain	System A

	service on System A only.	
'010'	Attempt to obtain service on System B only.	System B
'011'	Attempt to obtain service on System A first. If unsuccessful, attempt to acquire service on System B.	System B
'100'	Attempt to obtain service on System B first. If unsuccessful, attempt to acquire service on System A.	System A
'101'	Attempt to obtain service on System A or System B. If unsuccessful, attempt to acquire service on the alternate system (System A or System B).	System B

1

- 2 i. Repeat steps b and c with the following changes to the *Global Service Redirection*
 3 *Message*:

Field	Value
EXCL_P_REV_MS	'1'

4

- 5 j. Verify that the mobile station ignores the *Global Service Redirection Message* and
 6 remains in the *Mobile Station Idle State* on the current system.

7 **8.2.1.5 Minimum Standard**

8 The mobile station shall comply with steps d, g, h, and i.

9 **8.2.2 Base Station Test**

10 None

8.3 Global Service Redirection between Channels in the Same Band Class

8.3.1 Mobile Station Test

8.3.1.1 Definition

This test verifies that when a mobile station receives a *Global Service Redirection Message* directing it to a different channel in the same band class, the mobile station acquires the appropriate system.

8.3.1.2 Traceability (See [4]):

2.6.1.1.2 *System Selection Using Current Redirection Criteria*

2.6.2.2 *Response to Overhead Information Operation*

2.6.2.2.6 *Global Service Redirection Message*

3.7.2.3.2.1 *System Parameters Message*

3.7.2.3.2.18 *Global Service Redirection Message*

8.3.1.2.1 Call Flow Example(s)

None

8.3.1.3 Method of Measurement

- a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this test case, base station 1 and base station 2 are in the same band class with different CDMA channels.
- b. Verify that the mobile station is operating in the *Mobile Station Idle State* on base station 1.
- c. Send a *Global Service Redirection Message* from the current base station with:

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
EXCL_P_REV_MS	'0'
RECORD_TYPE	'00000010'
BAND_CLASS	Target Band Class
EXPECTED_SID	Target SID
EXPECTED_NID	Target NID
NUM_CHAN	Number of Channels
CDMA_CHAN	Target Channel(s)

- d. Verify that the mobile station enters the *System Determination Substate* of the *Mobile Station Initialization State* and acquires the system to which it was redirected.
- e. Set up a mobile station originated call. Verify user traffic in both directions.
- f. End the call.

- 1 g. Verify that the mobile station does not acquire the system from which it was
- 2 redirected.
- 3 h. Repeat steps b and c with the mobile station operating in the *Mobile Station Idle*
- 4 *State* on base station 1 with the following modifications to the *Global Service*
- 5 *Redirection Message*:

Field	Value
EXCL_P_REV_MS	'1'

- 7 i. Verify that the mobile station ignores the *Global Service Redirection Message* and
- 8 remains in the *Mobile Station Idle State* on the current system.

9 **8.3.1.4 Minimum Standard**

10 The mobile station shall comply with steps d, g, h, and i.

12 **8.3.2 Base Station Test**

13 None

14 **8.4 Service Redirection between Band Classes**

15 **8.4.1 Mobile Station Test**

16 **8.4.1.1 Definition**

17 This test verifies that a mobile station is capable of being redirected between band classes when
 18 the *Service Redirection Message* is sent on the f-csch or on the f-dsch prior to user traffic being
 19 transmitted. Both Network Directed System Selection (NDSS) and normal redirection are tested.

20 **8.4.1.2 Traceability (See [4]):**

- 21 2.6.1.1.2 *System Selection Using Current Redirection Criteria*
- 22 2.6.2.4 *Mobile Station Order and Message Processing Operation*
- 23 2.6.3.5 *Mobile Station Origination Attempt Substate*
- 24 3.6.2.3 *Mobile Station Directed Messages*
- 25 3.7.2.3.2.1 *System Parameters Message*
- 26 3.7.2.3.2.30 *ANSI-41 System Parameters Message*
- 27 3.7.2.3.2.16 *Service Redirection Message {f-csch}*
- 28 3.7.3.3.2.23 *Service Redirection Message {f-dsch}*

29 **8.4.1.3 Call Flow Example(s)**

30 None

31 **8.4.1.4 Method of Measurement**

- 32 a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this
- 33 test case, base station 1 and base station 2 are in different band classes.

- 1 b. Verify that the mobile station is operating in the *Mobile Station Idle State* on base
2 station 1.
- 3 c. Instruct the mobile station send an *Origination Message* to the base station.
- 4 d. Instruct the base station to send a *Service Redirection Message* with the following
5 information to the mobile station on the f-csch or on the f-dsch prior to user traffic
6 being transmitted.

Field	Value
REDIRECT_TYPE	'1'
RECORD_TYPE	'00000010'
BAND_CLASS	Target Band Class
EXPECTED_SID	Target SID
EXPECTED_NID	Target NID
NUM_CHAN	Number of Channels
CDMA_CHAN	Target Channel(s)

- 7
- 8 e. If the mobile station supports the target band class, verify that the mobile station
9 acquires base station 2 and the call completes and user traffic is present; otherwise
10 verify that the mobile station sends a *Mobile Station Reject Order* with
11 ORDQ='00000110' (message requires a capability that is not supported by the
12 mobile station).
- 13 f. End the call.
- 14 g. Power off the mobile station.
- 15 h. Set POWER_UP_REG='1' in the *System Parameters Message* .
- 16 i. Power on the mobile station.
- 17 j. After the mobile station performs a power-up registration, instruct the base station to
18 send the a *Service Redirection Message* in response to the *Registration Message*
19 with the following values:
- 20 k. If the mobile station supports the target band class, verify that the mobile station
21 acquires base station 2; otherwise, verify that the mobile station sends a *Mobile*
22 *Station Reject Order* with ORDQ='00000110' (message requires a capability that is
23 not supported by the mobile station).

24

Field	Value
REDIRECT_TYPE	'0'
RECORD_TYPE	'00000010'
BAND_CLASS	Target Band Class
EXPECTED_SID	Target SID
EXPECTED_NID	Target NID
NUM_CHAN	Number of Channels
CDMA_CHAN	Target Channel(s)

1

2

3 **8.4.1.5 Minimum Standard**

4 The mobile station shall comply with steps e and k.

5 **8.4.2 Base Station Test**

6 None

7 **8.5 Service Redirection between CDMA and a Non-CDMA**
8 **System**9 **8.5.1 Mobile Station Test**10 **8.5.1.1 Definition**

11 This test verifies that a mobile station is capable of being redirected from a CDMA system to a
 12 non-CDMA system when the *Service Redirection Message* is sent on the f-csch or on the f-dsch
 13 prior to user traffic being transmitted. Both Network Directed System Selection (NDSS) and
 14 normal redirection are tested. An example of a non-CDMA system is an analog system defined in
 15 [21].

16 **8.5.1.2 Traceability (See [4]):**

- 17 2.6.1.1.2 *System Selection Using Current Redirection Criteria*
- 18 2.6.2.4 *Mobile Station Order and Message Processing Operation*
- 19 2.6.3.5 *Mobile Station Origination Attempt Substate*
- 20 3.6.2.3 *Mobile Station Directed Messages*
- 21 3.7.2.3.2.1 *System Parameters Message*
- 22 3.7.2.3.2.30 *ANSI-41 System Parameters Message*
- 23 3.7.2.3.2.16 *Service Redirection Message {f-csch}*
- 24 3.7.3.3.2.23 *Service Redirection Message {f-dsch}*

25 **8.5.1.3 Call Flow Example(s)**

26 None

27 **8.5.1.4 Method of Measurement**

- 28 a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this
 29 test case, base station 1 is a CDMA base station and base station 2 is a Non-CDMA
 30 base station.
- 31 b. Ensure the mobile station is operating in the *Mobile Station Idle State* on base station
 32 1.
- 33 c. Instruct the mobile station send an *Origination Message* to the base station.

- 1 d. Instruct the base station to send a *Service Redirection Message* with the following
 2 information to the mobile station on the f-csch or on the f-dsch prior to user traffic
 3 being transmitted.

4

Field	Value
REDIRECT_TYPE	'1'
RECORD_TYPE	'00000001' [North American Amps] '00000011' [TACS] '00000100' [JTACS] '00000101' (DS-41) Note: Only field settings corresponding to the applicable analog modes which MS supports should be exhausted.
If RECORD_TYPE='00000001', the base station shall include the following fields	
EXPECTED_SID	Target SID
IGNORE_CDMA	'0'
SYS_ORDERING	'000'

5

- 6 e. If the mobile station supports the target operating mode and band class, verify that
 7 the mobile station acquires base station 2 and the call completes and user traffic is
 8 present; otherwise verify that the mobile station sends a *Mobile Station Reject Order*
 9 with ORDQ='00000110' (message requires a capability that is not supported by the
 10 mobile station).
- 11 f. End the call.
- 12 g. Power off the mobile station.
- 13 h. Set POWER_UP_REG='1' in the *System Parameters Message* .
- 14 i. Power on the mobile station.
- 15 j. After the mobile station performs a power-up registration, instruct the base station to
 16 send the a *Service Redirection Message* in response to the *Registration Message*
 17 with the following changes to *Service Redirection Message*:

18

19

Field	Value
REDIRECT_TYPE	'0'
RECORD_TYPE	'00000001' [North American Amps] '00000011' [TACS]

	'00000100' [JTACS] '00000101' (DS-41) Note: Only field settings corresponding to the applicable analog modes which MS supports should be exhausted.
--	---

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- k. If the mobile station supports the target operating mode and band class, verify that the mobile station acquires base station 2; otherwise verify that the mobile station sends a *Mobile Station Reject Order* with ORDQ='00000110' (message requires a capability that is not supported by the mobile station). Verify the mobile station does not acquire the system from which it was redirected.
- l. For RECORD_TYPE='00000001', repeat steps b through k for each of the following SYS_ORDERING values and base station 2 system values.

SYS_ORDERING	Description	Base Station 2
'001'	Attempt to obtain service on System A only.	System A
'010'	Attempt to obtain service on System B only.	System B
'011'	Attempt to obtain service on System A first. If unsuccessful, attempt to acquire service on System B.	System B
'100'	Attempt to obtain service on System B first. If unsuccessful, attempt to acquire service on System A.	System A
'101'	Attempt to obtain service on System A or System B. If unsuccessful, attempt to acquire service on the alternate system (System A or System B).	System B

10

1 8.5.1.5 Minimum Standard

2 The mobile station shall comply with steps e, k, and l.

3 **8.5.2 Base Station Test**

4 None

5 **8.6 Service Redirection between Channels in the Same Band**
6 **Class**

7 **8.6.1 Mobile Station Test**

8 8.6.1.1 Definition

9 This test verifies that a mobile station is capable of being redirected between channels in the
10 same band class when the *Service Redirection Message* is sent on the f-csch or on the f-dsch
11 prior to user traffic being transmitted. Both Network Directed System Selection (NDSS) and
12 normal redirection are tested.

13 8.6.1.2 Traceability (See [4]):

- 14 2.6.1.1.2 *System Selection Using Current Redirection Criteria*
- 15 2.6.2.4 *Mobile Station Order and Message Processing Operation*
- 16 2.6.3.5 *Mobile Station Origination Attempt Substate*
- 17 3.6.2.3 *Mobile Station Directed Messages*
- 18 3.7.2.3.2.1 *System Parameters Message*
- 19 3.7.2.3.2.30 *ANSI-41 System Parameters Message*
- 20 3.7.2.3.2.16 *Service Redirection Message {f-csch}*
- 21 3.7.3.3.2.23 *Service Redirection Message {f-dsch}*

22 8.6.1.3 Call Flow Example(s)

23 None

24 8.6.1.4 Method of Measurement

- 25 a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this
26 test case, base station 1 and base station 2 are in the same band class with different
27 CDMA Channels.
- 28 b. Verify that the mobile station is operating in the *Mobile Station Idle State* on base
29 station 1.
- 30 c. Instruct the mobile station send an *Origination Message* to the base station.
- 31 d. Instruct the base station to send a *Service Redirection Message* with the following
32 information to the mobile station on the f-csch or on the f-dsch prior to user traffic
33 being transmitted.

Field	Value
REDIRECT_TYPE	'1'

RECORD_TYPE	'00000010'
BAND_CLASS	Target Band Class
EXPECTED_SID	Target SID
EXPECTED_NID	Target NID
NUM_CHAN	Number of Channels
CDMA_CHAN	Target Channel(s)

1

2

e. Verify that the mobile station acquires base station 2. Verify that the call completes and user traffic is present.

3

4

f. End the call.

5

g. Power off the mobile station.

6

h. Set POWER_UP_REG='1' in the *System Parameters Message* .

7

i. Power on the mobile station.

8

j. After the mobile station performs a power-up registration, instruct the base station to send the a *Service Redirection Message* in response to the *Registration Message* with the following values:

9

10

11

Field	Value
REDIRECT_TYPE	'0'
RECORD_TYPE	'00000010'
BAND_CLASS	Target Band Class
EXPECTED_SID	Target SID
EXPECTED_NID	Target NID
NUM_CHAN	Number of Channels
CDMA_CHAN	Target Channel(s)

12

k. Verify that the mobile station acquires base station 2.

13

14 8.6.1.5 Minimum Standard

15 The mobile station shall comply with steps e and k.

16

17 8.6.2 Base Station Test

18 None

1 8.7 Extended Global Service Redirection between Band Classes

2 8.7.1 Mobile Station Test

3 8.7.1.1 Definition

4 This test verifies that when a mobile station receives an *Extended Global Service Redirection*
5 *Message* directing it to another band class, the mobile station acquires the appropriate system.

6 8.7.1.2 Traceability (See [4]):

7 2.6.2.2 *Response to Overhead Information Operation*

8 2.6.2.2.11 *Extended Global Service Redirection Message*

9 3.7.2.3.2.1 *System Parameters Message*

10 3.7.2.3.2.27 *Extended Global Service Redirection Message*

11 3.7.2.3.2.31 *MC-RR Parameters Message*

12 8.7.1.3 Call Flow Example(s)

13 None

14 8.7.1.4 Method of Measurement

- 15 a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this
16 test case, base station 1 and base station 2 are in different band classes.
- 17 b. Verify that the mobile station is operating in the *Mobile Station Idle State* on base
18 station 1.
- 19 c. Send an *Extended Global Service Redirection Message* from the current base station
20 with:

21

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'0'
RECORD_TYPE	'00000010'
BAND_CLASS	Target Band Class
EXPECTED_SID	Target SID
EXPECTED_NID	Target NID
NUM_CHAN	Number of Channels
CDMA_CHAN	Target Channel(s)

22

- 23 d. Verify that the mobile station enters the *System Determination Substate* of the mobile
24 station *Initialization State* and acquires the system to which it was redirected.
- 25 e. Set up a mobile station originated call. Verify user traffic in both directions.
- 26 f. End the call.
- 27 g. Verify that the mobile station does not attempt to acquire the system from which it
28 was redirected.

- 1 h. Repeat steps c through g with the mobile station operating in the *Mobile Station Idle*
 2 *State* on base station 2.
- 3 i. Repeat steps b through g with the mobile station operating in the *Mobile Station Idle*
 4 *State* on base station 1 with the following modifications to the *Extended Global*
 5 *Service Redirection Message*:

Field	Value
REDIRECT_P_REV_INCL	'1'
EXCL_P_REV_INCL	'0'
REDIRECT_P_MIN	=< MOB_P_REV _p
REDIRECT_P_MAX	>= MOB_P_REV _p

- 7
- 8 j. Verify that the mobile station remains idle on the current base station:

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'1'
EXCL_P_REV_INCL	'0'
REDIRECT_P_MIN	Arbitrary value
REDIRECT_P_MAX	Arbitrary value

- 9 k. Verify that the mobile station remains idle on the current base station.
- 10 l. Repeat step c with following changes to the *Extended Global Service Redirection*
 11 *Message*:

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'1'
EXCL_P_REV_INCL	'1'
REDIRECT_P_MIN	=< MOB_P_REV _p
REDIRECT_P_MAX	>= MOB_P_REV _p

- 12 m. Verify that the mobile station remains idle on the current base station.

13 **8.7.1.5 Minimum Standard**

14 The mobile station shall comply with steps d, e, g, h, i, k and m.

15 **8.7.2 Base Station Test**

16 None

8.8 Extended Global Service Redirection between CDMA and a Non-CDMA System

8.8.1 Mobile Station Test

8.8.1.1 Definition

This test verifies that when a mobile station receives an *Extended Global Service Redirection Message* directing it from CDMA to a Non-CDMA system, the mobile station acquires that system. The mobile station should only be redirected to Non-CDMA systems it supports. An example of a non-CDMA system is an analog system defined in [21].

8.8.1.2 Traceability (See [4]):

2.6.2.2 *Response to Overhead Information Operation*

2.6.2.2.11 *Extended Global Service Redirection Message*

3.7.2.3.2.1 *System Parameters Message*

3.7.2.3.2.27 *Extended Global Service Redirection Message*

3.7.2.3.2.31 *MC-RR Parameters Message*

8.8.1.3 Call Flow Example(s)

None

8.8.1.4 Method of Measurement

- a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this test case, base station 1 is a CDMA base station and base station 2 is a Non-CDMA base station.
- b. Ensure the mobile station is operating in the *Mobile Station Idle State* on base station 1.
- c. Send an *Extended Global Service Redirection Message* from the current base station with to the non-CDMA base station with the following parameters:

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'0'
RECORD_TYPE	'00000001' [North American Amps] '00000011' [TACS] '00000100' [JTACS] '00000101' (DS-41) Note: Only field settings corresponding to the applicable analog modes which MS supports should be exhausted.
If RECORD_TYPE='00000001',	

the base station shall include the following fields	
EXPECTED_SID	Target SID
IGNORE_CDMA	'0'
SYS_ORDERING	'000'
MAX_REDIRECT_DELAY	'00000'

1
2
3
4
5
6
7
8
9
10

- d. Verify that the mobile station enters the *System Determination Substate* of the *Mobile Station Initialization State* and acquires the system to which it was redirected.
- e. Set up a mobile station originated call. Verify user traffic in both directions.
- f. End the call.
- g. Verify that the mobile station does not acquire the system from which it was redirected.
- h. For RECORD_TYPE='0000001', repeat steps b through f for each of the following SYS_ORDERING values and base station 2 system values.

SYS_ORDERING	Description	Base Station 2
'001'	Attempt to obtain service on System A only.	System A
'010'	Attempt to obtain service on System B only.	System B
'011'	Attempt to obtain service on System A first. If unsuccessful, attempt to acquire service on System B.	System B
'100'	Attempt to obtain service on System B first. If unsuccessful, attempt to acquire service on System A.	System A
'101'	Attempt to obtain service on System A or System B. If unsuccessful, attempt to acquire service on the alternate system (System A or System B).	System B

11

- 1 i. Repeat step c ensuring that the value MOB_P_REV_p is outside the range specified
 2 by REDIRECT_P_MIN and REDIRECT_P_MAX along with the following changes to
 3 the *Extended Global Service Redirection Message*:

4

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'1'
EXCL_P_REV_INCL	'0'
REDIRECT_P_MIN	Arbitrary value
REDIRECT_P_MAX	Arbitrary value

- 5 j. Verify that the mobile station remains idle on the current base station.
 6 k. Repeat step c with following changes to the *Extended Global Service Redirection*
 7 *Message*:

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'1'
EXCL_P_REV_INCL	'1'
REDIRECT_P_MIN	=< MOB_P_REV _p
REDIRECT_P_MAX	>= MOB_P_REV _p

- 8 l. Verify that the mobile station remains idle on the current base station.

9 8.8.1.5 Minimum Standard

10 The mobile station shall comply with steps: d, e, g, h, j, and l.

11 8.8.2 Base Station Test

12 None

13 8.9 Extended Global Service Redirection between Channels in 14 the Same Band Class

15 8.9.1 Mobile Station Test

16 8.9.1.1 Definition

17 This test verifies that when a mobile station receives an *Extended Global Service Redirection*
 18 *Message* directing it to another channel in the same band class, the mobile station acquires the
 19 appropriate system.

20 8.9.1.2 Traceability (See [4]):

- 21 2.6.2.2 *Response to Overhead Information Operation*
 22 2.6.2.2.11 *Extended Global Service Redirection Message*
 23 3.7.2.3.2.1 *System Parameters Message*
 24 3.7.2.3.2.27 *Extended Global Service Redirection Message*

1 3.7.2.3.2.31 MC-RR Parameters Message

2 8.9.1.3 Call Flow Example(s)

3 None

4 8.9.1.4 Method of Measurement

5 a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this
6 test case, base station 1 and base station 2 are in different band classes.

7 b. Verify that the mobile station is operating in the *Mobile Station Idle State* on base
8 station 1.

9 c. Send an *Extended Global Service Redirection Message* from the current base station
10 with:

11

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'0'
RECORD_TYPE	'00000010'
BAND_CLASS	Target Band Class
EXPECTED_SID	Target SID
EXPECTED_NID	Target NID
NUM_CHAN	Number of Channels
CDMA_CHAN	Target Channel(s)

12

13 d. Verify that the mobile station enters the *System Determination Substate* of the mobile
14 station *Initialization State* and acquires the system to which it was redirected.

15 e. Set up a mobile station originated call. Verify user traffic in both directions.

16 f. End the call.

17 g. Verify that the mobile station does not attempt to acquire the system from which it
18 was redirected.

19 h. Repeat steps b through g with the mobile station operating in the *Mobile Station Idle*
20 *State* on base station 1 with the following modifications to the *Extended Global*
21 *Service Redirection Message*:

22

Field	Value
REDIRECT_P_REV_INCL	'1'
EXCL_P_REV_INCL	'0'
REDIRECT_P_MIN	=< MOB_P_REV _p
REDIRECT_P_MAX	>= MOB_P_REV _p

23

- 1 i. Repeat step c ensuring that the value MOB_P_REV_p is outside the range specified
 2 by REDIRECT_P_MIN and REDIRECT_P_MAX along with the following changes to
 3 the *Extended Global Service Redirection Message*:

4

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'1'
EXCL_P_REV_INCL	'0'
REDIRECT_P_MIN	Arbitrary value
REDIRECT_P_MAX	Arbitrary value

- 5 j. Verify that the mobile station remains idle on the current base station.
 6 k. Repeat step c with following changes to the *Extended Global Service Redirection*
 7 *Message*:

8

Field	Value
REDIRECT_ACCOLC	ACCOLC _p
REDIRECT_P_REV_INCL	'1'
EXCL_P_REV_INCL	'1'
REDIRECT_P_MIN	=< MOB_P_REV _p
REDIRECT_P_MAX	>= MOB_P_REV _p

- 9 l. Verify that the mobile station remains idle on the current base station.

10 8.9.1.5 Minimum Standard

11 The mobile station shall comply with steps: d, e, g, h, j, and l.

12 8.9.2 Base Station Test

13 None

14 8.10 FGOIM based System Reselection

15 8.10.1 Mobile Station Test

16 8.10.1.1 Definition

17 This test verifies that when a mobile station receives a Frequent General Overhead Information
 18 Message that contains the SID-NID pair or the MCC MNC information of the home system as
 19 part of Other Networks Available record, the mobile station attempts to acquire the home
 20 system.

21 8.10.1.2 Traceability (See [4]):

22 2.6.2.2.25 *Frequent General Overhead Information Message*

23 3.7.2.3.2.42 *Frequent General Overhead Information Message*

1 8.10.1.3 Call Flow Example(s)

2 None

3 8.10.1.4 Method of Measurement

4 a. Connect the mobile station to the base station as shown in [Annex A Figure 2](#). For this
5 test case, base station 1 should be configured with a SID NID value such that it is not
6 the preferred system (home system) for the mobile station. Base station 2 should be
7 configured with SID NID pair such that is the preferred system (home
8 system) for the mobile station. Attenuate the signal from base station 2 such that
9 mobile station is unable to acquire the home system.

10 b. Ensure that the mobile station has acquired base station 1.

11 c. Terminate a call on the mobile station.

12 d. Instruct base station 1 to start sending *Frequent General Overhead Information*
13 *Message* with with GOI_REC_TYPE of '00000010' and this record carries the MCC
14 and MNC information for the home system (base station 2).

15 e. Increase the signal strength for base station 2.

16 f. End the call.

17 g. Verify that the mobile station acquires base station 2 (home system).

18 8.10.1.5 Minimum Standard

19 The mobile station should comply with steps g

20 **8.10.2 Base Station Test**

21 None

1 **9 Subscriber Calling Features**

2 **9.1 Call Alerting**

3

4 **9.1.1 Mobile Station Test**

5

6 9.1.1.1 Definition

7 This is a test for standard mobile station incoming call alerting (ringing). An incoming call alert is
8 played or displayed by the mobile station as a result of receiving an *Alert With Information*
9 *Message* or *Extended Alert with Information Message* with a Signal info record.
10

11 9.1.1.2 Traceability (See [4]):

12 *Table 3.7.5.5-1 Signal Type*

13 *Table 3.7.5.5-2 Alert Pitch*

14 *Table 3.7.5.5-3 Tone Signals (SIGNAL_TYPE = '00')*

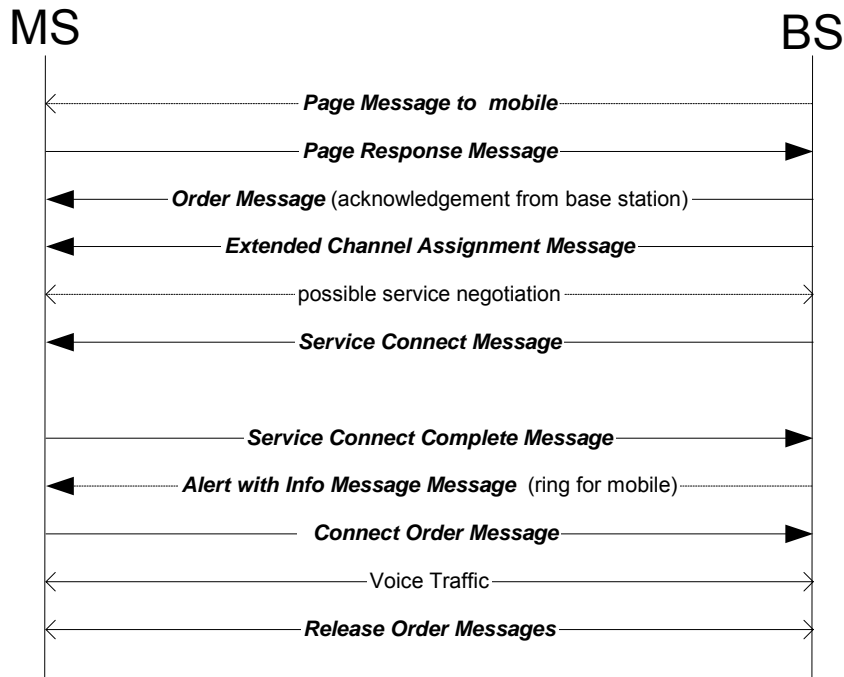
15 *Table 3.7.5.5-4 ISDN Alerting (SIGNAL_TYPE = '01')*

16 *Table 3.7.5.5-5 IS-54B Alerting (SIGNAL_TYPE = '10')*

17 *Table 3.7.5-1 Information Record Types (base station)*

18

1 9.1.1.3 Call Flow



2

3 9.1.1.4 Method of Measurement

- 4 a. Allow the mobile station to come to the idle state on the base station, and make a
 5 mobile station terminated call.
- 6 b. Verify that the mobile station receives a *Alert with Information Message* with the
 7 standard Signal info record with the following fields.

Field	Value
SIGNAL_TYPE	'10' (IS-54B Alerting)
ALERT_PITCH	'00' (Medium)
SIGNAL	'000001' (Long: 2.0 s on, 4.0 s off, repeating)

8

- 9 c. Verify that the mobile station plays an incoming call alert, e. g. rings.
- 10 d. Answer the call, and verify that the call completes successfully, then end the call.
- 11 e. Repeat steps a through d except substitute *Extended Alert with Information Message*
 12 in step b.

13 9.1.1.5 Minimum Standard

14 The mobile station shall comply with the requirements in step c, d and e.

15

1 9.1.2 Base Station Test

2 None

3 9.2 Caller ID

4 9.2.1 Mobile Station Test

5 9.2.1.1 Definition

6 This test verifies that the mobile station's response to an *Alert with Information Message* or
 7 *Extended Alert with Informantion Message* with a Calling Party Number information record
 8 delivered on a dedicated channel during mobile station terminated call setup, and also *Flash with*
 9 *Information Message* or *Extended Flash with Information Message* for incoming Call Waiting. It
 10 checks for common values of NUMBER_TYPE, NUMBER_PLAN, PI, and SI.

11 9.2.1.2 Traceability (See [4]):

12 3.7.5.3 Calling Party Number

13 3.7.5.16 Extended Display, Calling Party Name = type '10001101'

14 3.7.5.21 Multiple Character Extended Display

15 3.7.5.22 Call Waiting Indicator

16 Table 3.7.5.16-2 Mandatory Control Tags and Display Text Tags

17 Table 2.7.1.3.2.4-2 Number Types

18 Table 2.7.1.3.2.4-3 Numbering Plan Identification

19 Table 2.7.4.4-1 Presentation Indicators

20 Table 3.7.5-1 Information Record Types (base station)

21 9.2.1.3 Call Flow Diagram

22 None

23 9.2.1.4 Method of Measurement

24 a. Allow the mobile station to come to the idle state on the base station, and initiate a
 25 mobile station terminated call.

26 b. During the course of normal call setup, cause the base station to send an *Alert with*
 27 *Information Message* or *Extended Alert with Information Message* containing the
 28 Calling Party Number info record with fields below.

29

Field	Value
NUMBER_TYPE	'010' (National number)
NUMBER_PLAN	'0001' (ISDN)
PI	'00' (Presentation Allowed)
SI	'11' (Network provided)
CHARi	a valid National, ISDN telephone number, e. g. 8005551212

30

- 1 c. Verify that the mobile station displays the correct Caller ID before the call is
- 2 answered, then answer the call.
- 3 d. While the mobile station is in the voice call conversation state, cause the base station
- 4 to send a *Flash with Information Message* or *Extended Flash with Information Record*
- 5 with Calling Party Number info record with fields below.

Field	Value
NUMBER_TYPE	'010' (National number)
NUMBER_PLAN	'1001' (Private numbering plan)
PI	'00' (Presentation Allowed)
SI	'00' (User-provided, not screened)
CHARi	a valid National, private number plan, different from step b

- 7
- 8 e. Verify that the mobile station displays the correct Caller ID.
- 9 f. End the call.
- 10 g. Repeat steps a through e except in steps b and d, substitute PI = '01' (Presentation
- 11 Restricted), in the Calling Party Number info record, and verify that the Caller ID is
- 12 *not displayed* in steps c and e.
- 13 h. Repeat steps a through e except substitute PI = '10' (Number not available), in the
- 14 Calling Party Number info record, and verify that the Caller ID is not displayed in
- 15 steps c and e.
- 16 i. Repeat steps a through e except substitute SI = '01' (User-provided, verified and
- 17 passed), in the Calling Party Number info record, and verify that the Caller ID is
- 18 displayed correctly in steps c and e.
- 19 j. Repeat steps a through e except substitute SI = '11' (Network-provided), in the
- 20 Calling Party Number info record, and verify that the Caller ID is displayed correctly in
- 21 steps c and e.
- 22 k. Repeat steps a through e except substitute NUMBER_TYPE = '001' (International
- 23 number), in the Calling Party Number info record, and verify that the Caller ID is
- 24 displayed correctly in steps c and e.
- 25 l. Repeat steps a through e except substitute NUMBER_PLAN = '1001' (Private
- 26 numbering plan), in the Calling Party Number info record, and verify that the Caller ID
- 27 is displayed correctly in steps c and e.

28 **9.2.1.5 Minimum Standard**

29 The mobile station shall comply with requirements in steps c, e, and g through l.

30 **9.2.2 Base Station Test**

31 None

1 9.3 Voice Mail Message Waiting Notification

2 9.3.1 Mobile Station Test

3 9.3.1.1 Definition

4 This test verifies mobile station response to Message Waiting info record delivered by the *Feature*
5 *Notification Message* while the mobile station is in the idle state, or by the *Flash with Information*
6 *Message* while in the traffic state.

7 9.3.1.2 Traceability (See [4]):

8 3.7.5.6 *Message Waiting*

9 3.7.2.3.2.12 *Feature Notification Message*

10 9.3.1.3 Call Flow Diagram

11 None

12 9.3.1.4 Method of Measurement

- 13 a. Allow the mobile station to come to the idle state on the base station.
- 14 b. Cause the base station to send a *Feature Notification Message* with a Message
15 Waiting info record as follows.

Information Record Type	'00000110'
MSG_COUNT	a value from 0 to 31

17

- 18 c. Verify that the mobile station plays or displays a voice mail message notification alert.
- 19 d. Verify that any indication of number of messages on the mobile station reflects the
20 MSG_COUNT in the *Feature Notification Message*.
- 21 e. Set up a voice call with the mobile station.
- 22 f. While in the call, cause the base station to send a *Flash With Information Message*
23 with a Message Waiting info record as follows.

Information Record Type	'00000110'
MSG_COUNT	a value from 0 to 31, different from value in step b

25

- 26 g. Verify that the mobile station plays or displays a message notification alert.
- 27 h. Verify that any indication of number of messages on the mobile station reflects the
28 MSG_COUNT in the *Flash with Information Message*.

29 9.3.1.5 Minimum Standard

30 The mobile station shall comply with the requirements in steps c, d, g and h.

1 **9.3.2 Base Station Test**

2 None

3 **9.4 Global Emergency Call Support When Mobile Station is in**
4 **Idle State**

5 Applicability: This test is applicable only if the global emergency call feature is supported.

6 **9.4.1 Mobile Station Test**

7 9.4.1.1 Definition

8 This test verifies that the mobile station can originate a global emergency call during idle state.

9 9.4.1.2 Traceability (See [4]):

10

11 *2.7.1.3.2.4 Origination Message*

12 9.4.1.3 Call Flow Example(s)

13 None

14 9.4.1.4 Method of Measurement

- 15 a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).
- 16 b. If the mobile station is capable of recognizing emergency number by analyzing the
- 17 dialed digits, originate an emergency call from the mobile station by dialing an
- 18 emergency number.
- 19 c. Verify that the GLOBAL_EMERGENCY_CALL field is set to '1' in the *Origination*
- 20 *Message*.
- 21 d. End the call.
- 22 e. If the mobile station has a special interface to initiate an emergency call, originate an
- 23 emergency call from the mobile station using this special interface.
- 24 f. Verify that the mobile station sets the GLOBAL_EMERGENCY_CALL field to '1' in
- 25 the *Origination Message*.
- 26 g. End the call.

27 9.4.1.5 Minimum Standard

28 The mobile station shall comply with the requirements in steps c and f.

29 **9.4.2 Base Station Test**

30 9.4.2.1 Definition

31 This test verifies that the base station can recognize an emergency call and process it correctly.

1 9.4.2.2 Traceability (See [4]):

2

3 2.7.1.3.2.4 *Origination Message*

4 9.4.2.3 Call Flow Example(s)

5 None

6 9.4.2.4 Method of Measurement

7 a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).

8 b. Instruct the mobile station to originate an emergency call by setting
9 GLOBAL_EMERGENCY_CALL field to '1' with no dialed digits in the *Origination*
10 *Message*.

11 c. Verify that the base station recognizes this is an emergency call.

12 d. End the call.

13 e. Instruct the mobile station to include the appropriate emergency number in the
14 *Origination Message* with the GLOBAL_EMERGENCY_CALL field set to '0'.

15 f. Verify that the base station recognizes this is an emergency call.

16 g. End the call.

17 h. Instruct the mobile station to include the appropriate emergency number with the
18 GLOBAL_EMERGENCY_CALL field set to '1' in the *Origination Message*.

19 i. Verify that the base station recognizes this is an emergency call.

20 j. End the call.

21 k. Instruct the mobile station to include some invalid emergency number with the
22 GLOBAL_EMERGENCY_CALL field set to '1' in the *Origination Message*.

23 l. Verify that the base station recognizes this is an emergency call.

24 m. End the call.

25 9.4.2.5 Minimum Standard

26 The base station shall comply with the requirements in steps c, f, i and l.

27 **9.5 Global Emergency Call Support When Mobile Station is in a** 28 **voice call.**

29

30 Applicability: This test is applicable only if global emergency call feature is supported.

1 **9.5.1 Mobile Station Test**

2 9.5.1.1 Definition

3 This test verifies that the mobile station can originate a global emergency call while another voice
4 call is in progress.

5 9.5.1.2 Traceability (See [4]):

6 *2.7.1.3.2.4 Origination Message*

7 *2.7.2.3.2.32 Enhanced Origination Message*

8 *2.7.2.3.2.3 Flash With Information Message*

9 *2.7.2.3.2.33 Extended Flash With Information Message*

10 9.5.1.3 Call Flow Example(s)

11 None

12 9.5.1.4 Method of Measurement

- 13 a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).
- 14 b. Originate a voice call from the mobile station. Verify audio in both directions.
- 15 c. If the mobile station is capable of recognizing an emergency number by analyzing the
16 dialed digits, originate an emergency call from the mobile station by dialing an
17 emergency number.
- 18 d. Verify that the mobile station sends a *Flash With Information Message* or *Extended*
19 *Flash With Information Message* with the Global Emergency Call information record
20 included.
- 21 e. End the calls.
- 22 f. Originate a voice call from the mobile station. Verify audio in both directions.
- 23 g. If mobile station has special interface to initiate an emergency call, originate an
24 emergency call from the mobile station using this special interface.
- 25 h. Verify that the mobile station sends a *Flash With Information Message* or *Extended*
26 *Flash With Information Message* with the Global Emergency Call information record
27 included.
- 28 i. End the calls

29 9.5.1.5 Minimum Standard

30 The mobile station shall comply with the requirements in
31 steps d and h.

32 **9.5.2 Base Station Test**

33 9.5.2.1 Definition

34 This test verifies that the base station recognizes the emergency call when the mobile station is in
35 a voice call.

1 9.5.2.2 Traceability (See [4]):

2 2.7.1.3.2.4 Origination Message

3 2.7.2.3.2.32 Enhanced Origination Message

4 2.7.2.3.2.3 Flash With Information Message

5 2.7.2.3.2.33 Extended Flash With Information Message

6 9.5.2.3 Call Flow Example(s)

7 None

8 9.5.2.4 Method of Measurement

- 9 a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).
- 10 b. Originate a voice call from the mobile station. Verify audio in both directions.
- 11 c. Instruct the mobile station to send a *Flash With Information Message* with global
12 emergency call information record.
- 13 d. Verify that the base station recognizes this is an emergency call.
- 14 e. End the calls.
- 15 f. Repeat steps a through e, but with the following modifications – in step c, instruct the
16 mobile station to send *Extended Flash With Information Message*.

17 9.5.2.5 Minimum Standard

18 The base station shall comply with the requirements in step d.

19

20 **9.6 Global Emergency Call Support When Mobile Station is in a**
21 **data call.**

22

23 Applicability: This test is applicable only if global emergency call feature and concurrent services
24 are supported.

25 **9.6.1 Mobile Station Test**

26 9.6.1.1 Definition

27 This test verifies that the mobile station can originate a global emergency call when a packet data
28 call (Ex. SO33) is in progress.

29 9.6.1.2 Traceability (See [4]):

30 2.7.1.3.2.4 Origination Message

31 2.7.2.3.2.32 Enhanced Origination Message

32 2.7.2.3.2.3 Flash With Information Message

33 2.7.2.3.2.33 Extended Flash With Information Message

1 9.6.1.3 Call Flow Example(s)

2 None

3 9.6.1.4 Method of Measurement

- 4 a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).
- 5 b. Originate a data call from the mobile station.
- 6 c. If the mobile station is capable of recognizing an emergency number by analyzing the
- 7 dialed digits then, while the data call is up, originate an emergency call from the
- 8 mobile station by dialing an emergency number.
- 9 d. Verify that the mobile station sends an *Enhanced Origination Message* with
- 10 GLOBAL_EMERGENCY_CALL field set to '1'.
- 11 e. End the calls.
- 12 f. Originate a data call from the mobile station.
- 13 g. If the mobile station has a special interface to initiate an emergency call then, while
- 14 the data call is up, originate an emergency call from the mobile station using this
- 15 special interface.
- 16 h. Verify that the mobile station sends an *Enhanced Origination Message* with the
- 17 GLOBAL_EMERGENCY_CALL field set to '1'.
- 18 i. End the calls.

19 9.6.1.5 Minimum Standard

20 The mobile station shall comply with the requirements in steps d and h.

21 **9.6.2 Base Station Test**

22 9.6.2.1 Definition

23 This test verifies that the base station can recognize an emergency call origination from a mobile

24 station in a call.

25 9.6.2.2 Traceability (See [4]):

26 2.7.1.3.2.4 *Origination Message*

27 2.7.2.3.2.32 *Enhanced Origination Message*

28 2.7.2.3.2.3 *Flash With Information Message*

29 2.7.2.3.2.33 *Extended Flash With Information Message*

30 9.6.2.3 Call Flow Example(s)

31 None

32 9.6.2.4 Method of Measurement

- 33 a. Connect the base station to the mobile station as shown in [Annex A Figure 1](#).
- 34 b. Instruct the mobile station to set up a data call.

- 1 c. While the data call is up, instruct the mobile station to originate an emergency call by
- 2 including an appropriate emergency number in the *Enhanced Origination Message*
- 3 with GLOBAL_EMERGENCY_CALL field set to '0'.
- 4 d. Verify that the base station recognizes the call as an emergency call.
- 5 e. End the calls.
- 6 f. Instruct the mobile station to set up a data call.
- 7 g. While the data call is up, instruct the mobile station to originate an emergency call by
- 8 setting the GLOBAL_EMERGENCY_CALL field to '1' and including the appropriate
- 9 emergency number in the *Enhanced Origination Message*.
- 10 h. Verify that the base station recognizes the call as an emergency call.
- 11 i. End the calls.
- 12 j. Instruct the mobile station to set up a data call.
- 13 k. While the data call is up, instruct the mobile station to originate an emergency call by
- 14 setting the GLOBAL_EMERGENCY_CALL field to '1' with no dialed digits in the
- 15 *Enhanced Origination Message*.
- 16 l. Verify that the base station recognizes the call as an emergency call.
- 17 m. End the calls.
- 18 n. Instruct the mobile station to set up a data call.
- 19 o. While the data call is up, instruct the mobile station to originate an emergency call by
- 20 setting the GLOBAL_EMERGENCY_CALL field to '1' and including some invalid
- 21 emergency number in the *Enhanced Origination Message*.
- 22 p. Verify that the base station recognizes the call as an emergency call.
- 23 q. End the calls.

24 9.6.2.5 Minimum Standard

25 The base station shall comply with the requirements in steps d, h, l and p.

26 9.7 WLL Support

27

28 Applicability: This test case is applicable only if WLL is supported.

29 9.7.1 Mobile Station Test

30 9.7.1.1 Definition

31 This test verifies that the WLL terminal (mobile station) is able to work properly in the system.

32 9.7.1.2 Traceability (See [4]):

33 2.7.1.3.2.4 *Origination Message*

34 2.7.1.3.2.11 *Device Information Message*

1 9.7.1.3 Call Flow Example(s)

2 None

3 9.7.1.4 Method of Measurement

- 4 a. Connect the base station (capable of WLL) to the WLL terminal as shown in Figure
5 [Annex A Figure 1](#).
- 6 b. Configure the base station to send an *Extended System Parameters Message* with
7 the AUTO_MESSAGE_SUPPORTED field set to '1' and the
8 AUTO_MESSAGE_INTERVAL field set to '111'
- 9 c. Power up the WLL terminal and verify that a *Registration Message* is sent by the
10 WLL terminal with the following field settings: WLL_INCL field set to '1',
11 WLL_DEVICE_TYPE field set to value as per type of WLL device ('000', '001' or
12 '010'), HOOK_STATUS field set to '0000'.
- 13 d. Pick up the handset of WLL terminal. Verify that a Device Information Message is
14 sent by the WLL terminal with the following field setting: WLL_DEVICE_TYPE field
15 set to value as per type of WLL device ('000', '001' or '010') and information record
16 setting: HOOK_STATUS field set to '0001'.
- 17 e. Within 15 seconds, press the WLL terminal hook back and forth a couple of times
18 and finally put the handset back on the hook. Verify that no Device Information
19 Message is sent (This indicates that the timer keeps being reset).
- 20 f. When the last timer expires, verify that a Device Information Message is sent by the
21 WLL terminal with the following field setting: WLL_DEVICE_TYPE field set to value
22 as per type of WLL device ('000', '001' or '010') and information record setting:
23 HOOK_STATUS field set to '0000'.
- 24 g. After 15 seconds, pick up the handset. Verify that a Device Information Message is
25 sent by the WLL terminal with the following field setting: WLL_DEVICE_TYPE field
26 set to value as per type of WLL device ('000', '001' or '010') and information record
27 setting: HOOK_STATUS field set to '0001'.
- 28 h. After another 15 seconds, put the handset back on the hook. Verify that a Device
29 Information Message is sent by the WLL terminal with the following field setting:
30 WLL_DEVICE_TYPE field set to value as per type of WLL device ('000', '001' or
31 '010') and information record setting: HOOK_STATUS field set to '0000'.
- 32 i. Pick up the handset. Ensure the dial tone is available and then originate a call.
- 33 j. Verify that an *Origination Message* is sent by the WLL terminal with the following field
34 settings: WLL_INCL field set to '1', WLL_DEVICE_TYPE field set to value as per type
35 of WLL device ('000', '001' or '010').
- 36 k. After 15 seconds, end the call and put the handset back on the hook.
- 37 l. Verify that a Device Information Message is sent by the WLL terminal with the
38 following field setting: WLL_DEVICE_TYPE field set to value as per type of WLL

- 1 device ('000', '001' or '010') and information record setting: HOOK_STATUS field set
2 to '0000'.
- 3 m. Make a WLL-terminated call, and verify that a *Page Response Message* is sent by
4 the WLL terminal with the following field settings: WLL_INCL field set to '1',
5 WLL_DEVICE_TYPE field set to value as per type of WLL device ('000', '001' or
6 '010'), HOOK_STATUS field set to '0000'.
- 7 n. End the call.
- 8 o. Pick up the WLL terminal handset. Keep handset off-hook. Verify that a Device
9 Information Message is sent by the WLL terminal with the following field setting:
10 WLL_DEVICE_TYPE field set to value as per type of WLL device ('000', '001' or
11 '010') and information record setting: HOOK_STATUS field set to '0010'

12 9.7.1.5 Minimum Standard

13 The mobile station shall comply with the requirements in steps c, d, e, f, g, h, j, l, m and o.

14 9.7.2 Base Station Test

15 Not Applicable.

16 9.8 WLL Call Waiting Indicator Support

17

18 Applicability: This test case is applicable only if WLL is supported.

19 9.8.1 Mobile Station Test

20 9.8.1.1 Definition

21 This test verifies that a WLL terminal (mobile station) in a two-way conversation with call waiting
22 enabled, will be able to connect to a waiting call by sending a flash request.

23 9.8.1.2 Traceability (See [4]):

24 2.7.2.3.2.3 *Flash With Information Message*

25 3.7.5.5: *Signal*

26 3.7.5.22 *Call Waiting Indicator*

27 9.8.1.3 Call Flow Example(s)

28 None

29 9.8.1.4 Method of Measurement

- 30 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 31 b. Ensure that call waiting is enabled.
- 32 c. Make a mobile station to land party #1 voice call. Verify audio in both directions.
- 33 d. Set up a voice call from land party #2 to the mobile station. Wait for ringback tone on
34 land party #2 and instruct the base station to send a *Flash With Information Message*

- 1 with the Call Waiting Indicator Information Record as follows:
2 CALL_WAITING_INDICATOR field set to '1'.
- 3 e. Press the hook (or FLASH button if available) in the handset to put land party #1 on
4 hold and to connect to land party #2. Verify that the mobile station sends a *Flash*
5 *With Information Message* or an *Extended Flash With Information Message* to the
6 base station.
- 7 f. Verify that no dial tone is audible in the handset and a voice path is established
8 between the mobile station and land party #2.
- 9 g. Press the hook (or FLASH button if available) again in the handset to put land party
10 #2 on hold, and reconnect the voice path to land party #1. Verify:
- 11 1. The mobile station sends a *Flash With Information Message* or *Extended*
12 *Flash With Information Message* to the base station.
- 13 2. An audio path is established between the handset and land party #1
- 14 h. End the call from land party #1.
- 15 i. Press hook (or FLASH button if available) again in the handset. Verify that the mobile
16 station sends a *Flash With Information Message* or *Extended Flash With Information*
17 *Message* to the base station.
- 18 j. Verify that an audio path is established between the mobile station and land party #2.
- 19 k. End the call to land party #2.
- 20 l. Make a mobile station to land party #1 voice call. Verify that an audio path is
21 established in both directions.
- 22 m. Set up a voice call from land party #2 to the mobile station. Wait for ringback tone on
23 land party #2 and instruct the base station to send a *Flash With Information Message*
24 with the Call Waiting Indicator Information Record as follows:
25 CALL_WAITING_INDICATOR field set to '1'.
- 26 n. Do not answer this call waiting call at the mobile station.
- 27 o. Disconnect call from land party #2.
- 28 p. Instruct the base station to send a *Flash With Information Message* with the Call
29 Waiting Indicator Information Record as follows: CALL_WAITING_INDICATOR field
30 set to '0'.
- 31 q. Press the hook (or FLASH button if available) of the handset and verify that a dial
32 tone is generated.
- 33 r. Press the hook (or FLASH button if available) again and verify that voice path
34 between the handset and land party #1 is established.
- 35 s. End the call to land party #1.

36 9.8.1.5 Minimum Standard

37 The mobile station shall comply with the requirements in steps e, f, g, i, j, q and r.

1 The mobile station shall be able to switch between two calls when call-waiting call is present.

2 **9.8.2 Base Station Test**

3 9.8.2.1 Definition

4 This test verifies that the base station will send a call waiting indicator to the WLL terminal (mobile
5 station) in a two-way conversation (with call waiting enabled). This test verifies that the base
6 station will connect the WLL terminal to waiting call when a flash request is received from the
7 WLL terminal.

8 9.8.2.2 Traceability (See [4]):

9 *2.7.2.3.2.3 Flash With Information Message*

10 *3.7.5.5: Signal*

11 *3.7.5.22 Call Waiting Indicator*

12 9.8.2.3 Call Flow Example(s)

13 None

14 9.8.2.4 Method of Measurement

- 15 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 16 b. Ensure that call waiting is enabled.
- 17 c. Make a mobile station to land party #1 call. Verify audio in both directions.
- 18 d. Set up a voice call from land party #2 to the mobile station.
- 19 e. Verify that the base station sends a *Flash With Information Message* or *Extended*
20 *Flash With Information Message* with the Call Waiting Indicator Information Record
21 as follows: CALL_WAITING_INDICATOR field set to '1'.
- 22 f. Instruct the mobile station to send *Flash With Information Message* to the base
23 station.
- 24 g. Verify that an audio path is established between the mobile station and land party #2.
- 25 h. Instruct the mobile station to send *Flash With Information Message* to the base
26 station.
- 27 i. Verify that an audio path is established between the mobile station and land party #1
- 28 j. End the call from land party #1.
- 29 k. Instruct the mobile station to send a *Flash With Information Message* to the base
30 station.
- 31 l. Verify that an audio path is established between the mobile station and land party #2.
- 32 m. End the call to land party #2.
- 33 n. Make a mobile station to land party #1 call. Verify that an audio path is established in
34 both directions.
- 35 o. Set up a voice call from land party #2 to the mobile station.

- 1 p. Verify that the base station sends a *Flash With Information Message* or *Extended*
- 2 *Flash With Information Message* with the Call Waiting Indicator Information Record
- 3 as follows: CALL_WAITING_INDICATOR field set to '1'.
- 4 q. Do not answer this call waiting call from the mobile station.
- 5 r. Disconnect the call from land party #2.
- 6 s. Verify that the base station sends a *Flash With Information Message* or *Extended*
- 7 *Flash With Information Message* with the Call Waiting Indicator Information Record
- 8 as follows: CALL_WAITING_INDICATOR field set to '0'.
- 9 t. Instruct the mobile station to send a *Flash With Information Message* to the base
- 10 station. Verify that a dial tone is audible at the mobile station.
- 11 u. Instruct the mobile station to send a *Flash With Information Message* to the base
- 12 station. Verify that an audio path between the mobile station and land party #1 is
- 13 established.
- 14 v. End the call to land party #1.
- 15 w. Repeat steps a through v, but with the following changes: In steps where mobile
- 16 station is instructed to send a *Flash With Information Message*, instruct mobile station
- 17 to send an *Extended Flash With Information Message*.

18 9.8.2.5 Minimum Standard

19 The base station shall comply with the requirements in steps e, g, i, l, p, s and u.

20 **9.9 Multiple Character Extended Display Records sent in the**

21 ***Feature Notification Message* sent on the f-csch.**

22 **9.9.1 Mobile Station Test**

23 9.9.1.1 Definition

24 This test verifies that the mobile station can display Multiple Character Extended Display
25 Information Records (if supported) sent to the mobile station on the f-csch. This test also verifies
26 that Multiple Character Extended Display Information Records do not interfere with mobile station
27 processing of any other information records or features.

28 9.9.1.2 Traceability (See [4]):

29 *2.6.2.4: Mobile Station Order and Message Processing Operation*

30 *3.7.2.3.2.12: Feature Notification Message*

31 *3.7.3.3.2.3: Alert with Information Message*

32 *3.7.3.3.2.14: Flash with Information Message*

33 9.9.1.3 Call Flow Example(s)

34 None

1 9.9.1.4 Method of Measurement

2 9.9.1.4.1 Mobile station capable of displaying Unicode characters

- 3 a. Connect the mobile station and base station as shown in [Annex A Figure 1](#).
- 4 b. Verify that the mobile station is in Mobile Station Idle State.
- 5 c. Instruct the base station to send a Multiple Character Extended Display Record (with
6 DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters
7 and Message Waiting Indicator Information Record in a *Feature Notification*
8 *Message*.
- 9 d. Verify that the mobile station displays characters as instructed in the Multiple
10 Character Extended Display Record and processes other information records
11 contained in the *Feature Notification Message*.
- 12 e. Instruct the base station to send a new Multiple Character Extended Display Record
13 (with DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15
14 characters and Message Waiting Indicator Information Record in a *Feature*
15 *Notification Message*.
- 16 f. Verify that the mobile station displays the new characters as instructed in the display
17 record, and performs other information records contained in the *Feature Notification*
18 *Message* without user interaction with the mobile station.
- 19 g. Instruct the base station to make a mobile station terminated voice call. Verify that
20 the call is established. Verify user traffic in both directions.

21 9.9.1.4.2 Mobile station capable of displaying ASCII characters only

- 22 a. Connect the mobile station and base station as shown in [Annex A Figure 1](#).
- 23 b. Verify that the mobile station is in Mobile Station Idle State.
- 24 c. Instruct the base station to send a Multiple Character Extended Display Record (with
25 DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters
26 and Message Waiting Indicator Information Record in a *Feature Notification*
27 *Message*.
- 28 d. Verify that the mobile station either displays the ASCII portion of the Multiple
29 Character Extended Display Record correctly or ignores all of the Multiple Character
30 Extended Display Record, and processes other information records contained in the
31 *Feature Notification Message*.
- 32 e. Instruct the base station to send a new Multiple Character Extended Display Record
33 (with DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15
34 characters and Message Waiting Indicator Information Record in a *Feature*
35 *Notification Message*.
- 36 f. Verify that the mobile station either displays the ASCII portion of the Multiple
37 Character Extended Display Record correctly or ignores all of the Multiple Character
38 Extended Display Record, and processes other information records contained in the
39 *Feature Notification Message*.

- 1 g. Instruct the base station to make a mobile station terminated voice call. Verify that
2 the call is established. Verify user traffic in both directions.

3 9.9.1.5 Minimum Standard

4 9.9.1.5.1 Mobile station capable of displaying Unicode characters

5 The mobile station shall comply with the requirements in step d, f and g.

6 9.9.1.5.2 Mobile station capable of displaying ASCII characters only

7 The mobile station shall comply with the requirements in step d, f and g.

8 **9.9.2 Base Station Test**

9 Not Applicable.

10

11 **9.10 Multiple Character Extended Display Records sent on f-**
12 **dsch.**

13 **9.10.1 Mobile Station Test**

14 9.10.1.1 Definition

15 This test verifies that the mobile station can display Multiple Character Extended Display
16 Information Records (if supported) sent to mobile station on the f-dsch. This test also verifies that
17 Multiple Character Extended Display Information Records do not interfere with mobile station
18 processing of other information records or features.

19 9.10.1.2 Traceability (See [4]):

20 2.6.2.4: *Mobile Station Order and Message Processing Operation*

21 3.7.2.3.2.12: *Feature Notification Message*

22 3.7.3.3.2.3: *Alert with Information Message*

23 3.7.3.3.2.14: *Flash with Information Message*

24 9.10.1.3 Call Flow Example(s)

25 None

26 9.10.1.4 Method of Measurement

27 9.10.1.4.1 Mobile station capable of displaying Unicode characters

- 28 a. Connect the mobile station and base station as shown in [Annex A Figure 1](#).
29 b. Set up a mobile station originated voice call.
30 c. Instruct the base station to send a Multiple Character Extended Display Record (with
31 DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters
32 and Message Waiting Indicator Information Record in a *Flash With Information*
33 *Message*.

- 1 d. Verify that the mobile station displays characters as instructed in the Multiple
- 2 Character Extended Display Record and that it processes other information records
- 3 contained in the *Flash With Information Message*.
- 4 e. Disconnect the call.
- 5 f. Instruct the base station to make a mobile station terminated voice call. Verify that
- 6 the call is established. Verify user traffic on both directions.
- 7 g. Repeat steps c to e, but with following changes: In steps where base station is
- 8 instructed to send *Flash With Information Message*, instruct the base station to send
- 9 an *Extended Flash With Information Message*.
- 10 h. Repeat steps a to e, but with following changes: In steps where base station is
- 11 instructed to send *Flash With Information Message*, instruct the base station to send
- 12 an *Alert With Information Message*.
- 13 i. Repeat steps a to e, but with following changes: In steps where base station is
- 14 instructed to send *Flash With Information Message*, instruct the base station to send
- 15 an *Extended Alert With Information Message*.

16 9.10.1.4.2 Mobile station capable of displaying ASCII characters only

- 17 a. Connect the mobile station and base station as shown in [Annex A Figure 1](#).
- 18 b. Set up a mobile station originated voice call.
- 19 c. Instruct the base station to send a Multiple Character Extended Display Record (with
- 20 DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters
- 21 and Message Waiting Indicator Information Record in a *Flash With Information*
- 22 *Message*.
- 23 d. Verify that the mobile station either displays the ASCII portion of the Multiple
- 24 Character Extended Display Record correctly or ignores all of the Multiple Character
- 25 Extended Display Record, and processes other information records contained in the
- 26 *Flash With Information Message*.
- 27 e. Disconnect the call.
- 28 f. Instruct the base station to make a mobile station terminated voice call. Verify that
- 29 the call is established. Verify user traffic on both directions.
- 30 g. Repeat steps c to e, but with following changes: In steps where base station is
- 31 instructed to send a *Flash With Information Message*, instruct base station to send an
- 32 *Extended Flash With Information Message*.
- 33 h. Repeat steps a to e, but with following changes: In steps where base station is
- 34 instructed to send a *Flash With Information Message*, instruct base station to send an
- 35 *Alert With Information Message*.
- 36 i. Repeat steps a to e, but with following changes: In steps where base station is
- 37 instructed to send *Flash With Information Message*, instruct the base station to send
- 38 an *Extended Alert With Information Message*.

- 1 9.10.1.5 Minimum Standard
- 2 9.10.1.5.1 Mobile station capable of displaying Unicode characters
- 3 The mobile station shall comply with the requirements in step d.
- 4 9.10.1.5.2 Mobile station capable of displaying ASCII characters only
- 5 The mobile station shall comply with the requirements in step d.
- 6 **9.10.2 Base Station Test**
- 7 Not Applicable.

1 **10 Concurrent Services**

2 **10.1 Set up Mobile Station Originated Data Call while Voice Call** 3 **or Teleservice on Dedicated Channels are in Progress**

4 **10.1.1 Mobile Station Test**

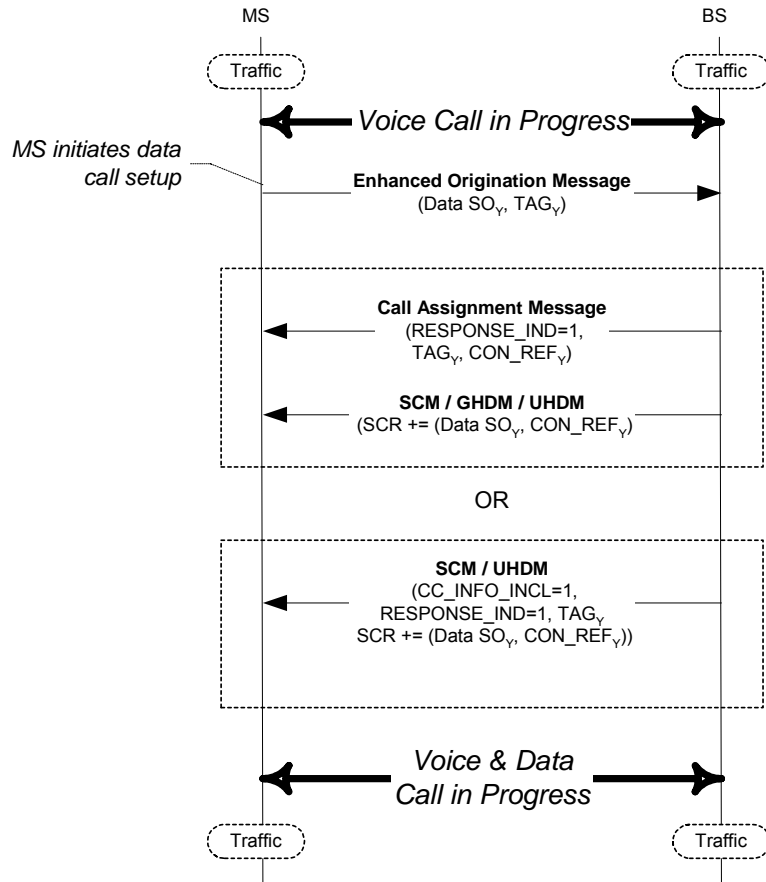
5 10.1.1.1 Definition

6 This test verifies that, when a voice call is already in progress, the mobile station can successfully
7 originate a data call.

8 10.1.1.2 Traceability (See [4]):

- 9 *2.6.4.1.2.2.5 (Waiting for Service Action Time Subfunction)*
- 10 *2.6.4.1.12 (Processing the Service Configuration Record)*
- 11 *2.6.4.2 (Traffic Channel Initialization Substate)*
- 12 *2.6.4.3 (Traffic Channel Substate)*
- 13 *2.6.4.4 (Release Substate)*
- 14 *2.6.10 (Call Control Processing)*
- 15 *2.7.2.3.2.32 (Enhanced Origination Message)*
- 16 *2.7.2.3.2.33 (Extended Flash With Information Message)*
- 17 *2.7.2.3.2.37 (Call Cancel Message)*
- 18 *2.7.2.3.2.29 (Resource Release Request Message)*
- 19 *2.7.2.3.2.30 (Resource Release Request Mini Message)*
- 20 *2.7.3.4 (Mobile Station Reject Order)*
- 21 *2.7.4.25 (Capability Information)*
- 22 *3.6.4.1.7 (Response to Enhanced Origination Message)*
- 23 *3.6.4.1.8 (Processing Resource Release Request Message and Resource Release Request Mini*
24 *Message)*
- 25 *3.6.4.2 (Traffic Channel Initialization Substate)*
- 26 *3.6.4.3 (Traffic Channel Substate)*
- 27 *3.6.8 (Call Control Processing)*
- 28 *3.7.2.3.2.13 (Extended System Parameters Message)*
- 29 *3.7.2.3.2.30 (ANSI-41 System Parameters Message)*
- 30 *3.7.3.3.2.20 (Service Connect Message)*
- 31 *3.7.3.3.2.36 (Universal Handoff Direction Message)*
- 32 *3.7.3.3.2.43 (Call Assignment Message)*
- 33 *3.7.3.3.2.44 (Extended Alert With Information Message)*
- 34 *3.7.3.3.2.45 (Extended Flash With Information Message)*

1 10.1.1.3 Call Flow Example(s)



2
3 Figure 10.1.1.3-1 Call Flow Example for mobile station initiated data call set up while voice call in
4 progress

5 10.1.1.4 Method of Measurement

- 6 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 7 b. Set up a voice call and ensure the voice call is in progress.
- 8 c. Ensure retry delay for call origination (i.e. RETRY_DELAY_s[001]) is currently not set
- 9 for the data service option.
- 10 d. Initiate a packet data call (e.g. SO33) at the mobile station. Verify the following:

- 11 1. The mobile station sends an *Enhanced Origination Message* with the
- 12 fields set as follows:

TAG	'0001'
SR_ID	'001' or '010'
SERVICE_OPTION	Service Option corresponding to the data call (e.g. SO33)
DRS	'1' (data available to send)

- 1 e. Instruct the base station to accept the call origination by sending the call assignment
 2 prior to service option connection establishment as follows. The base station sends a
 3 *Call Assignment Message* to the mobile station, prior to the expiration of the
 4 enhanced origination timer at the mobile station, with the fields set as follows:

RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the <i>Enhanced Origination Message</i>
ACCEPT_IND	'1' (call request accepted)
CON_REF	Connection reference value for this call

- 5 f. Instruct the base station to initiate service negotiation to establish the service option
 6 connection corresponding to this call assignment as follows. The base station sends
 7 a *Service Connect Message* to the mobile station with the fields set as follows:

SERVICE_OPTION (within SCR)	Same service option as received in <i>Enhanced Origination Message</i>
CON_REF (within SCR)	Same as sent in <i>Call Assignment Message</i>
CC_INFO_INCL	'0'

- 8 g. Upon receiving the *Service Connect Message* at the mobile station, verify the
 9 following:

- 10 1. After the action time of the *Service Connect Message*, data call user
 11 traffic can be exchanged successfully.
 12 2. The voice call is not dropped.

- 13 h. Repeat steps a-f with the following modifications:

- 14 1. In step f, instruct the base station to send a *General Handoff Direction*
 15 *Message* (with the *Service Configuration information record* included)
 16 instead of *Service Connect Message* to establish the service option
 17 connection.

- 18 i. The expected results are as specified in step g.

- 19 j. Repeat steps a-f with the following modifications:

- 20 1. In step f, instruct the base station to send a *Universal Handoff Direction*
 21 *Message* (with the *Service Configuration information record* included)
 22 instead of *Service Connect Message* to establish the service option
 23 connection.

- 24 k. The expected results are as specified in step g.

- 25 l. Repeat steps a through d.

- 26 m. Instruct the base station to accept the call origination by sending the call assignment
 27 as part of the service option connection establishment as follows. The base station

1 sends a *Service Connect Message* to the mobile station, prior to the expiration of the
 2 enhanced origination timer at the mobile station, with the fields set as follows:

3

SERVICE_OPTION (within SCR)	Same service option as received in <i>Enhanced Origination Message</i>
CON_REF (within SCR)	Connection reference for the service option connection corresponding to this call
CC_INFO_INCL	'1' (call assignment included)
NUM_CALLS_ASSIGN	'00000001' (single call assignment)
CON_REF	Connection reference corresponding to this call set to the same value as used in the SCR.
RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the <i>Enhanced Origination Message</i>

- 4 n. Upon receiving the *Service Connect Message* at the mobile station, verify the
 5 following:
- 6 1. After the action time of the *Service Connect Message*, data call user
 7 traffic can be exchanged successfully.
- 8 2. The voice call is not dropped.
- 9 o. Repeat steps l-m with the following modifications:
- 10 1. In step m, instruct the base station to send a *Universal Handoff Direction*
 11 *Message* instead of *Service Connect Message* to establish the service
 12 option connection.
- 13 p. The expected results are as specified in step n.
- 14 q. Repeat steps a-p with the following modifications:
- 15 1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.)
 16 requiring dedicated channels.
- 17 2. In steps g and n, upon receiving the *Service Connect Message* at the mobile
 18 station, verify the following:
- 19 a. After the action time of the *Service Connect Message*, data call user
 20 traffic can be exchanged successfully.
- 21 b. The teleservice call is not dropped after the establishment of the data
 22 call.

23 10.1.1.5 Minimum Standard

24 The mobile station shall comply with the requirements in the following steps: d, g, h, i, k, n, p and
 25 q.

1 **10.1.2 Base Station Test**

2 10.1.2.1 Definition

3 This test verifies that, when a voice call is already in progress, the base station can successfully
4 process a mobile station originated data call.

5 10.1.2.2 Traceability

6 See 10.1.1.2.

7 10.1.2.3 Call Flow Example(s)

8 See 10.1.1.3

9 10.1.2.4 Method of Measurement

- 10 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 11 b. Set up a voice call and ensure the voice call is in progress.
- 12 c. Ensure retry delay for call origination (i.e. RETRY_DELAY_S[001]) is currently not set
13 for the data service option.
- 14 d. Instruct the mobile station to initiate a packet data call (e.g. SO33) as follows. The
15 mobile station sends an *Enhanced Origination Message* with the fields set as follows:

TAG	'0001'
SR_ID	'001' or '010'
SERVICE_OPTION	Service Option corresponding to the data call (e.g. SO33)
DRS	'1' (data available to send)

- 16
- 17 e. Upon receiving the *Enhanced Origination Message* at the base station, verify that the
18 base station performs one of the following:
- 19 1. The base station sends the call assignment prior to service option
20 connection establishment as follows:
- 21 a) The base station sends a *Call Assignment Message* to accept the
22 call origination, prior to the expiration of the enhanced origination
23 timer at the mobile station, with the fields set as follows:

RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the <i>Enhanced Origination Message</i>
ACCEPT_IND	'1' (call request accepted)
CON_REF	Connection reference value for this call

- 24
- 25 b) Upon successful call assignment, service negotiation is initiated to
26 establish the service option connection corresponding to this call

1 assignment, as follows: The service negotiation is terminated via
 2 sending a *Service Connect Message*, *General Handoff Direction*
 3 *Message* (containing a SCR), or *Universal Handoff Direction*
 4 *Message* (containing a SCR), with the fields set as follows:

SERVICE_OPTION (within SCR)	A service option from the same service option group as received in <i>Enhanced Origination Message</i>
CON_REF (within SCR)	Same as sent in <i>Call Assignment Message</i>
CC_INFO_INCL (not applicable for the GHDM)	'0'

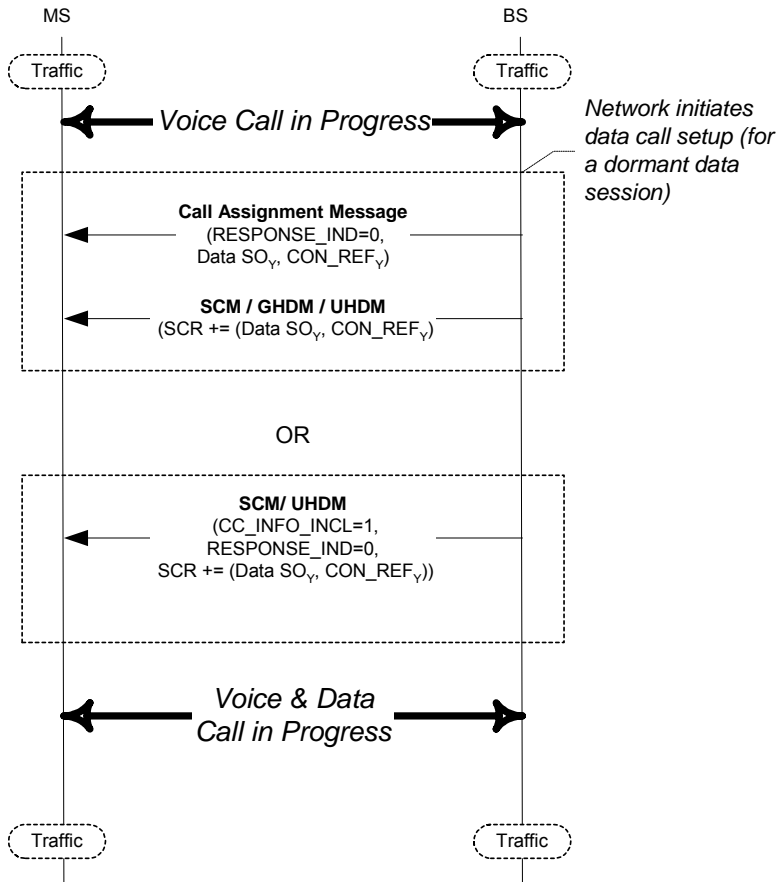
- 5 c) Upon receiving the *Service Connect Message*, *General Handoff*
 6 *Direction Message*, or *Universal Handoff Direction* at the mobile
 7 station, verify the following:
- 8 1. After the action time of the message, data call user traffic can be
 9 exchanged successfully.
 - 10 2. The voice call is not dropped.
- 11 2. The base station sends the call assignment as part of the service option
 12 connection establishment as follows:
- 13 a) The base station initiates service negotiation to establish the service
 14 option connection and assign the call. The service negotiation is
 15 terminated via sending a *Service Connect Message* or a *Universal*
 16 *Handoff Direction* (containing a SCR) with the fields set as follows:

SERVICE_OPTION (within SCR)	A service option from the same service option group as received in <i>Enhanced Origination Message</i>
CON_REF (within SCR)	Connection reference for the service option connection corresponding to this call
CC_INFO_INCL	'1' (call assignment included)
NUM_CALLS_ASSIGN	'0000001' (single call assignment)
CON_REF	Connection reference corresponding to this call set to the same value as used in the SCR.
RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the <i>Enhanced Origination Message</i>

- 17 b) Upon receiving the *Service Connect Message* or the *Universal*
 18 *Handoff Direction Message* at the mobile station, verify the following:
- 19 1. After the action time of the message, data call user traffic can be
 20 exchanged successfully.
 - 21 2. The voice call is not dropped.

22 f. Repeat steps a-e with the following modifications:

1 10.2.1.3 Call Flow Example(s)



2
3 Figure 10.2.1.3-1 Call Flow Example for Mobile Station terminated data call set up while voice call
4 in progress

5 10.2.1.4 Method of Measurement

- 6 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 7 b. Set up a packet data call (e.g. SO33). Ensure that the data call transitions to the
8 Dormant state. Ensure that the dedicated traffic channels are released.
- 9 c. Set up a voice call and ensure the voice call is in progress.
- 10 d. Instruct the base station to initiate a call to activate the dormant packet data session
11 by sending the call assignment prior to service option connection establishment as
12 follows. The base station sends a *Call Assignment Message* to the mobile station
13 with the fields set as follows:

RESPONSE_IND	'0' (base station initiated call assignment)
BYPASS_ALERT_ANSWER	'1' (since data call)
SO	Service option number corresponding to the data service (e.g. SO33)

CON_REF	Connection reference value for this call
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- e. Upon successful call assignment, instruct the base station to initiate service negotiation to establish the service option connection corresponding to this call assignment as follows. The base station sends a *Service Connect Message* to the mobile station with the fields set as follows:

SERVICE_OPTION (within SCR)	Same as sent in <i>Call Assignment Message</i>
CON_REF (within SCR)	Same as sent in <i>Call Assignment Message</i>
CC_INFO_INCL	'0'

6

7

- f. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

8

9

1. After the action time of the *Service Connect Message*, data call user traffic can be exchanged successfully.

10

2. The voice call is not dropped.

11

- g. Repeat steps a-f with the following modifications:

12

13

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15

1. In step e, instruct the base station to send a *General Handoff Direction Message* (with the *Service Configuration information record* included) instead of *Service Connect Message* to establish the service option connection.

16

2. The expected results are as specified in step f.

17

- h. Repeat steps a-f with the following modifications:

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21

1. In step e, instruct the base station to send a *Universal Handoff Direction Message* (with the *Service Configuration information record* included) instead of *Service Connect Message* to establish the service option connection.

22

2. The expected results are as specified in step f.

23

- i. Repeat steps a through c.

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- j. Instruct the base station to initiate a call to activate the dormant packet data session by sending the call assignment as part of the service option connection establishment as follows. The base station sends a *Service Connect Message* to the mobile station, with the fields set as follows:

28

SERVICE_OPTION (within SCR)	Service option number corresponding to the data service (e.g. SO33)
CON_REF (within SCR)	Connection reference for the service option connection corresponding to this call
CC_INFO_INCL	'1' (call assignment included)

NUM_CALLS_ASSIGN	'00000001' (single call assignment)
CON_REF	Connection reference corresponding to this call set to the same value as used in the SCR.
RESPONSE_IND	'0' (base station initiated call assignment)
BYPASS_ALERT_ANSWER	'1' (since data call)

- 1 k. Upon receiving the *Service Connect Message* at the mobile station, verify the
2 following:
- 3 1. After the action time of the *Service Connect Message*, data call user
4 traffic can be exchanged successfully.
- 5 2. The voice call is not dropped.
- 6 l. Repeat steps i-k with the following modifications:
- 7 1. In step j, instruct the base station to send a *Universal Handoff Direction*
8 *Message* instead of a *Service Connect Message* to establish the service
9 option connection.
- 10 2. The expected results are as specified in step k.
- 11 m. Repeat steps a-l with the following modifications:
- 12 1. In step c, setup a Teleservice call (e.g. SMS, Position Determination, etc.)
13 requiring dedicated channels.
- 14 2. In steps f and k, upon receiving the *Service Connect Message* at the mobile
15 station, verify the following:
- 16 a) After the action time of the *Service Connect Message*, data call user
17 traffic can be exchanged successfully.
- 18 b) The teleservice call is not dropped after the establishment of the data
19 call.

20 **10.2.1.5 Minimum Standard**

21 The mobile station shall comply with the requirements in the following steps: f, g, h, k, l, m,.

22 **10.2.2 Bass Station Test**

23 **10.2.2.1 Definition**

24 This test verifies that, when a voice call is already in progress, the base station can successfully
25 initiate a data call (for a dormant data session).

26 **10.2.2.2 Traceability**

27 See 10.1.1.2.

28 **10.2.2.3 Call Flow Example(s)**

29 See 10.2.1.3.

1 10.2.2.4 Method of Measurement

- 2 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 3 b. Set up a packet data call (e.g. SO33). Ensure that the data call transitions to the
- 4 Dormant state. Ensure that the dedicated traffic channels are released.
- 5 c. Set up a voice call and ensure the voice call is in progress.
- 6 d. Trigger network-initiated transition to active state for the dormant packet data
- 7 session. Verify that base station follows one of the following two sequence of events
- 8 to establish the data call:

9 1. The base station sends the call assignment prior to service option connection

10 establishment as follows.

- 11 a. The base station sends a *Call Assignment Message* to the mobile station with
- 12 the fields set as follows:

RESPONSE_IND	'0' (base station initiated call assignment)
BYPASS_ALERT_ANSWER	'1' (since data call)
SO	Service option number corresponding to the data service (e.g. SO33)
CON_REF	Connection reference value for this call

13

14 b. Upon successful call assignment, service negotiation is initiated to establish

15 the service option connection corresponding to this call assignment, as

16 follows:

- 17 1. The service negotiation is terminated via sending a *Service Connect*
- 18 *Message*, *General Handoff Direction Message* (containing a SCR), or a
- 19 *Universal Handoff Direction Message* (containing a SCR).
- 20 2. If the *Service Connect Message* or the *Universal Handoff Direction*
- 21 *Message* is used to terminate the service negotiation, the
- 22 CC_INFO_INCL (call assignment included) field is set to '0' in these
- 23 messages.
- 24 3. The service option connection is established with the same connection
- 25 reference (CON_REF) as used in the corresponding *Call Assignment*
- 26 *Message*.

27 c. After the action time of the message used to establish the service option

28 connection corresponding to this call, data call user traffic is exchanged

29 successfully.

30 d. The voice call is not dropped.

31 2. The base station sends the call assignment as part of the service option connection

32 establishment as follows:

- 33 a. The base station initiates service negotiation to establish the service option
- 34 connection and assign the call. The service negotiation is terminated via

1 sending a *Service Connect Message* or a *Universal Handoff Direction*
 2 *Message* (containing a SCR) with the fields set as follows:

CC_INFO_INCL	'1' (call assignment included)
NUM_CALLS_ASSIGN	'00000001' (single call assignment)
CON_REF	Connection reference corresponding to this call set to the same value as used in the SCR.
RESPONSE_IND	'0' (base station initiated call assignment)
BYPASS_ALERT_ANSWER	'1' (since data call)

- 3
- 4 b. After the action time of the message used to establish the service option
 5 connection corresponding to this call, data call user traffic is exchanged
 6 successfully.
- 7 c. The voice call is not dropped.
- 8 e. Repeat steps a-d with the following modifications:
- 9 1. In step c, setup a Teleservice call (e.g. SMS, Position Determination, etc.)
 10 requiring dedicated channels.
- 11 2. In step d, the teleservice call is not dropped after the establishment of the data
 12 call.

13 **10.2.2.5 Minimum Standard**

14 The base station shall comply with the requirements in the following steps: d and e.

15 **10.3 Set up Mobile Station Originated Voice Call while Data Call**
 16 **or Teleservice on Dedicated Channels are in Progress**

17 **10.3.1 Mobile Station Test**

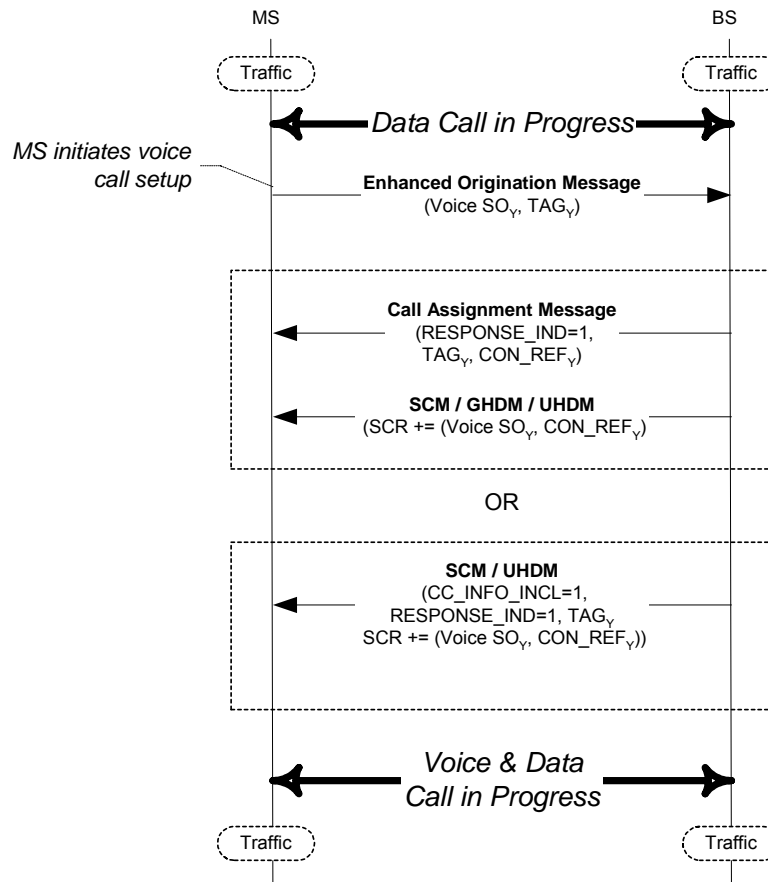
18 **10.3.1.1 Definition**

19 This test verifies that, when a data call is already in progress, the mobile station can successfully
 20 originate a voice call.

21 **10.3.1.2 Traceability**

22 See 10.1.1.2

1 10.3.1.3 Call Flow Example(s)



2
3 Figure 10.3.1.3-1 Call Flow Example for mobile station initiated voice call set up while data call in
4 progress

5 10.3.1.4 Method of Measurement

- 6 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 7 b. Set up a packet data call (e.g. SO33). Wait till the data call is in progress. Ensure
8 sufficient traffic is exchanged to keep the data instance in active state.
- 9 c. Initiate a voice call at the mobile station.
- 10 d. Ensure that the mobile station sends an *Enhanced Origination Message* with the
11 fields set as follows:

TAG	'0001'
SR_ID	'010'
SERVICE_OPTION	Service Option corresponding to the voice call (e.g. SO3)

- 12
- 13 e. Instruct the base station to accept the call origination by sending the call assignment
14 prior to service option connection establishment as follows. The base station sends a

1 *Call Assignment Message* to the mobile station, prior to the expiration of the
 2 enhanced origination timer at the mobile station, with the fields set as follows:

RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the <i>Enhanced Origination Message</i>
ACCEPT_IND	'1' (call request accepted)
CON_REF	Connection reference value for this call

3 f. Upon successful call assignment, instruct the base station to initiate service
 4 negotiation to establish the service option connection corresponding to this call
 5 assignment as follows. The base station sends a *Service Connect Message* to the
 6 mobile station with the fields set as follows:

SERVICE_OPTION (within SCR)	A service option from the same service option group as received in <i>Enhanced Origination Message</i>
CON_REF (within SCR)	Same as sent in <i>Call Assignment Message</i>
CC_INFO_INCL	'0'

7 g. Upon receiving the *Service Connect Message* at the mobile station, verify the
 8 following:
 9 1. After the action time of the *Service Connect Message*, voice call user traffic
 10 can be exchanged successfully.
 11 1. The data call is not dropped.

12 h. Repeat steps a-f with the following modifications,
 13 In step f, instruct the base station to send a *General Handoff Direction Message* (with the
 14 *Service Configuration information record* included) instead of a *Service Connect*
 15 *Message* to establish the service option connection.

16 i. Upon receiving the *General Handoff Direction Message* at the mobile station, verify
 17 the following:
 18 1. After the action time of the *General Handoff Direction Message*, voice call
 19 user traffic can be exchanged successfully.
 20 2. The data call is not dropped.

21 j. Repeat steps a-f with the following modifications,
 22 1. In step f, instruct the base station to send a *Universal Handoff Direction*
 23 *Message* (with the *Service Configuration information record* included) instead
 24 of a *Service Connect Message* to establish the service option connection.

25 k. Upon receiving the *Universal Handoff Direction Message* at the mobile station, verify
 26 the following:
 27 1. After the action time of the *Universal Handoff Direction Message*,
 28 voice call user traffic can be exchanged successfully.

- 1 can be exchanged successfully.
 2 b. The teleservice call is not dropped after the establishment of the voice
 3 call.

4 **10.3.1.5 Minimum Standard**

5 The mobile station shall comply with the requirements in the following steps: g, i, k, n, p and q.

6 **10.3.2 Base Station Test**

7 **10.3.2.1 Definition**

8 This test verifies that, when a data call is already in progress, the base station can successfully
 9 process a mobile station originated voice call.

10 **10.3.2.2 Traceability**

11 See 10.1.1.2.

12 **10.3.2.3 Call Flow Example(s)**

13 See 10.3.1.3

14 **10.3.2.4 Method of Measurement**

- 15 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
 16 b. Set up a data call and ensure the data call is in progress. Ensure sufficient traffic is
 17 exchanged to keep the data instance in active state.
 18 c. Instruct the mobile station to initiate a voice call (e.g. SO1). Ensure the mobile station
 19 sends an *Enhanced Origination Message* with the fields set as follows:

TAG	'0001'
SR_ID	'010'
SERVICE_OPTION	Service Option corresponding to the voice call (e.g. SO3)

- 20
 21 d. Upon receiving the *Enhanced Origination Message* at the base station, verify that the
 22 base station performs one of the following:

- 23 1. The base station sends the call assignment prior to service option
 24 connection establishment as follows:
 25 a) The base station sends a *Call Assignment Message* to accept the
 26 call origination, prior to the expiration of the enhanced origination
 27 timer at the mobile station, with the fields set as follows:

RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the <i>Enhanced Origination Message</i>
ACCEPT_IND	'1' (call request accepted)

CON_REF	Connection reference value for this call
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- b) Upon successful call assignment, service negotiation is initiated to establish the service option connection corresponding to this call assignment. The service negotiation is terminated via sending a *Service Connect Message*, *General Handoff Direction Message* (containing a SCR), or *Universal Handoff Direction Message* (containing a SCR), with the fields set as follows:

SERVICE_OPTION (within SCR)	A service option from the same service option group as received in <i>Enhanced Origination Message</i>
CON_REF (within SCR)	Same as sent in <i>Call Assignment Message</i>
CC_INFO_INCL (not applicable for the GHDM)	'0'

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- c) Upon receiving the *Service Connect Message*, *General Handoff Direction Message*, or a *Universal Handoff Direction Message* at the mobile station, verify the following:

1. After the action time of the message, voice call user traffic can be exchanged successfully.
 1. The data call is not dropped.
2. The base station sends the call assignment as part of the service option connection establishment as follows:

- a) The base station initiates service negotiation to establish the service option connection and assign the call. The service negotiation is terminated via sending a *Service Connect Message* or a *Universal Handoff Direction Message* (containing a SCR) with the fields set as follows:

SERVICE_OPTION (within SCR)	A service option from the same service option group as received in the <i>Enhanced Origination Message</i>
CON_REF (within SCR)	Connection reference for the service option connection corresponding to this call
CC_INFO_INCL	'1' (call assignment included)
NUM_CALLS_ASSIGN	'0000001' (single call assignment)
CON_REF	Connection reference corresponding to this call set to the same value as used in the SCR.
RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the <i>Enhanced Origination Message</i>

21
22

- b) Upon receiving the *Service Connect Message* or the *Universal Handoff Direction Message* at the mobile station, verify the following:

- 1 1. After the action time of the message, voice call user traffic can
- 2 be exchanged successfully.
- 3 1. The data call is not dropped.
- 4 e. Repeat steps a-d with the following modifications:
- 5 1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.)
- 6 requiring dedicated channels.
- 7 2. In steps d, upon receiving the *Service Connect Message, General Handoff*
- 8 *Direction Message* or *Universal Handoff Direction Message* at the mobile
- 9 station, verify the following:
- 10 a. After the action time of the message received, voice call user traffic
- 11 can be exchanged successfully.
- 12 b. The teleservice call is not dropped after the establishment of the voice
- 13 call.

14 10.3.2.5 Minimum Standard

15 The base station shall comply with the requirements in the following steps: d and e.

16 **10.4 Set up Mobile Station terminated Voice Call or**

17 **Teleservice Using Dedicated Channels are while Data**

18 **Call in Progress**

19 **10.4.1 Mobile Station Test**

20 10.4.1.1 Definition

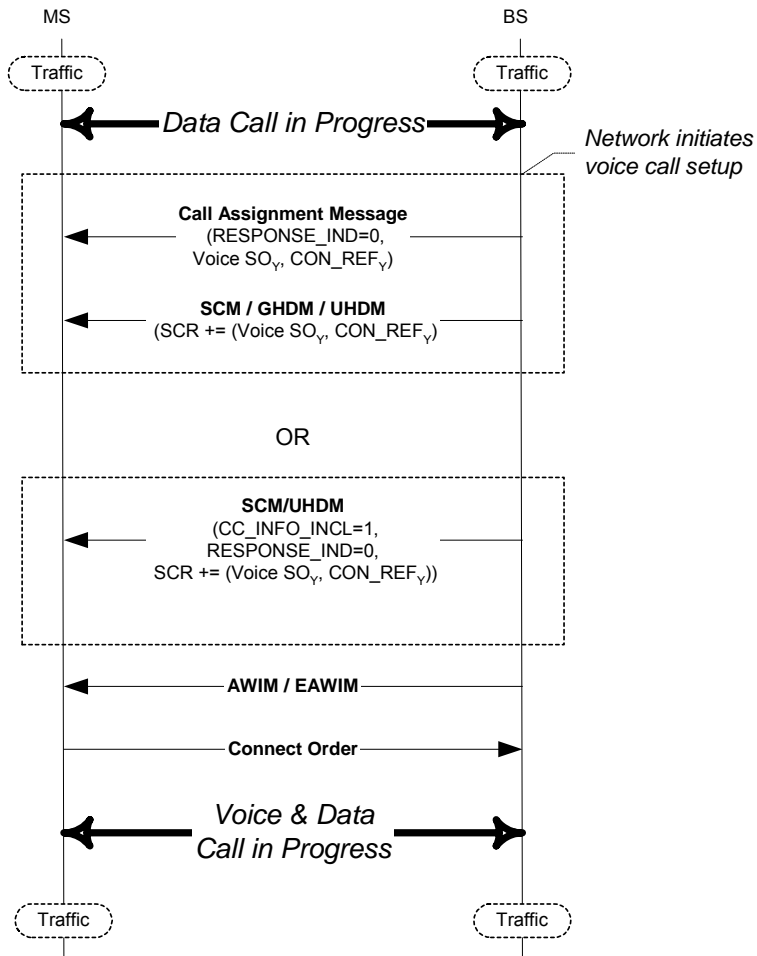
21 This test verifies that, when a data call is already in progress, the mobile station can successfully

22 process a base station initiated voice call.

23 10.4.1.2 Traceability

24 See 10.1.1.2.

1 10.4.1.3 Call Flow Example(s)



2
3 Figure 10.4.1.3-1 Call Flow Example for Mobile Station terminated voice call set up while data call
4 in progress
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6 10.4.1.4 Method of Measurement

- 7 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
8 b. Set up a packet data call (e.g. SO33). Wait till the packet data call is in progress.
9 Ensure sufficient traffic is exchanged to keep the data instance in active state.
10 c. Instruct the base station to initiate a voice call by sending the call assignment prior to
11 service option connection establishment as follows. The base station sends a *Call*
12 *Assignment Message* to the mobile station with the fields set as follows:

RESPONSE_IND	'0' (base station initiated call assignment)
BYPASS_ALERT_ANSWER	'0' (since voice call)
SO	Service option number corresponding to the voice service (e.g. SO3)

CON_REF	Connection reference value for this call
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- d. Upon successful call assignment, instruct the base station to initiate service negotiation to establish the service option connection corresponding to this call assignment as follows. The base station sends a *Service Connect Message* to the mobile station with the fields set as follows:

SERVICE_OPTION (within SCR)	Same as sent in the <i>Call Assignment Message</i>
CON_REF (within SCR)	Same as sent in the <i>Call Assignment Message</i>
CC_INFO_INCL	'0'

- e. Upon receiving the *Service Connect Message* at the mobile station, verify the following:
 1. After the action time of the *Service Connect Message*, the base station sends an *Extended Alert With Information Message*. Verify that the MS alerts the user, and after the user answers, verify that the MS sends a *connect order* and verify that voice call user traffic can be exchanged successfully.
 2. The data call is not dropped.
- f. Repeat steps a-d with the following modification. In step d, instruct the base station to send a *General Handoff Direction Message* (with the *Service Configuration information record* included) instead of a *Service Connect Message* to establish the service option connection.
- g. Upon receiving the *General Handoff Direction Message* at the mobile station, verify the following:
 1. After the action time of the *General Handoff Direction Message*, the base station sends an *Extended Alert With Information Message*. Verify that the MS alerts the user, and after the user answers, verify that the MS sends a *connect order* and verify that voice call user traffic can be exchanged successfully.
 2. The data call is not dropped .
- h. Repeat steps a-d with the following modification. In step d, instruct the base station to send a *Universal Handoff Direction Message* (with the *Service Configuration information record* included) instead of a *Service Connect Message* to establish the service option connection.
- i. Upon receiving the *Universal Handoff Direction Message* at the mobile station, verify the following:
 1. After the action time of the *Universal Handoff Direction Message*, the base station sends an *Extended Alert With Information Message*. Verify that the MS alerts the user, and after the user answers, verify that the

1 MS sends a *connect order* and verify that voice call user traffic can be
2 exchanged successfully.

3 2. The data call is not dropped.

4 j. Repeat steps a through b.

5 k. Instruct the base station to initiate a voice call by sending the call assignment as part
6 of the service option connection establishment as follows. The base station sends a
7 *Service Connect Message* to the mobile station, with the fields set as follows:

8

SERVICE_OPTION (within SCR)	Service option number corresponding to the voice service (e.g. SO3)
CON_REF (within SCR)	Connection reference for the service option connection corresponding to this call
CC_INFO_INCL	'1' (call assignment included)
NUM_CALLS_ASSIGN	'0000001' (single call assignment)
CON_REF	Connection reference corresponding to this call set to the same value as used in the SCR.
RESPONSE_IND	'0' (base station initiated call assignment)
BYPASS_ALERT_ANSWE R	'0' (since voice call)

9 l. Upon receiving the *Service Connect Message* at the mobile station, verify the
10 following:

11 1. After the action time of the *Service Connect Message*, the base station
12 sends an *Extended Alert With Information Message*. Verify that the MS
13 alerts the user, and after the user answers, verify that the MS sends a
14 *connect order* and verify that voice call user traffic can be exchanged
15 successfully.

16 2. The data call is not dropped.

17 m. Repeat steps j-k with the following modifications: In step k, instruct the base station to
18 send a *Universal Handoff Direction Message* instead of a *Service Connect Message*
19 to establish the service option connection.

20 n. Upon receiving the *Universal Handoff Direction Message* at the mobile station, verify
21 the following:

22 1. After the action time of the *Universal Handoff Direction Message*, the
23 base station sends an *Extended Alert With Information Message*. Verify
24 that the MS alerts the user, and after the user answers, verify that the
25 MS sends a *connect order* and verify that voice call user traffic can be
26 exchanged successfully.

27 2. The data call is not dropped.

28 p. Repeat steps a-o with the following modifications:

- 1 1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.)
- 2 requiring dedicated channels.
- 3 2. In steps e, g, i, l and o, upon receiving the *Service Connect Message*,
- 4 *General Handoff Direction Message* or *Universal Handoff Direction Message*
- 5 at the mobile station, verify the following:
- 6 a. After the action time of the message received, voice call user traffic
- 7 can be exchanged successfully.
- 8 b. The teleservice call is not dropped after the establishment of the
- 9 voice call.

10 10.4.1.5 Minimum Standard

11 The mobile station shall comply with the requirements in the following steps: e, g, i, l, n, and o.

12 **10.4.2 Base Station Test**

13 10.4.2.1 Definition

14 This test verifies that, when a data call is already in progress, the base station can successfully

15 initiate a voice call.

16 10.4.2.2 Traceability

17 See 10.1.1.2.

18 10.4.2.3 Call Flow Example(s)

19 See 10.4.1.3

20 10.4.2.4 Method of Measurement

- 21 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 22 b. Set up a packet data call (e.g. SO33). Wait till the packet call is in progress. Ensure
- 23 sufficient traffic is exchanged to keep the data instance in active state.
- 24 c. Initiate a network originated voice call. Verify that base station follows one of the
- 25 following two sequence of events to establish the voice call:
- 26 1. The base station sends the call assignment prior to service option
- 27 connection establishment as follows.
- 28 a) The base station sends a *Call Assignment Message* to the mobile
- 29 station with the fields set as follows:

RESPONSE_IND	'0' (base station initiated call assignment)
BYPASS_ALERT_ANSWER	'0' (since voice call)
SO	Service option number corresponding to the voice service (e.g. SO3)
CON_REF	Connection reference value for this call

30

- 1 b) Upon successful call assignment, service negotiation is initiated to
 2 establish the service option connection corresponding to this call
 3 assignment, as follows:
- 4 1. The service negotiation is terminated via sending a *Service*
 5 *Connect Message*, *General Handoff Direction Message*
 6 (containing a SCR), or a *Universal Handoff Direction Message*
 7 (containing a SCR).
- 8 1. If the *Service Connect Message* or the *Universal Handoff*
 9 *Direction Message* is used to terminate the service negotiation,
 10 the CC_INFO_INCL (call assignment included) field is set to '0'
 11 in these messages.
- 12 2. The service option connection is established with the same
 13 connection reference (CON_REF) as used in the corresponding
 14 *Call Assignment Message*.
- 15 c) After the action time of the message used to establish the service
 16 option connection corresponding to this call, verify that the base
 17 station sends an *Alert With Information Message* or *Extended Alert*
 18 *With Information Message*. Instruct the mobile station to send a
 19 *connect order*, and verify that voice call user traffic is exchanged
 20 successfully.
- 21 d) The data call is not dropped.
- 22 2. The base station sends the call assignment as part of the service option
 23 connection establishment as follows.
- 24 a) The base station initiates service negotiation to establish the service
 25 option connection and assign the call. The service negotiation is
 26 terminated via sending a *Service Connect Message* or *Universal*
 27 *Handoff Direction Message* (containing a SCR) with the following
 28 fields set as follows:

CC_INFO_INCL	'1' (call assignment included)
NUM_CALLS_ASSIGN	'00000001' (single call assignment)
CON_REF	Connection reference corresponding to this call set to the same value as used in the SCR.
RESPONSE_IND	'0' (base station initiated call assignment)
BYPASS_ALERT_ANSWER	'0' (since voice call)

- 29
- 30 b) After the action time of the message used to establish the service
 31 option connection corresponding to this call, verify that the base
 32 station sends an *Alert With Information Message* or *Extended Alert*
 33 *With Information Message*. Instruct the mobile station to send a
 34 *connect order*, and verify that voice call user traffic is exchanged
 35 successfully.
- 36 c) The data call is not dropped.

- 1 d. Repeat steps a-c with the following modifications:
- 2 1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.)
- 3 requiring dedicated channels.
- 4 2. In step c, the teleservice call is not dropped after the establishment of the voice
- 5 call.

6 10.4.2.5 Minimum Standard

7 The base station shall comply with the requirements in the following steps: c and d.

8 **10.5 Mobile Station Release of a Single Call While Voice and**

9 **Data Calls are in Progress**

10 **10.5.1 Mobile Station Test**

11 10.5.1.1 Definition

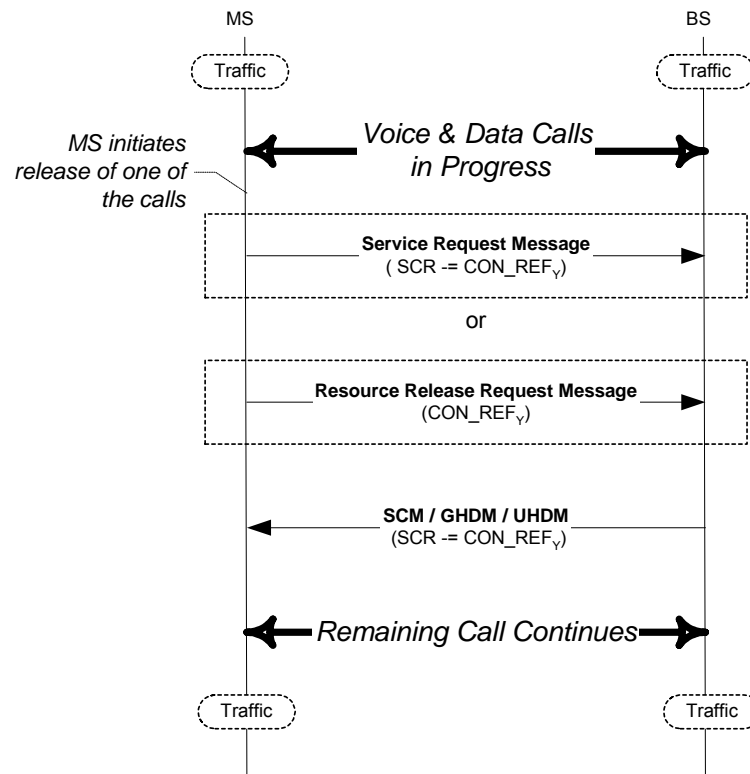
12 This test verifies that, when both voice and data calls are in progress, mobile station can release

13 one of the calls successfully and the other call continues uninterrupted.

14 10.5.1.2 Traceability

15 See 10.1.1.2.

1 10.5.1.3 Call Flow Example(s)



2
3 Figure 10.5.1.3-1 Call Flow Example for Mobile Station release of a single call while both voice
4 and data calls in progress

5 10.5.1.4 Method of Measurement

- 6 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 7 b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice
8 call and the data call are in progress. Ensure sufficient traffic is exchanged to keep
9 the data instance in active state.
- 10 c. Release the voice call at the mobile station. Verify that the mobile station sends a
11 *Service Request Message* or a *Resource Release Request (Mini) Message*
12 requesting the release of the voice call as follows:
- 13 1. If the mobile station sends a *Service Request Message*, the service
14 option connection record corresponding to the voice call is omitted from
15 the *Service Configuration information record* included in this message.
 - 16 2. If the mobile station sends a *Resource Release Request (Mini) Message*,
17 the following fields shall be set as follows:

GATING_DISCONNECT_IND	'0' (release of a call requested)
-----------------------	-----------------------------------

CON_REF	Connection reference corresponding to the voice call to be released
---------	---

- 1 d. Upon receiving the *Service Request Message* or the *Resource Release Request*
2 (*Mini*) *Message* requesting the release of the voice call, instruct the base station to
3 grant the request as follows: the base station sends a *Service Connect Message* to
4 the mobile station where the service option connection record corresponding to the
5 voice call is omitted from the *Service Configuration information record* included in this
6 message.
- 7 e. Upon receiving the *Service Connect Message* at the mobile station, verify the
8 following:
- 9 1. After the action time of the *Service Connect Message* used to release
10 the voice call, the voice traffic no longer flows.
- 11 2. The data call is not dropped.
- 12 f. Repeat steps a through d with the following modifications: In step d, instead of the
13 *Service Connect Message*, instruct the base station to send a *General Handoff*
14 *Direction Message* (with SCR) where the service option connection record
15 corresponding to the voice call is omitted from the *Service Configuration information*
16 *record* included in this message.
- 17
- 18 g. Upon receiving the *General Handoff Direction Message* (with SCR) at the mobile
19 station, verify the following:
- 20 1. After the action time of the *General Handoff Direction Message* (with
21 SCR) used to release the voice call, the voice traffic no longer flows.
- 22 2. The data call is not dropped.
- 23 h. Repeat steps a through d with the following modifications: In step d, instead of the
24 *Service Connect Message*, instruct the base station to send a *Universal Handoff*
25 *Direction Message* (with SCR) where the service option connection record
26 corresponding to the voice call is omitted from the *Service Configuration information*
27 *record* included in this message.
- 28 i. Upon receiving the *Universal Handoff Direction Message* (with SCR) at the mobile
29 station, verify the following:
- 30 1. After the action time of the *Universal Handoff Direction Message* (with
31 SCR) used to release the voice call, the voice traffic no longer flows.
- 32 2. The data call is not dropped.
- 33 j. Repeat steps a though g with the following modifications: In step c, initiate the
34 release of the data call at the mobile station. The expected results are as specified in
35 steps c, e, h, and k with the modification that the data call is not present and the
36 voice call user traffic is exchanged successfully.

1 **10.5.1.5 Minimum Standard**

2 The mobile station shall comply with the requirements in the following steps: c, e, g and i for all
3 test cases.

4 **10.5.2 Base Station Test**

5 **10.5.2.1 Definition**

6 This test verifies that, when both voice and data calls are in progress, base station can
7 successfully process mobile station release of one of the calls and the other call continues
8 uninterrupted.

9 **10.5.2.2 Traceability**

10 See 10.1.1.2.

11 **10.5.2.3 Call Flow Example(s)**

12 See 10.5.1.3.

13 **10.5.2.4 Method of Measurement**

- 14 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 15 b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice
16 call and the data call are in progress. Ensure sufficient traffic is exchanged to keep
17 the data instance in active state.
- 18 c. Instruct the mobile station to release the voice call as follows: the mobile station
19 sends a *Service Request Message* with the service option connection record
20 corresponding to the voice call omitted from the *Service Configuration information*
21 *record* included in this message.
- 22 d. Upon receiving the *Service Request Message*, verify that the base station does one
23 of the following to grant this request: the base station sends a *Service Connect*
24 *Message*, *General Handoff Direction Message* (with SCR), or a *Universal Handoff*
25 *Direction Message* (with SCR) to the mobile station where the service option
26 connection record corresponding to the voice call is omitted from the *Service*
27 *Configuration information record* included in this message.
- 28 e. Upon receiving the *Service Connect Message*, *General Handoff Direction Message*
29 (with SCR), or a *Universal Handoff Direction Message* (with SCR) at the mobile
30 station, verify the following:
- 31 1. After the action time of this message used to release the voice call, the
32 voice traffic no longer flows.
- 33 2. The data call is not dropped.
- 34 f. Repeat steps a through c with the following modifications: In step c, instruct the
35 mobile station to release the voice call as follows: The mobile station sends a
36 *Resource Release Request (Mini) Message* with the following fields set as follows:

GATING_DISCONNECT_IND	'0' (release of a call requested)
-----------------------	-----------------------------------

CON_REF	Connection reference corresponding to the voice call to be released
---------	---

- 1 g. Upon receiving the *Resource Release Request (Mini) Message*, verify that the base
- 2 station does one of the following to grant this request: the base station sends a
- 3 *Service Connect Message*, *General Handoff Direction Message* (with SCR), or a
- 4 *Universal Handoff Direction Message* (with SCR) to the mobile station where the
- 5 service option connection record corresponding to the voice call is omitted from the
- 6 *Service Configuration information record* included in this message.

- 7 h. Upon receiving the *Service Connect Message*, *General Handoff Direction Message*
- 8 (with SCR), or a *Universal Handoff Direction Message* (with SCR) at the mobile
- 9 station, verify the following:
 - 10 1. After the action time of this message used to release the voice call, the
 - 11 voice traffic no longer flows.
 - 12 2. The data call is not dropped.

- 13 i. Repeat steps a through h with the following modifications: In step c, instruct the
- 14 mobile station to release the data call instead of the voice call.

- 15 j. The expected results are as specified in steps d, e, g and h.

16 10.5.2.5 Minimum Standard

17 The base station shall comply with the requirements in the following steps: d, e, g and h.

18 **10.6 Base Station Release of a Single Call While Voice and**

19 **Data Calls are in Progress**

20 **10.6.1 Mobile Station Test**

21 10.6.1.1 Definition

22 This test verifies that, when both voice and data calls are in progress, mobile station can

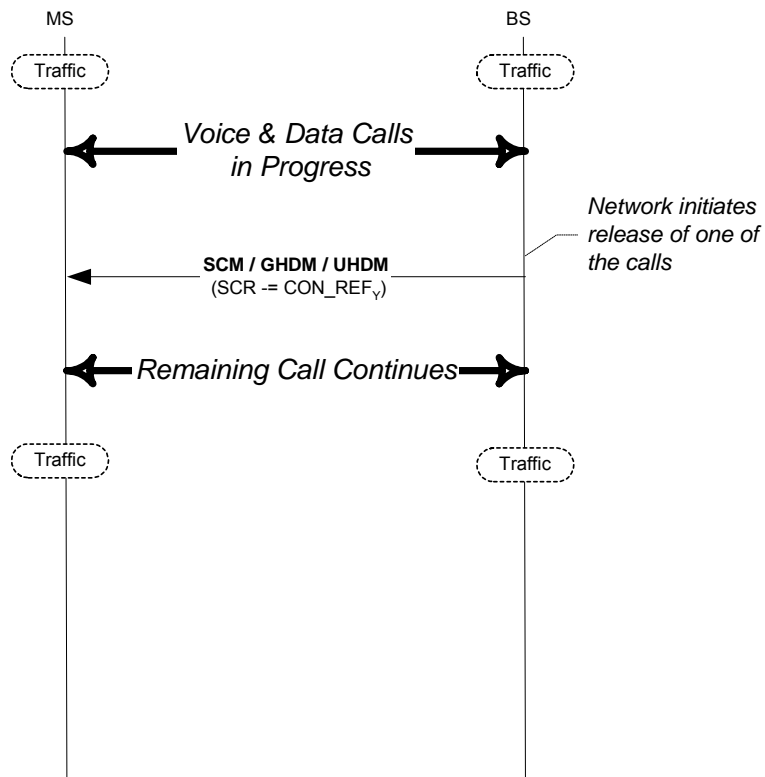
23 successfully process base station release of one of the calls and the other call continues

24 uninterrupted.

25 10.6.1.2 Traceability

26 See 10.1.1.2.

1 10.6.1.3 Call Flow Example(s)



2
3 Figure 10.6.1.3-1 Call Flow Example for base station release of a single call while both voice and
4 data calls in progress

5 10.6.1.4 Method of Measurement

- 6 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 7 b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice
8 call and the data call are in progress. Ensure sufficient traffic is exchanged to keep
9 the data instance in active state.
- 10 c. Instruct the base station to initiate the release of the voice call as follows: the base
11 station sends a *Service Connect Message* to the mobile station where the service
12 option connection record corresponding to the voice call is omitted from the *Service*
13 *Configuration information record* included in this message.
- 14 d. Upon receiving the *Service Connect Message* at the mobile station, verify the
15 following:
- 16 1. At the action time of the *Service Connect Message* used to release the
17 voice call, the voice traffic no longer flows.
 - 18 2. The data call is not dropped.

- 1 e. Repeat steps a through c with the following modifications: In step c, instead of the
2 *Service Connect Message*, instruct the base station to send a *General Handoff*
3 *Direction Message* (with SCR) where the service option connection record
4 corresponding to the voice call is omitted from the *Service Configuration information*
5 *record* included in this message.
- 6 f. Upon receiving the *General Handoff Direction Message* (with SCR) at the mobile
7 station, verify the following:
- 8 1. At the action time of the *General Handoff Direction Message* (with SCR)
9 used to release the voice call, the voice traffic no longer flows.
- 10 2. The data call is not dropped.
- 11 g. Repeat steps a through c with the following modifications: In step c, instead of the
12 *Service Connect Message*, instruct the base station to send a *Universal Handoff*
13 *Direction Message* (with SCR) where the service option connection record
14 corresponding to the voice call is omitted from the *Service Configuration information*
15 *record* included in this message.
- 16 h. Upon receiving the *Universal Handoff Direction Message* (with SCR) at the mobile
17 station, verify the following:
- 18 1. At the action time of the *Universal Handoff Direction Message* (with
19 SCR) used to release the voice call, the voice traffic no longer flows.
- 20 2. The data call is not dropped.
- 21 i. Repeat steps a through j with the following modifications: In step c, instruct the base
22 station to release the data call instead of the voice call.
- 23 .
- 24 j. The expected results are as specified in steps d, g and j (with the modification that
25 the voice call remains and the data call is dropped).

26 10.6.1.5 Minimum Standard

27 The mobile station shall comply with the requirements in the following steps: d, f and h for all test
28 cases.

29 **10.6.2 Base Station Test**

30 10.6.2.1 Definition

31 This test verifies that, when both voice and data calls are in progress, base station can
32 successfully release one of the calls and the other call continues uninterrupted.

33 10.6.2.2 Traceability

34 See 10.1.1.2.

35 10.6.2.3 Call Flow Example(s)

36 See 10.6.1.3.

1 10.6.2.4 Method of Measurement

- 2 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 3 b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice
4 call and the data call are in progress. Ensure sufficient traffic is exchanged to keep
5 the data instance in active state.
- 6 c. Trigger a network initiated release of the voice call.
- 7 d. Verify that the base station does one of the following to release the voice call: the
8 base station sends a *Service Connect Message*, *General Handoff Direction Message*
9 (with SCR), or a *Universal Handoff Direction Message* (with SCR) to the mobile
10 station where the service option connection record corresponding to the voice call is
11 omitted from the *Service Configuration information record* included in this message.
- 12 e. Upon receiving the *Service Connect Message*, *General Handoff Direction Message*
13 (with SCR), or a *Universal Handoff Direction Message* (with SCR) at the mobile
14 station, verify the following:
 - 15 1. At the action time of this message used to release the voice call, the
16 voice traffic no longer flows.
 - 17 2. The data call is not dropped.
- 18 f. Repeat steps a though e with the following modifications: In step c, trigger a network
19 initiated release of the data call instead of the voice call.
- 20 g. The expected results are as specified in steps d and e with the modification that the
21 voice call remains and the data call is dropped.

22 10.6.2.5 Minimum Standard

23
24 The base station shall comply with the requirements in the following steps: d and e for all test
25 cases.

26 **10.7 Mobile Station Release of All Calls While Voice and Data** 27 **Calls are in Progress**

28 **10.7.1 Mobile Station Test**

29 N/A

30 **10.7.2 Base Station Test**

31 10.7.2.1 Definition

32 This test verifies that, when both voice and data calls are in progress, base station can
33 successfully process mobile station simultaneous release of both calls.

34 10.7.2.2 Traceability

35 See 10.1.1.2.

1 10.7.2.3 Call Flow Example(s)

2 None

3 10.7.2.4 Method of Measurement

- 4 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 5 b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice
- 6 call and the data call are in progress. Ensure sufficient traffic is exchanged to keep
- 7 the data instance in active state.
- 8 c. Instruct the mobile station to simultaneously release both the voice call and the data
- 9 call by sending a *Release Order* to the base station.
- 10 d. Upon receiving the *Release Order*, verify that the base station grants this request by
- 11 sending a *Release Order* to the mobile station.
- 12 e. Upon receiving the *Release Order* at the mobile station, verify the following:
- 13 1. The voice call user traffic no longer flows
- 14 2. The data call user traffic no longer flows
- 15 3. Dedicated traffic channels are released.

16 10.7.2.5 Minimum Standard

17 The base station shall comply with the requirements in the following steps: d, e.

18 **10.8 Base Station Release of All Calls While Voice and Data**

19 **Calls are in Progress**

20 **10.8.1 Mobile Station Test**

21 10.8.1.1 Definition

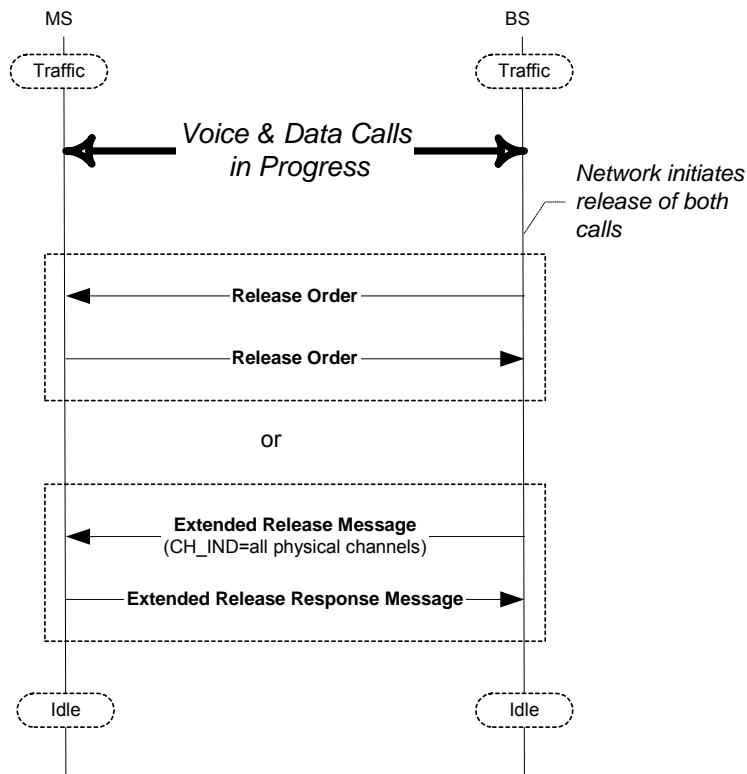
22 This test verifies that, when both voice and data calls are in progress, mobile station can

23 successfully process base station simultaneous release of both calls.

24 10.8.1.2 Traceability

25 See 10.1.1.2.

1 10.8.1.3 Call Flow Example(s)



2
3 Figure 10.8.1.3-1 Call Flow Example for base station release both calls while both voice and data
4 calls in progress

5 10.8.1.4 Method of Measurement

- 6 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 7 b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice
8 call and the data call are in progress. Ensure sufficient traffic is exchanged to keep
9 the data instance in active state.
- 10 c. Instruct the base station to simultaneously release both the voice call and the data
11 call by sending a *Release Order* to the mobile station.
- 12 d. Upon receiving the *Release Order*, verify that the mobile station sends a *Release*
13 *Order* to the base station.
- 14 e. Upon receiving the *Release Order* at the base station, verify the following:
- 15 1. The voice call user traffic no longer flows
 - 16 2. The data call user traffic no longer flows
 - 17 3. Dedicated traffic channels are released.
- 18 f. Repeat steps a through e with the following modifications:
- 19 1. In step c, instruct the base station to send an *Extended Release (Mini)*

1 *Message* to simultaneously release both the voice call and the data call
2 as follows: The base station sets the CH_IND field of the *Extended*
3 *Release (Mini) Message* to all the dedicated physical channels currently
4 established.

5 2. Upon receiving the *Extended Release (Mini) Message*, verify that the
6 mobile station sends an *Extended Release Response (Mini) Message* to
7 the base station.

8 g. Upon receiving the *Extended Release Response (Mini) Message* at the base station,
9 verify the following:

10 1. The voice call user traffic no longer flows

11 2. The data call user traffic no longer flows

12 3. Dedicated traffic channels are released.

13 10.8.1.5 Minimum Standard

14 The mobile station shall comply with the requirements in the following steps: d, e, f and g.

16 **10.8.2 Base Station Test**

17 None

18 **10.9 Correct Handling of Call Control Signaling**

19 **10.9.1 Mobile Station Test**

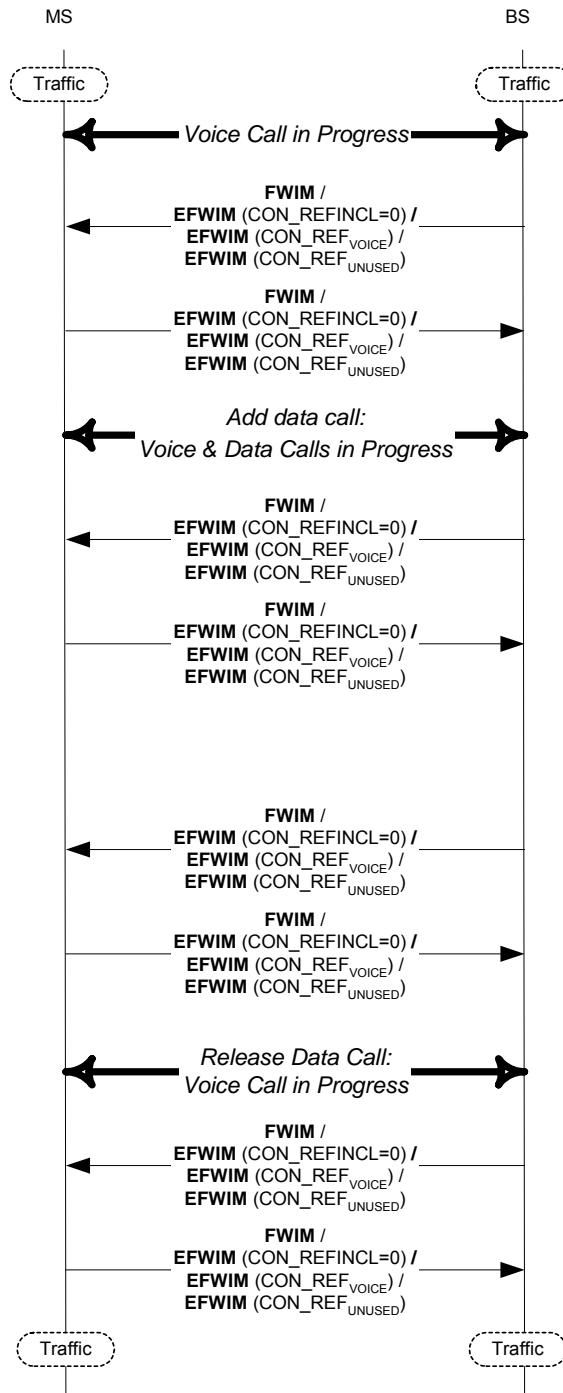
20 10.9.1.1 Definition

21 This test verifies that, when one or more calls are in progress, base station initiated call control
22 signaling messages are handled correctly by the mobile station.

23 10.9.1.2 Traceability

24 See 10.1.1.2.

1 10.9.1.3 Call Flow Example(s)



2
3 Figure 10.9.1.3-1 Call Flow Example for Correct Handling of Call Control Signaling Messages

4 10.9.1.4 Method of Measurement

- 5 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 6 b. Set up a voice call and wait till the voice call is in progress.

- 1 c. Instruct the base station to send a Display (00000001) information record to the
2 mobile station via a *Flash With Information Message*.
- 3 d. Upon receiving the *Flash With Information Message*, verify that the Display
4 information record is correctly displayed in the mobile station.
- 5 e. Instruct the base station to send a Display (00000001) information record to the
6 mobile station via an *Extended Flash With Information Message* (with
7 CON_REF_INCL set to '0').
- 8 f. Upon receiving the *Extended Flash With Information Message* with the
9 CON_REF_INCL field set to '0', verify that the Display information record is correctly
10 displayed in the mobile station.
- 11 g. Instruct the base station to send a Display (00000001) information record to the
12 mobile station via an *Extended Flash With Information Message* (with CON_REF set
13 to the connection reference corresponding to the voice call).
- 14 h. Upon receiving the *Extended Flash With Information Message* with the CON_REF
15 field set to the connection reference corresponding to the voice call, verify that the
16 Display information record is correctly displayed in the mobile station.
- 17 i. Instruct the base station to send a Display (00000001) information record to the
18 mobile station via an *Extended Flash With Information Message* (with CON_REF set
19 to an unused value).
- 20 j. Upon receiving the *Extended Flash With Information Message* with the CON_REF
21 field set to an unused value, verify that the mobile station sends a *Mobile Station*
22 *Reject Order* with ORDQ field set to '00010001' (no call control instance present with
23 the specified identifier) to the base station within T_{56m} seconds.
- 24 k. Set up a mobile station terminated data call. Instruct the base station to include the
25 service option connection corresponding to the voice call as the first entry in the SCR
26 of *Service Connect Message*, *General Handoff Direction Message*, or *Universal*
27 *Handoff Direction Message* used to complete service negotiation.
- 28 l. Instruct the base station to send a Display (00000001) information record to the
29 mobile station via a *Flash With Information Message*.
- 30 m. Upon receiving the *Flash With Information Message*, verify that the Display
31 information record is correctly displayed in the mobile station.
- 32 n. Instruct the base station to send a Display (00000001) information record to the
33 mobile station via an *Extended Flash With Information Message* (with
34 CON_REF_INCL set to '0').
- 35 o. Upon receiving the *Extended Flash With Information Message* with the
36 CON_REF_INCL field set to '0', verify that the Display information record is correctly
37 displayed in the mobile station.
- 38 p. Instruct the base station to send a Display (00000001) information record to the
39 mobile station via an *Extended Flash With Information Message* (with CON_REF set
40 to the connection reference corresponding to the voice call).

- 1 q. Upon receiving the *Extended Flash With Information Message* with the CON_REF
2 field set to the connection reference corresponding to the voice call, verify that the
3 Display information record is correctly displayed in the mobile station.
- 4 r. Instruct the base station to send a Display (00000001) information record to the
5 mobile station via an *Extended Flash With Information Message* (with CON_REF set
6 to an unused value).
- 7 s. Upon receiving the *Extended Flash With Information Message* with the CON_REF
8 field set to an unused value, verify that the mobile station sends a *Mobile Station*
9 *Reject Order* with ORDQ field set to '00010001' (no call control instance present with
10 the specified identifier) to the base station within T56m seconds.
- 11 t. Instruct the base station to release the data call. Wait till this operation is successful.
- 12 u. Instruct the base station to send a Display (00000001) information record to the
13 mobile station via a *Flash With Information Message*.
- 14 v. Upon receiving the *Flash With Information Message*, verify that the Display
15 information record is correctly displayed in the mobile station.
- 16 w. Instruct the base station to send a Display (00000001) information record to the
17 mobile station via an *Extended Flash With Information Message* (with
18 CON_REF_INCL set to '0').
- 19 x. Upon receiving the *Extended Flash With Information Message* with the
20 CON_REF_INCL field set to '0', verify that the Display information record is correctly
21 displayed in the mobile station.
- 22 y. Instruct the base station to send a Display (00000001) information record to the
23 mobile station via an *Extended Flash With Information Message* (with CON_REF set
24 to the connection reference corresponding to the voice call).
- 25 z. Upon receiving the *Extended Flash With Information Message* with the CON_REF
26 field set to the connection reference corresponding to the voice call, verify that the
27 Display information record is correctly displayed in the mobile station.

28 10.9.1.5 Minimum Standard

29 The mobile station shall comply with the requirements in the following steps: d, f, h, j, m, o, q, s, v,
30 x, z.

31 10.9.2 Base Station Test

32 10.9.2.1 Definition

33 This test verifies that, when one or more calls are in progress, mobile station initiated call control
34 signaling messages are handled correctly by the base station.

35 10.9.2.2 Traceability

36 See 10.1.1.2.

1 10.9.2.3 Call Flow Example(s)

2 See 10.9.1.3

3 10.9.2.4 Method of Measurement

- 4 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 5 b. Set up a voice call and wait till the voice call is in progress.
- 6 c. Instruct the mobile station to send a Keypad Facility (00000011) information record to
7 the base station via a *Flash With Information Message*.
- 8 d. Upon receiving the *Flash With Information Message*, verify that it is correctly
9 delivered in the network.
- 10 e. Instruct the mobile station to send a Keypad Facility (00000011) information record to
11 the base station via an *Extended Flash With Information Message* (with
12 CON_REF_INCL set to '0').
- 13 f. Upon receiving the *Extended Flash With Information Message* with the
14 CON_REF_INCL field set to '0', verify that it is correctly delivered in the network.
- 15 g. Instruct the mobile station to send a Keypad Facility (00000011) information record to
16 the base station via an *Extended Flash With Information Message* (with CON_REF
17 set to the connection reference corresponding to the voice call).
- 18 h. Upon receiving the *Extended Flash With Information Message* with the CON_REF
19 field set to the connection reference corresponding to the voice call, verify that it is
20 correctly delivered in the network.
- 21 i. Instruct the mobile station to send a Keypad Facility (00000011) information record to
22 the base station via an *Extended Flash With Information Message* (with CON_REF
23 set to an unused value).
- 24 j. Upon receiving the *Extended Flash With Information Message* with the CON_REF
25 field set to an unused value, verify it is rejected or ignored by the base station.
- 26 k. Set up a mobile station originated data call.
- 27 l. Instruct the mobile station to send a Keypad Facility (00000011) information record to
28 the base station via an *Extended Flash With Information Message* (with CON_REF
29 set to the connection reference corresponding to the voice call).
- 30 m. Upon receiving the *Extended Flash With Information Message* with the CON_REF
31 field set to the connection reference corresponding to the voice call, verify it is
32 correctly delivered in the network.
- 33 n. Instruct the mobile station to release the data call. Wait till this operation is
34 successful.
- 35 o. Instruct the mobile station to send a Keypad Facility (00000011) information record to
36 the base station via a *Flash With Information Message*.
- 37 p. Upon receiving the *Flash With Information Message*, verify that it is correctly
38 delivered in the network.

- 1 q. Instruct the mobile station to send a Keypad Facility (00000011) information record to
 2 the base station via an *Extended Flash With Information Message* (with
 3 CON_REF_INCL set to '0').
- 4 r. Upon receiving the *Extended Flash With Information Message* with the
 5 CON_REF_INCL field set to '0', verify that it is correctly delivered in the network.
- 6 s. Instruct the mobile station to send a Keypad Facility (00000011) information record to
 7 the base station via an *Extended Flash With Information Message* (with CON_REF
 8 set to the connection reference corresponding to the voice call).
- 9 t. Upon receiving the *Extended Flash With Information Message* with the CON_REF
 10 field set to the connection reference corresponding to the voice call, verify it is
 11 correctly delivered in the network.

12 10.9.2.5 Minimum Standard

13 The base station shall comply with the requirements in the following steps: d, f, h, j, m, p,r and t.

14 10.10 Base Station Rejects Dedicated Channel Call Origination 15 by Mobile Station

16 10.10.1 Mobile Station Test

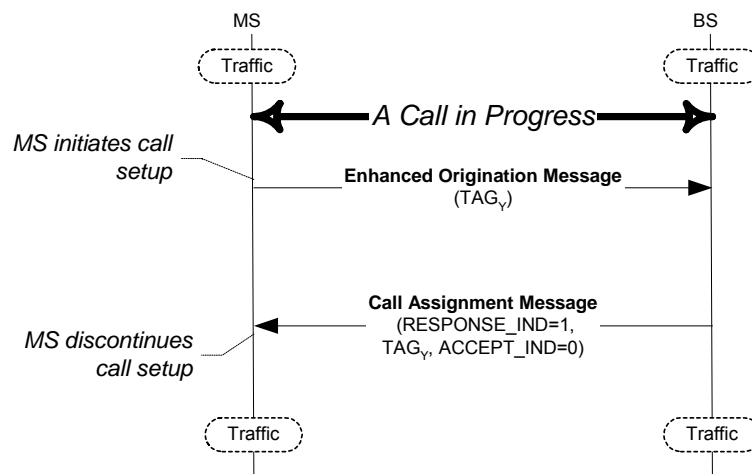
17 10.10.1.1 Definition

18 This test verifies that, when base station rejects an *Enhanced Origination Message* sent by the
 19 mobile station, the mobile station discontinues the call origination.

20 10.10.1.2 Traceability

21 See 10.1.1.2.

22 10.10.1.3 Call Flow Example(s)



23

1 Figure 10.10.1.3-1 Call Flow Example for base station rejection of dedicated channel mobile
 2 station call origination

3 **10.10.1.4 Method of Measurement**

- 4 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 5 b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient
- 6 traffic is exchanged to keep the data instance in active state.
- 7 c. Initiate a mobile station originated voice call.
- 8 d. Instruct the base station to reject the mobile station call origination by sending a *Call*
- 9 *Assignment Message* with the following fields set as follows:

RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the <i>Enhanced Origination Message</i>
ACCEPT_IND	'0'

10

- 11 e. Upon receiving the *Call Assignment Message*, verify the following:
 - 12 1. The mobile station discontinues the call origination. This can be tested
 - 13 via one of the following:
 - 14 a) The Upper Layer/User Interface receives an indication of call failure.
 - 15 b) If the base station sends a second *Call Assignment Message*
 - 16 accepting this call and using the same TAG value, the mobile station
 - 17 will reject this assignment by sending a *Mobile Station Reject Order*
 - 18 with ORDQ field set to '00010011' (TAG received does not match
 - 19 TAG stored), with the TAG field and CON_REF of the order set to
 - 20 the TAG and CON_REF values respectively received in the
 - 21 message.
 - 22 2. The original call in progress is not dropped.

23 **10.10.1.5 Minimum Standard**

24 The mobile station shall comply with the requirements in step e.

25 **10.10.2 Base Station Test**

26 None

1 10.11 Enhanced Origination Timer Expires before Receiving 2 Base Station Response

3 10.11.1 Mobile Station Test

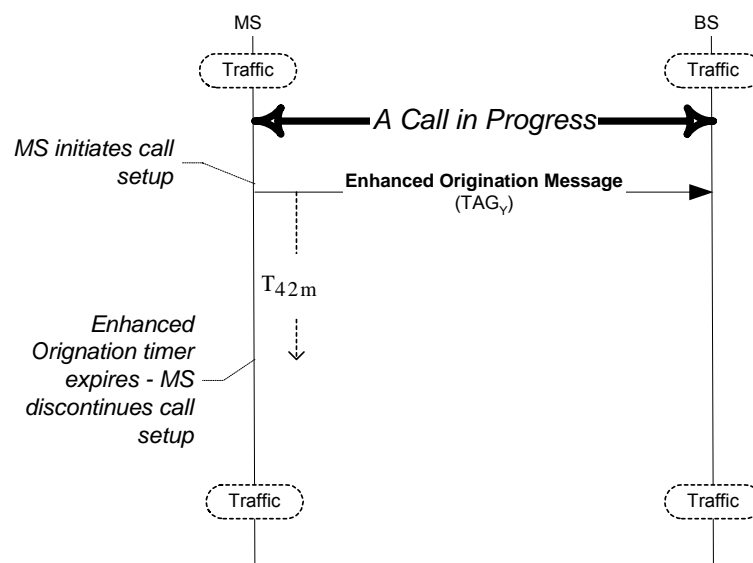
4 10.11.1.1 Definition

5 This test verifies that, upon sending an *Enhanced Origination Message* to originate a call, if the
6 enhanced origination timer expires prior to receiving a L3 response from the base station, the
7 mobile station discontinues the call origination.

8 10.11.1.2 Traceability

9 See 10.1.1.2.

10 10.11.1.3 Call Flow Example(s)



11
12 Figure 10.11.1.3-1 Call Flow Example for Expiration of Enhanced Origination Timer Upon Call
13 Origination

14 10.11.1.4 Method of Measurement

- 15 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 16 b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient
17 traffic is exchanged to keep the data instance in active state.
- 18 c. Initiate a mobile station originated voice call.
- 19 d. Instruct the base station to not send a Layer 3 response to this *Enhanced Origination*
20 *Message* as follows: The base station does not send a *Call Assignment Message*,
21 *Service Connect Message* (with the CC_INFO_INCL field set to '1'), *Universal*
22 *Handoff Direction Message* (with the CC_INFO_INCL field set to '1'), or a *Retry*
23 *Order* (with RETRY_TYPE field set to '001').

- 1 e. Verify the following:
- 2 1. Upon expiration of the enhanced origination timer (T42m: 12 seconds),
- 3 the mobile station discontinues the call origination. This can be tested via
- 4 one of the following:
- 5 a) The Upper Layer/User Interface receives an indication of call failure
- 6 (if applicable).
- 7 b) If the base station sends a *Call Assignment Message* accepting this
- 8 call and using the same TAG value, the mobile station will reject this
- 9 assignment by sending a *Mobile Station Reject Order* with ORDQ
- 10 field set to '00010011' (TAG received does not match TAG stored),
- 11 with the TAG field and CON_REF of the order set to the TAG and
- 12 CON_REF values respectively received in the message.
- 13 2. The original call in progress is not dropped.

14 10.11.1.5 Minimum Standard

15 The mobile station shall comply with the requirements in the following step e.

16 **10.11.2 Base Station Test**

17 None

18 **10.12 Mobile Station Cancels Call Origination Before**

19 **Receiving Call Assignment**

20 **10.12.1 Mobile Station Test**

21 10.12.1.1 Definition

22 This test verifies that, upon sending an *Enhanced Origination Message* to originate a call and

23 prior to receiving a Layer 3 response from the base station, if the user requests to cancel the call

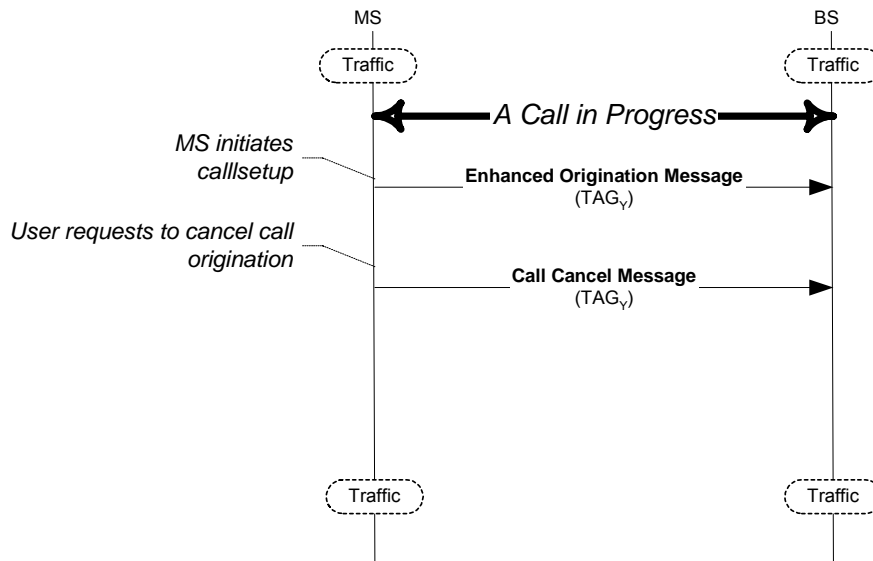
24 origination, the mobile sends a *Call Cancel Message* to the base station and discontinues the call

25 origination.

26 10.12.1.2 Traceability

27 See 10.1.1.2.

1 10.12.1.3 Call Flow Example(s)



2

3 Figure 10.12.1.3-1 Call Flow Example for Cancellation of Call Origination

4 10.12.1.4 Method of Measurement

- 5 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 6 b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient
- 7 traffic is exchanged to keep the data instance in active state.
- 8 c. Initiate a mobile station originated voice call.
- 9 d. Instruct the base station to not send a Layer 3 response to this *Enhanced Origination*
- 10 *Message* as follows: The base station does not send a *Call Assignment Message*,
- 11 *Service Connect Message* (with the CC_INFO_INCL field set to '1'), *Universal*
- 12 *Handoff Direction Message* (with the CC_INFO_INCL field set to '1'), or a *Retry*
- 13 *Order* (with RETRY_TYPE field set to '001').
- 14 e. Within few seconds (i.e. well in advance of the enhanced origination timer of 12
- 15 seconds) of initiating the call, release this call at the mobile station. Verify the
- 16 following:
 - 17 1. The mobile station sends a *Call Cancel Message* to the base station,
 - 18 with the TAG field of the message set to the same value used in the
 - 19 *Enhanced Origination Message*.
 - 20 2. The mobile station discontinues the call origination. This can be tested
 - 21 via one of the following:
 - 22 a) The Upper Layer/User Interface receives an indication of call failure
 - 23 (if applicable).
 - 24 b) If the base station sends a *Call Assignment Message* accepting this
 - 25 call and using the same TAG value, the mobile station will reject this

1 assignment by sending a *Mobile Station Reject Order* with ORDQ
 2 field set to '00010011' (TAG received does not match TAG stored),
 3 with the TAG field and CON_REF of the order set to the TAG and
 4 CON_REF values respectively received in the message.

5 3. The original call in progress is not dropped.

6 **10.12.1.5 Minimum Standard**

7 The mobile station shall comply with the requirements in the following step e.
 8

9 **10.12.2 Base Station Test**

10 None

11 **10.13 Analog Handoff Direction Message Terminates All Calls**
 12 **Except One**

13 **10.13.1 Mobile Station Test**

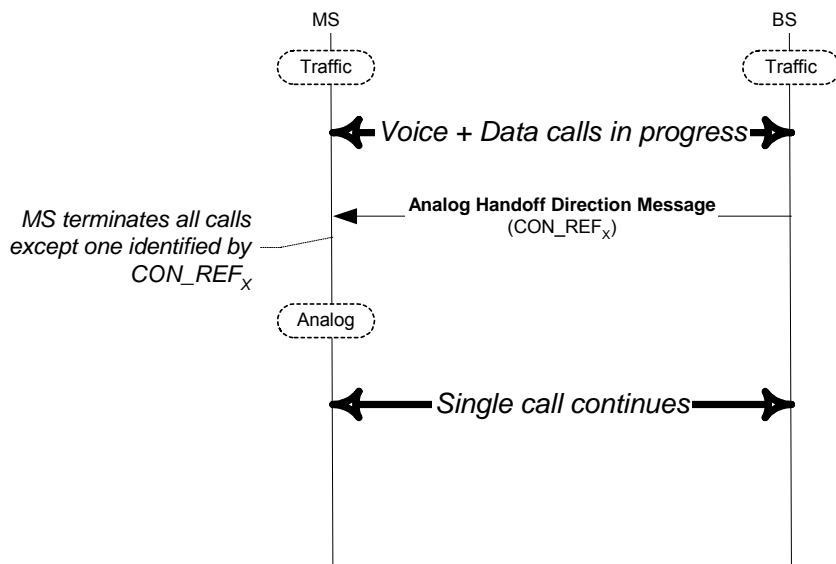
14 **10.13.1.1 Definition**

15 This test verifies that, when the base station directs the mobile station to perform a handoff from
 16 the CDMA system to an analog system by sending an *Analog Handoff Direction Message*, all
 17 calls except for the one indicated by the *Analog Handoff Direction Message* are terminated.

18 **10.13.1.2 Traceability**

19 See 10.1.1.2.

20 **10.13.1.3 Call Flow Example(s)**



21
 22 Figure 10.13.1.3-1 Call Flow Example for AHDM terminating all calls except one

1 10.13.1.4 Method of Measurement

- 2 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 3 b. Set up a voice call and a packet data call (e.g. SO33) and wait till both calls are in
- 4 progress. Ensure sufficient traffic is exchanged to keep the data instance in active
- 5 state. Instruct the base station to list the service option connection corresponding to
- 6 the voice call as the first entry in the *Service Configuration information record*.
- 7 c. Instruct the base station to direct the mobile station to perform a handoff from the
- 8 CDMA system to an analog system in a band class that the mobile station supports
- 9 and to maintain the voice call as follows: the base station sends an *Analog Handoff*
- 10 *Direction Message* to the mobile station, with the CON_REF_INCL field set to '0'.
- 11 d. Upon receiving this message, verify the following:
 - 12 1. The mobile station terminates the data call and maintains the voice call.
 - 13 2. The mobile station performs handoff to the analog system indicated by
 - 14 the *Analog Handoff Direction Message*.
- 15 e. Repeat steps a through d but with the following modifications:
 - 16 1. In step c: The base station sends an *Analog Handoff Direction Message*
 - 17 to the mobile station, with the CON_REF field is set to the connection
 - 18 reference of the voice call.
 - 19 2. The expected results are as specified in step d.

20 10.13.1.5 Minimum Standard

21 The mobile station shall comply with the requirements in the following steps: d, e.

22

23 **10.13.2 Base Station Test**

24 None

25 **10.14 Mobile Station Rejects Dedicated Channel Call**

26 **Origination by Base Station**

27 **10.14.1 Mobile Station Test**

28 None

29 **10.14.2 Base Station Test**

30 10.14.2.1 Definition

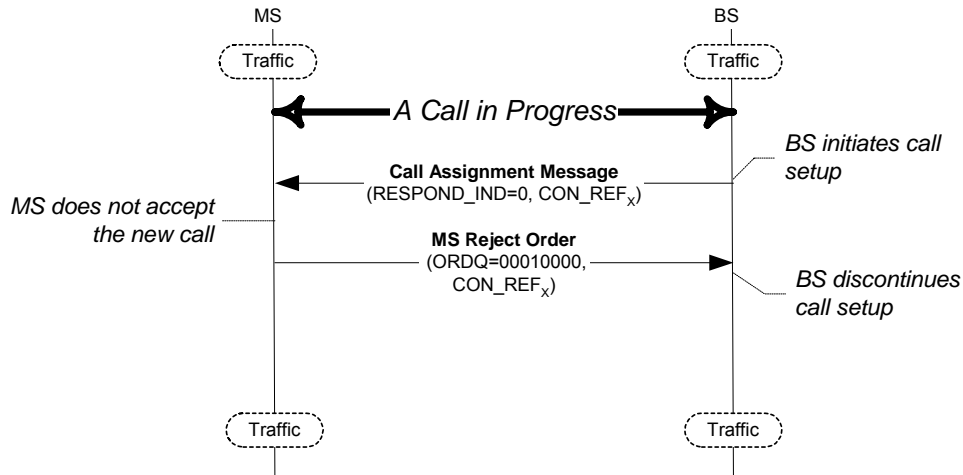
31 This test verifies that, when the mobile station rejects a dedicated channel call origination by the

32 base station, the base station discontinues the call origination.

33 10.14.2.2 Traceability

34 See 10.1.1.2.

1 10.14.2.3 Call Flow Example(s)



2
3 Figure 10.14.2.3-1 Call Flow Example for Mobile Station rejection of dedicated channel call
4 origination by base station

5 10.14.2.4 Method of Measurement

- 6 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 7 b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient
- 8 traffic is exchanged to keep the data instance in active state.
- 9 c. Initiate a network originated voice call.
- 10 d. Instruct the mobile station to perform the following:
- 11 1. If the base station sends a *Call Assignment Message* (i.e. call
 - 12 assignment prior to service option connection establishment): Instruct the
 - 13 mobile station to reject the call assignment by sending a *Mobile Station*
 - 14 *Reject Order* with ORDQ field set to '00010000' (call assignment not
 - 15 accepted), with the CON_REF field of the order set to the value of the
 - 16 connection reference received in the *Call Assignment Message*.
 - 17 2. If the base station sends a *Service Connect Message* (i.e. call
 - 18 assignment as part of the service option connection establishment):
 - 19 Instruct the mobile station to reject the call assignment by sending a
 - 20 *Mobile Station Reject Order* (ORDQ = '00000111') within T_{56m} seconds
 - 21 of receiving this message.
 - 22 3. If the base station sends a *Universal Handoff Direction Message*
 - 23 (containing a SCR) (i.e. call assignment as part of the service option
 - 24 connection establishment): Instruct the mobile station to reject the call
 - 25 assignment by sending a *Mobile Station Reject Order* with ORDQ field
 - 26 set to '00010000' (call assignment not accepted), with the CON_REF
 - 27 field of the order set to the value of the connection reference received in
 - 28 the *Call Assignment Message*.

- 1 e. Upon receiving the *Mobile Station Reject Order*, verify the following:
- 2 1. The base station discontinues the call origination. This can be tested by
- 3 one of the following:
- 4 a) The network side call originating entity receives an indication of call
- 5 failure.
- 6 b) If the mobile station sends a Keypad Facility (00000011) information
- 7 record to the base station via a *Flash With Information Message* or
- 8 an *Extended Flash With Information Message* destined to a call
- 9 identified by the CON_REF that was rejected, the base station shall
- 10 ignore or reject this message.
- 11 2. The original call in progress is not dropped.

12 10.14.2.5 Minimum Standard

13 The base station shall comply with the requirements in the following step e.

14 10.15 Base Station Does Not Support Concurrent Services

15 10.15.1 Mobile Station Test

16 10.15.1.1 Definition

17 This test verifies that, when the base station indicates that it does not support concurrent

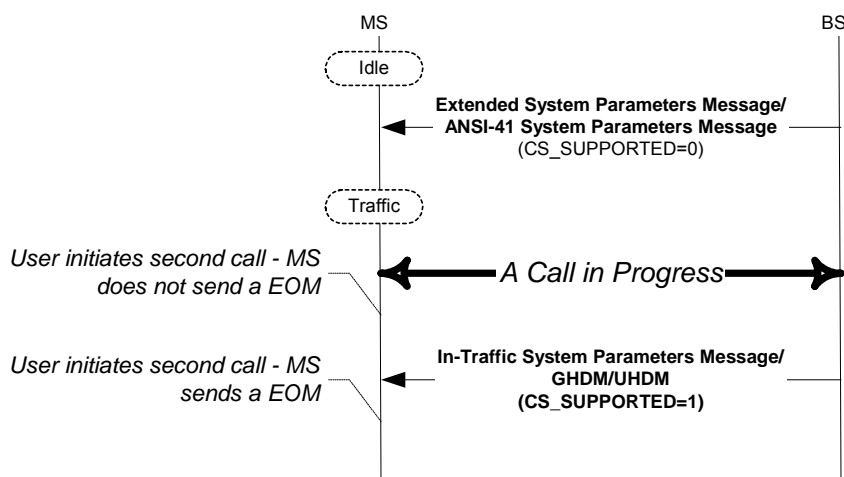
18 services, the mobile station shall not send an *Enhanced Origination Message* to initiate a second

19 call.

20 10.15.1.2 Traceability

21 See 10.1.1.2.

22 10.15.1.3 Call Flow Example(s)



23

24 Figure 10.15.1.3-1 Call Flow Example for base station not supporting Concurrent Services

1 **10.15.1.4 Method of Measurement**

- 2 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 3 b. Instruct the base station to indicate no support for concurrent services as follows:
- 4 1. The CS_SUPPORTED field of the *Extended System Parameters*
- 5 *Message* is set to '0'.
- 6 2. The CS_SUPPORTED field of the *ANSI-41 System Parameters*
- 7 *Message* is set to '0'.
- 8 c. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient
- 9 traffic is exchanged to keep the data instance in active state.
- 10 d. Initiate a voice or data call at the mobile station. Verify the following:
- 11 1. The mobile station does not send an *Enhanced Origination Message* to
- 12 the base station.
- 13 2. The mobile station provides an appropriate indication of call failure to the
- 14 user.
- 15 e. Instruct the base station to send an *In-Traffic System Parameters Message* with
- 16 CS_SUPPORTED field set to '1'.
- 17 f. Initiate a data call at the mobile station. Verify that the mobile station sends an
- 18 *Enhanced Origination Message* to initiate the call.
- 19 g. Repeat steps a through f but with the following modifications:
- 20 1. In step e, instruct the base station to send a *General Handoff Direction*
- 21 *Message* with CS_SUPPORTED field set to '1'.
- 22 2. The expected result is as specified in step f.
- 23 h. Repeat steps a through f but with the following modifications:
- 24 1. In step e, instruct the base station to send a *Universal Handoff Direction*
- 25 *Message* with CS_SUPPORTED field set to '1'.
- 26 2. The expected result is as specified in step f.

27 **10.15.1.5 Minimum Standard**

28 The mobile station shall comply with the requirements in the following steps: d and f for all test

29 cases.

30 **10.15.2 Base Station Test**

31 None

1 10.16 Base Station Assigns a New Call with an Existing Identifier

3 10.16.1 Mobile Station Test

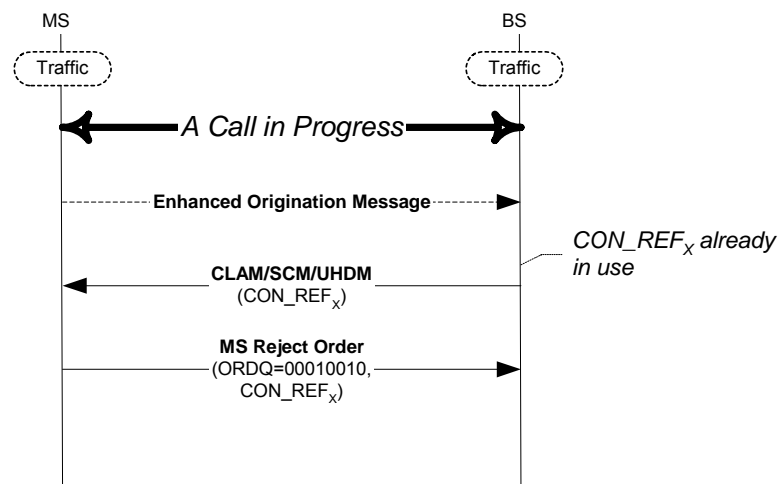
4 10.16.1.1 Definition

5 This test verifies that, when the base station assigns a call using a call identifier that is currently in
6 use, the mobile station rejects the call assignment.

7 10.16.1.2 Traceability

8 See 10.1.1.2.

9 10.16.1.3 Call Flow Example(s)



10

11

12 Figure 10.16.1.3-1 Call Flow Example for Base Station assigning a New Call with CON_REF
13 currently in use

14 10.16.1.4 Method of Measurement

- 15 a. Connect the mobile station to the base station as shown in [Annex A Figure 1](#).
- 16 b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient
17 traffic is exchanged to keep the data instance in active state.
- 18 c. Initiate a mobile station originated or mobile station terminated voice call.
- 19 d. Instruct the base station to assign this call using a call identifier that is already in use
20 by sending a *Call Assignment* Message to the mobile station to assign this call, with
21 the CON_REF field set to a value that is currently in use for the first call.
- 22 e. Upon receiving this message, verify that the mobile station sends a *Mobile Station*
23 *Reject Order* with ORDQ field set to '00010010' (a call control instance is already
24 present with the specified identifier) and with the CON_REF field of the order set to
25 the value received in the message.

- 1 f. Repeat steps a to e, but with following changes: In steps where base station is
2 instructed to send a *Call Assignment Message*, instruct the base station to send a
3 Service Connect Message (with CC_INFO_INCL=1).
- 4 g. Repeat steps a to e, but with following changes: In steps where base station is
5 instructed to send a *Call Assignment Message*, instruct the base station to send a
6 *Universal Handoff Direction Message* (with CC_INFO_INCL=1).

7 10.16.1.5 Minimum Standard

8 The mobile station shall comply with the requirements in the following step e.

9 **10.16.2 Base Station Test**

10 None

11 **10.17 Release A Mobile Station in Concurrent Calls with a** 12 **Release A Base Station Hands off to a Base Station** 13 **which does not support Concurrent Calls**

14 **10.17.1 Mobile Station Test**

15 Not applicable due to the following reasons: The mobile station protocol conformance aspects of
16 receiving a GHDM/UHDM where SCR is included and a service option connection is being
17 released is already being tested in Test Case 10.6.1.

18 **10.17.2 Base Station Test**

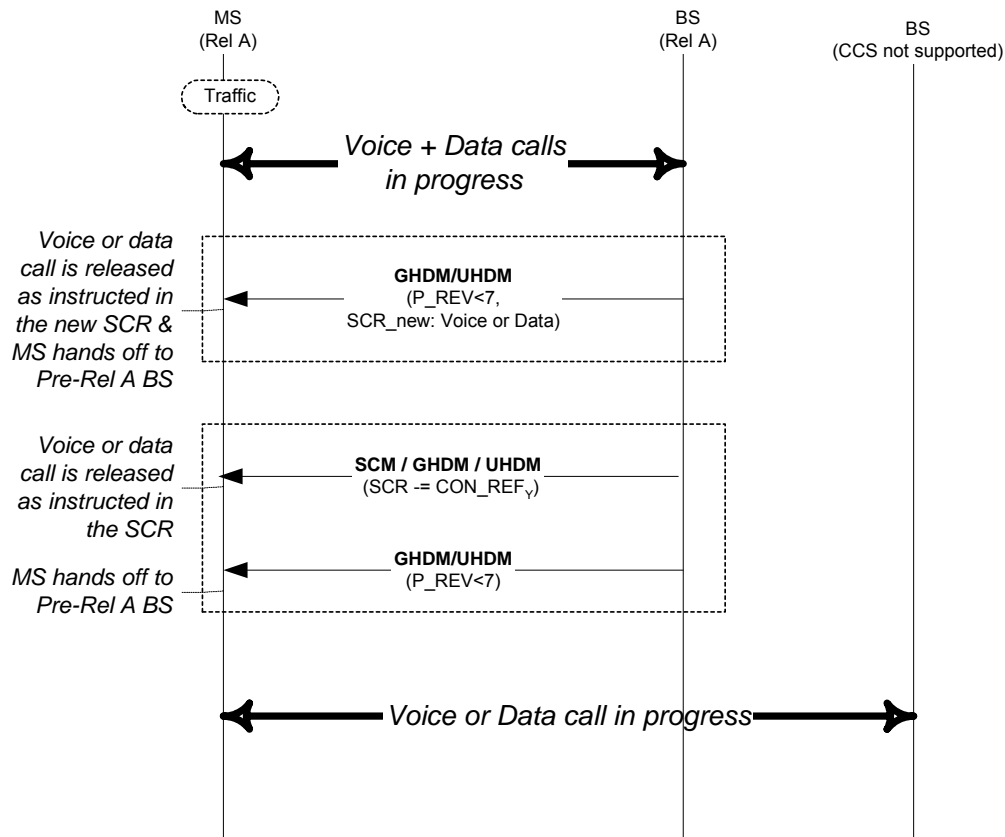
19 10.17.2.1 Definition

20 This test verifies that, when a Release A base station hands off a Release A mobile station
21 currently in concurrent calls to a base station which does not support Concurrent Calls, only a
22 single call is maintained and this call continues successfully.

23 10.17.2.2 Traceability

24 See 10.1.1.2.

1 10.17.2.3 Call Flow Example(s)



2

3

4 Figure 10.17.2.3-1 Release A Mobile Station Concurrent Calls with a Release A Base Station
5 hands off to a Pre-Release A Base Station

6 10.17.2.4 Method of Measurement

- 7 a. Connect the mobile station (MOB_P_REV = 7) to the P_REV =7 base station (base
8 station 1) and the P_REV < 7 (Ex. P_REV = 6) base station 2 as shown in Annex A
9 Figure 2.
- 10 b. Set up a mobile station packet data call (e.g. SO33) and wait till the call is in
11 progress. Ensure sufficient traffic is exchanged to keep the data instance in active
12 state.
- 13 c. Set up a mobile station packet data call (e.g. SO33) and wait till both voice and data
14 calls are in progress. Ensure sufficient traffic is exchanged to keep the data instance
15 in active state.
- 16 d. Trigger a handoff from base station 1 to base station 2 (by moving the mobile station
17 from coverage of one base station to the other, etc.). Verify that the base station
18 performs one of the following two sequence of events:
- 19 1. base station 1 releases one of the calls off to base station 2:

- 1 a) The base station 1 sends a *General Handoff Direction Message* or a
2 *Universal Handoff Direction Message* to the mobile station to handoff
3 to base station 2, with the *Service Configuration information record*
4 included and set as follows:
- 5 1. The service option connection corresponding to the call to be
6 maintained is included.
- 7 b) The service option connection corresponding to the other call is
8 omitted.
- 9 c) At the action time of this message, the call corresponding to the
10 omitted service option connection is released.
- 11 d) The remaining call continues successfully in the base station 2.
- 12 2. Base station 1 releases one of the calls prior to handing off to base
13 station 2:
- 14 a) The base station releases one of the calls by sending a *Service*
15 *Connect Message*, *General Handoff Direction Message* (with SCR),
16 or *Universal Handoff Direction Message* (with SCR) to the mobile
17 station where the service option connection record corresponding to
18 the call to be released is omitted from the *Service Configuration*
19 *information record* included in this message.
- 20 b) The Release A base station sends a *General Handoff Direction*
21 *Message* or a *Universal Handoff Direction Message* to the mobile
22 station to handoff to the Pre-Release A base station.
- 23 c) The remaining call continues successfully in base station 2.
- 24 d) Repeat steps a-d with the following modifications:
- 25 1. Base station 2 is a P_REV = 7 base station but one which does
26 not support the Concurrent Services capability.
- 27
- 28

29 10.17.2.5 Minimum Standard

30 The base station shall comply with the requirements in step d for all test cases.

11 FORWARD COMPATIBILITY TESTS

Note: These tests verify that when a mobile station operates in a future system where P_REV is greater than MOB_P_REV and new fields or new messages are added, the mobile station shall continue to work correctly and have no forward compatibility problem. The term 'base station' used in this section refers to a base station or base station simulator that is capable of adding arbitrary new messages and additional parameter fields to the existing supported P_REV messages for purposes of forward compatibility testing.

11.1 Sync Channel

11.1.1 Mobile Station Test

11.1.1.1 Definition

This test verifies that the mobile station ignores any additional fields at the end of the *Sync Channel Message* and ignores any message types that do not exist in the protocol revision supported by the mobile station (MOB_P_REV).

11.1.1.2 Traceability (See [4]):

2.6.1.3: *Sync Channel Acquisition Substate*

3.7: *Sync Channel Message*

11.1.1.3 Call Flow Diagram

None

11.1.1.4 Method of Measurement

- a. Set up test as shown in [Annex A Figure 1](#).
- b. Instruct the base station to set the P_REV to a value larger than MOB_P_REV, MIN_P_REV equal to or less than MOB_P_REV and add additional fields at the end of the message such that the message length of the *Sync Channel Message* is greater than the maximum length for the protocol revision that is specified by MOB_P_REV.
- c. Power on the mobile station.
- d. Initiate a mobile station terminated voice call.
- e. Verify audio on both directions.
- f. End the call.
- g. Power down the mobile station.
- h. Instruct the base station to alternately send the *Sync Channel Message* and another type of message on the Sync Channel (e.g. MSG_ID = '111111') where both messages start at the superframe boundary.

1 i. Repeat steps c through f.

2 11.1.1.5 Minimum Requirements

3 The mobile station shall comply with the requirement in step e.

4 11.1.2 Base Station Test

5 N/A.

6 11.2 Paging Channel

7 11.2.1 Mobile Station Test

8 11.2.1.1 Definition

9 This test verifies that the mobile station ignores any additional fields at the end of messages on
10 the Paging Channel and ignores/rejects any message types that do not exist in the protocol
11 revision supported by the mobile station (MOB_P_REV).

12 11.2.1.2 Traceability (See [4]):

13 2.6.2: *Mobile Station Idle State*

14 2.6.3: *System Access State*

15 3.7.2.3.2.26: *Sync Channel Message*

16 11.2.1.3 Call Flow Example(s)

17 None

18 11.2.1.4 Method of Measurement

- 19 a. Set up test as shown in [Annex A Figure 1](#). Configure the base station to disable the
20 Broadcast Control Channel and Forward Common Control Channel operation by
21 setting SR1_BCCH_NON_TD_INCL, SR1_TD_INCL and SR3_INCL to '0' in the
22 *Sync Channel Message*.
- 23 b. Instruct the base station to set P_REV to a value larger than MOB_P_REV,
24 MIN_P_REV equal to or less than MOB_P_REV and add additional fields at the end
25 of any one of the Paging Channel overhead messages such that the new message
26 length is greater than the maximum length for the protocol revision specified by
27 MOB_P_REV.
- 28 c. Power on the mobile station.
- 29 d. Initiate a mobile station terminated voice call.
- 30 e. Verify audio in both directions.
- 31 f. End the call.
- 32 g. Instruct the base station to send a new Paging Channel overhead message (e.g.
33 MSG_ID = '111111') in addition to other existing Paging Channel overhead
34 messages.

- 1 h. Repeat steps d through f.
- 2 i. Instruct the base station to send a mobile station-directed message (e.g. the *Status*
3 *Request Message*) on the Paging Channel addressed to a different mobile station.
4 Ensure that P_REV is set to a value larger than MOB_P_REV, and add additional
5 fields at the end of any one of the Paging Channel overhead messages such that the
6 new message length is greater than the maximum length for the protocol revision
7 specified by MOB_P_REV message length is greater than the maximum length for
8 the protocol revision specified by MOB_P_REV.
- 9 j. Verify the mobile station ignores the message that is addressed to the other mobile
10 station.
- 11 k. Repeat the steps d through f.
- 12 l. Instruct the base station to send a mobile station directed message (e.g. the *Status*
13 *Request Message*) on the Paging Channel to the mobile station under test. Add
14 additional fields at the end of any one of the Paging Channel overhead messages
15 such that the new message length is greater than the maximum length for the
16 protocol revision specified by P_REV_IN_USE =MOB_P_REV.
- 17 m. Verify that the mobile station sends a correct response to the base station and
18 ignores the extra parameters.
- 19 n. Repeat the steps d through f.
- 20 o. Instruct the base station to send a mobile station directed message containing an
21 information record that is unknown for the protocol revision specified by MOB_P_
22 REV=P_REV_IN_USE (e.g. sending the *Status Request Message* containing an
23 information record with a record type of '11111111') on the Paging Channel to the
24 mobile station under test.
- 25 p. Verify that the mobile station ignores the unknown information record or sends a
26 *Mobile Station Reject Order*.
- 27 q. Repeat the steps d through f.
- 28 r. Instruct the base station to send, on the Paging Channel to the mobile station under
29 test, a mobile station directed message containing an information record that is
30 known for the protocol revision specified by MOB_P_ REV=P_REV_IN_USE (e.g.
31 sending the *Feature Notification Message* containing an information record with a
32 record type of '00000101') but with a larger length than the expected length.
- 33 s. Verify that the mobile station processes the message correctly.
- 34 t. Repeat the steps d through f.
- 35 u. Instruct the base station to send, on the Paging Channel to the mobile station under
36 test, a mobile station directed message known for the protocol revision specified by
37 MOB_P_ REV=P_REV_IN_USE but containing reserved bits that are set to non zero
38 values.
- 39 v. Verify that the mobile station sends a *Mobile Station Reject Order* or processes the
40 message correctly.

- 1 w. Repeat the steps d through f.
- 2 x. End the call.
- 3 y. Instruct the base station to send new Paging Channel overhead messages (GOIM,
4 FGOIM, FDCCLM, and APPIM) in addition to other existing Paging Channel
5 overhead messages and SPM message that has extended (SPM).
- 6 z. Repeat steps d through f.

7 11.2.1.5 Minimum Requirements

8 The mobile station shall comply with the requirements in steps e, m, p, s and v.

9 11.2.2 Base Station Test

10 N/A.

11 11.3 Traffic Channel

12 11.3.1 Mobile Station Test

13 11.3.1.1 Definition

14 This test verifies the mobile station does not drop the call when any of the following conditions
15 exist:

- 16 - The mobile station receives a message that contains additional fields that do not exist in
17 the protocol revision supported by the mobile station (MOB_P_REV=P_REV_IN_USE) while on
18 the traffic channel.
- 19 - The mobile station receives any message whose message type does not exist in the
20 protocol revision supported by the mobile station (MOB_P_REV=P_REV_IN_USE) while on the
21 traffic channel.
- 22 - The mobile station receives a message that contains record types that do not exist in the
23 protocol revision supported by the mobile station (MOB_P_REV=P_REV_IN_USE) while on the
24 traffic channel.

25 11.3.1.2 Traceability (See [4]):

26 2.6.4: *Mobile Station Control on the Traffic Channel State*

27 11.3.1.3 Call Flow Example(s)

28 None

29 11.3.1.4 Method of Measurement

- 30 a. Set up test as shown in [Annex A Figure 1](#).
- 31 b. Power on the mobile station.
- 32 c. Initiate a mobile station voice call.
- 33 d. Verify audio in both directions.

- 1 e. Instruct the base station to send an existing message (e.g. the In-traffic *System*
 2 *Parameter Message* or *General/Universal Handoff Direction Message*). However set
 3 P_REV to MOB_P_REV, and add additional fields at the end the message such that
 4 the new message length is greater than the maximum length for the protocol revision
 5 specified by MOB_P_REV=P_REV_IN_USE.
- 6 f. Verify the mobile station sends a correct response to the base station and ignores the
 7 extra parameters.
- 8 g. Verify the call does not drop.
- 9 h. Instruct the base station to send a message (e.g. MSG_TYPE= '11111110') that
 10 does not exist in the protocol revision supported by the mobile station with
 11 MOB_P_REV=P_REV_IN_USE.
- 12 i. Verify the mobile station rejects the message.
- 13 j. Verify the call does not drop.
- 14 k. Instruct the base station to send a message containing an information record that is
 15 unknown for the protocol revision specified by MOB_P_REV=P_REV_IN_USE (e.g.
 16 sending the *Status Request Message* containing an information record with a record
 17 type of '11111111').
- 18 l. Verify the mobile station ignores the unknown information record or sends a *Mobile*
 19 *Station Reject Order*.
- 20 m. Verify the call does not drop.
- 21 n. Release the call.

22 11.3.1.5 Minimum Requirements

23 The mobile station shall comply with the requirements in steps d, f, g, i, j, l and m.

24 11.3.2 Base Station Test

25 N/A.

26 11.4 Primary Broadcast Control Channel

27 11.4.1 Mobile Station Test

28 11.4.1.1 Definition

29 This test verifies the mobile station ignores any additional fields at the end of messages or ignore
 30 any message types that do not exist in the protocol revision supported by the mobile station on
 31 the Primary Broadcast Control Channel and is able to complete a call. This test is only applicable
 32 to MOB_P_REV equal to 7.

33 11.4.1.2 Traceability (See [4]):

34 2.6.2: *Mobile Station Idle State*

35 2.6.3: *System Access State*

1 3.7.2.3.2.26: *Sync Channel Message*

2 11.4.1.3 Call Flow Example(s)

3 None

4 11.4.1.4 Method of Measurement

5 a. Set up test as shown in Figure [Annex A Figure 1](#).

6 b. Configure the base station to enable the Broadcast Control Channel and Forward
7 Common Control Channel operation by setting SR1_BCCH_NON_TD_INCL to '1' in
8 the *Sync Channel Message*.

9 c. Instruct the base station to set P_REV to a value larger than MOB_P_REV, and add
10 additional fields at the end of any one of the the Primary Broadcast Control Channel
11 overhead messages such that the new message length is greater than the maximum
12 length for the protocol revision specified by MOB_P_REV .

13 d. Power on the mobile station.

14 e. Initiate a mobile station terminated voice call.

15 f. Verify audio in both directions.

16 g. End the call.

17 h. Instruct the base station to send a new Primary Broadcast Control Channel overhead
18 message (e.g. MSG_ID = '111111') in addition to other existing Primary Broadcast
19 Control Channel overhead messages.

20 i. Repeat the steps e through g.

21 11.4.1.5 Minimum Requirements

22 The mobile station shall comply with the requirement in step f.

23 **11.4.2 Base Station Test**

24 N/A.

25 **11.5 Forward Common Control Channel**

26 **11.5.1 Mobile Station Test**

27 11.5.1.1 Definition

28 This test verifies that the mobile station ignores any additional fields at the end of messages on
29 the Forward Common Control Channel and ignores/rejects any message types that do not exist in
30 the protocol revision supported by the mobile station (MOB_P_REV=P_REV_IN_USE). This test
31 is only applicable to MOB_P_REV equal to 7.

32 11.5.1.2 Traceability (See [4]):

33 2.6.2: *Mobile Station Idle State*

1 2.6.3: System Access State

2 3.7.2.3.2.26: Sync Channel Message

3 11.5.1.3 Call Flow Example(s)

4 11.5.1.4 Method of Measurement

- 5 a. Set up test as shown in [Annex A Figure 1](#).
- 6 b. Configure the base station to enable the Broadcast Control Channel and Forward
7 Common Control Channel operation by setting SR1_BCCH_NON_TD_INCL to '1' in
8 the *Sync Channel Message*.
- 9 c. Power on the mobile station.
- 10 d. Instruct the base station to send a mobile station-directed message (e.g. the *Status*
11 *Request Message*) on the Forward Common Control Channel addressed to a
12 different mobile station. Ensure that P_REV is set to a value larger than
13 MOB_P_REV, and add additional fields at the end of any one of the Paging Channel
14 overhead messages such that the new message length is greater than the maximum
15 length for the protocol revision specified by MOB_P_REV message length is greater
16 than the maximum length for the protocol revision specified by MOB_P_REV.
- 17 e. Verify the mobile station ignores the message that is addressed to the other mobile
18 station.
- 19 f. Initiate a mobile station terminated voice call.
- 20 g. Verify audio in both directions.
- 21 h. End the call.
- 22 i. Instruct the base station to send a mobile station directed message (e.g. the *Status*
23 *Request Message*) on the Forward Common Control Channel to the mobile station
24 under test. Add additional fields at the end of any one of the Forward Common
25 Control Channel overhead messages such that the new message length is greater
26 than the maximum length for the protocol revision specified by P_REV_IN_USE
27 =MOB_P_REV.
- 28 j. Verify the mobile station sends a correct response to the base station and ignores the
29 extra parameters.
- 30 k. Repeat the steps f through h.
- 31 l. Instruct the base station to send a mobile station directed message containing an
32 information record that is unknown for the protocol revision specified by MOB_P_
33 REV=P_REV_IN_USE (e.g. sending the *Status Request Message* containing an
34 information record with a record type of '11111111') on the Forward Common Control
35 Channel to the mobile station under test. p.
- 36 m. Verify the mobile station ignores the unknown information record or sends a *Mobile*
37 *Station Reject Order*.
- 38 n. Repeat the steps f through h.

- 1 o. Instruct the base station to send, on the Forward Common Control Channel to the
- 2 mobile station under test, a mobile station directed message containing an
- 3 information record that is known for the protocol revision specified by MOB_P_
- 4 REV=P_REV_IN_USE (e.g. sending the *Feature Notification Message* containing an
- 5 information record with a record type of '00000101') but with a larger length than the
- 6 expected length.
- 7 p. Verify the mobile station processes the message correctly.
- 8 q. Repeat the steps f through h.
- 9 r. Instruct the base station to send, on the Forward Common Control Channel to the
- 10 mobile station under test, a mobile station directed message known for the protocol
- 11 revision specified by MOB_P_REV=P_REV_IN_USE but containing reserved bits
- 12 that are set to non zero values.
- 13 s. . Verify the mobile station sends a *Mobile Station Reject Order* or processes the
- 14 message correctly.
- 15 t. Repeat the steps f through h.

16 11.5.1.5 Minimum Requirements

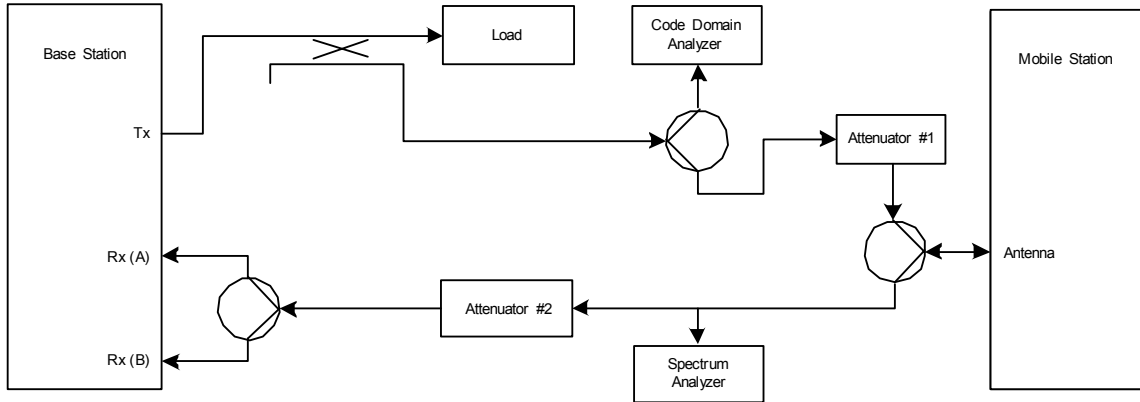
17 The mobile station shall comply with the requirements in steps e, g, j, m, p and s.

18 **11.5.2 Base Station Test**

19 N/A.

1 **Annex A Reference Figures**

2

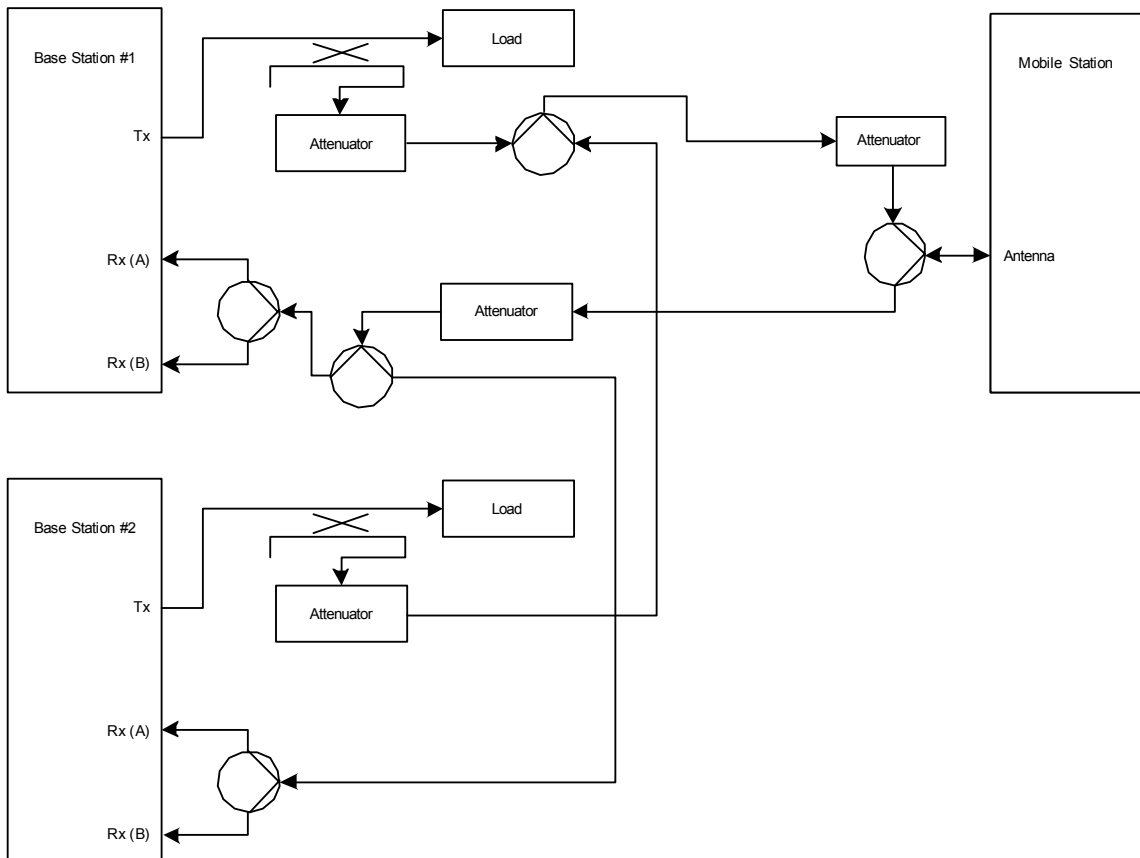


3

4

Figure 1

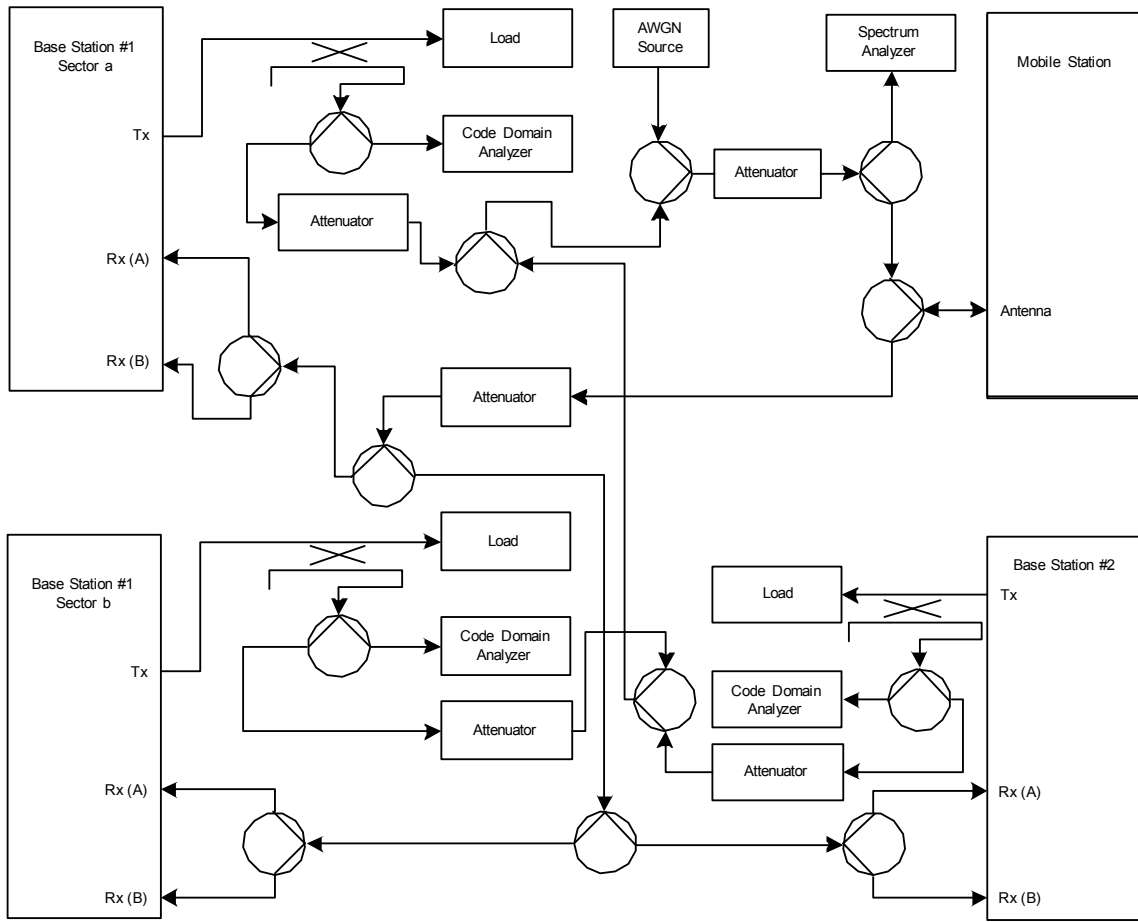
5



6

1

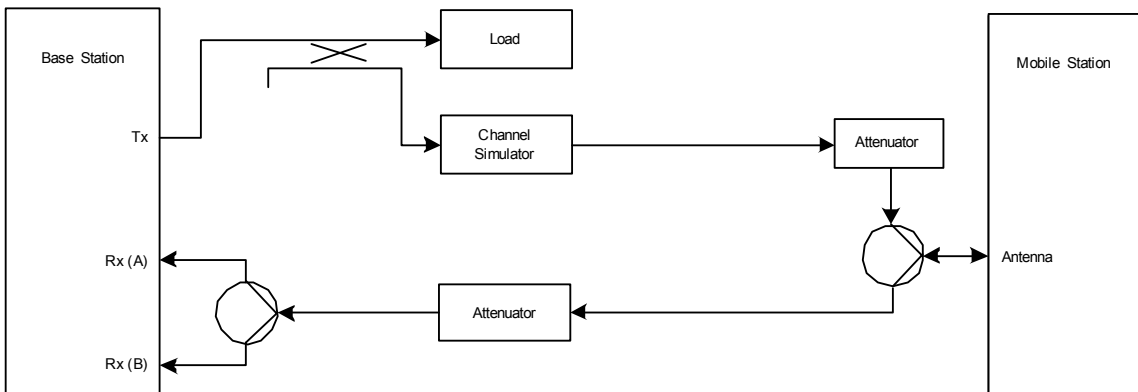
Figure 2



2

3

Figure 3

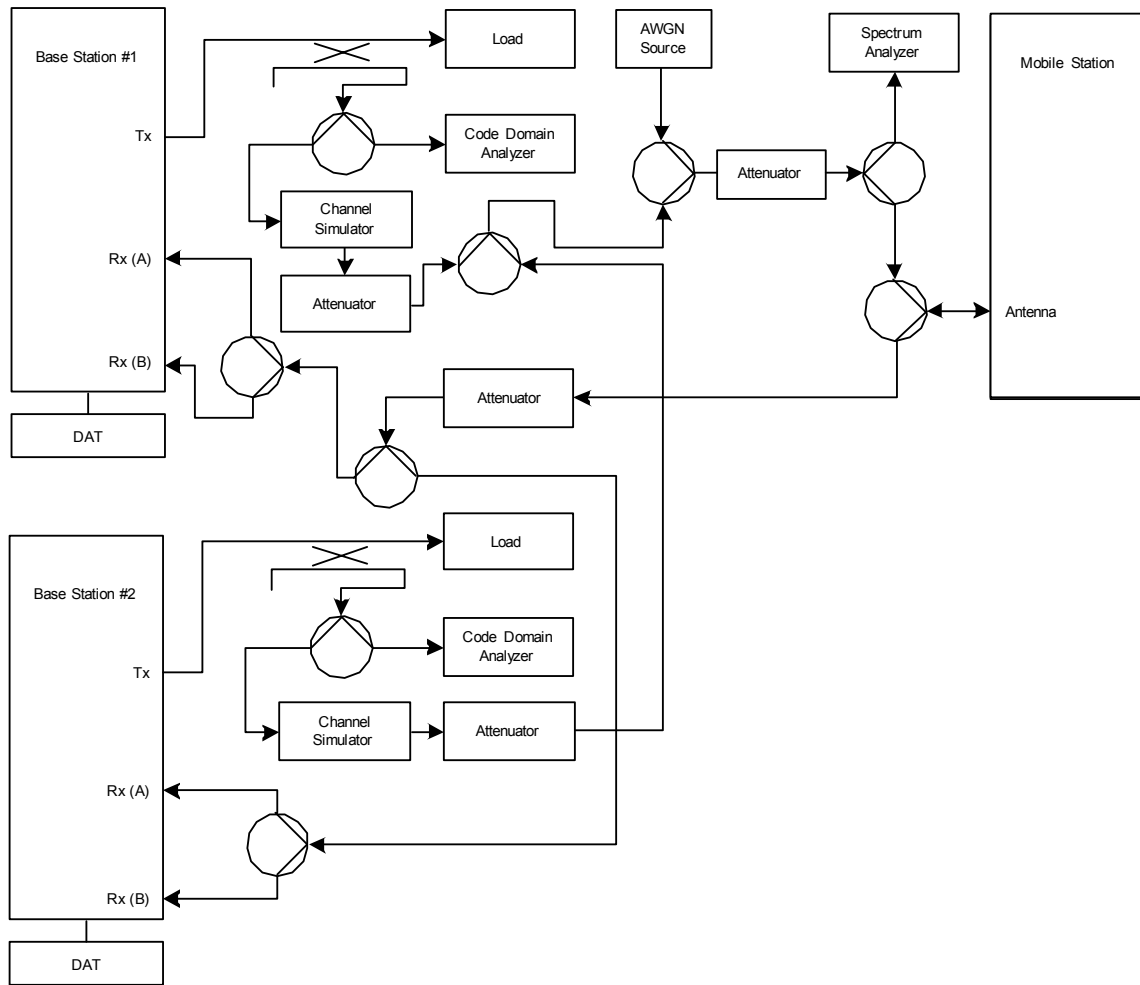


5

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Figure 4

1

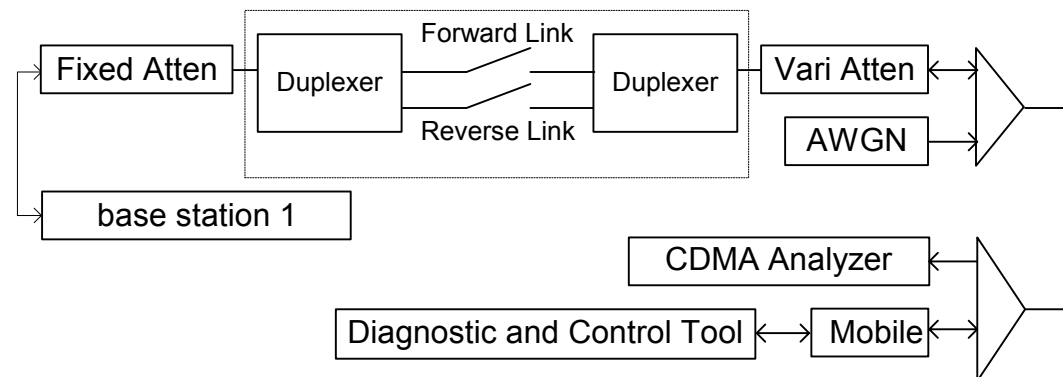


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Figure 5

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5

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Figure 6

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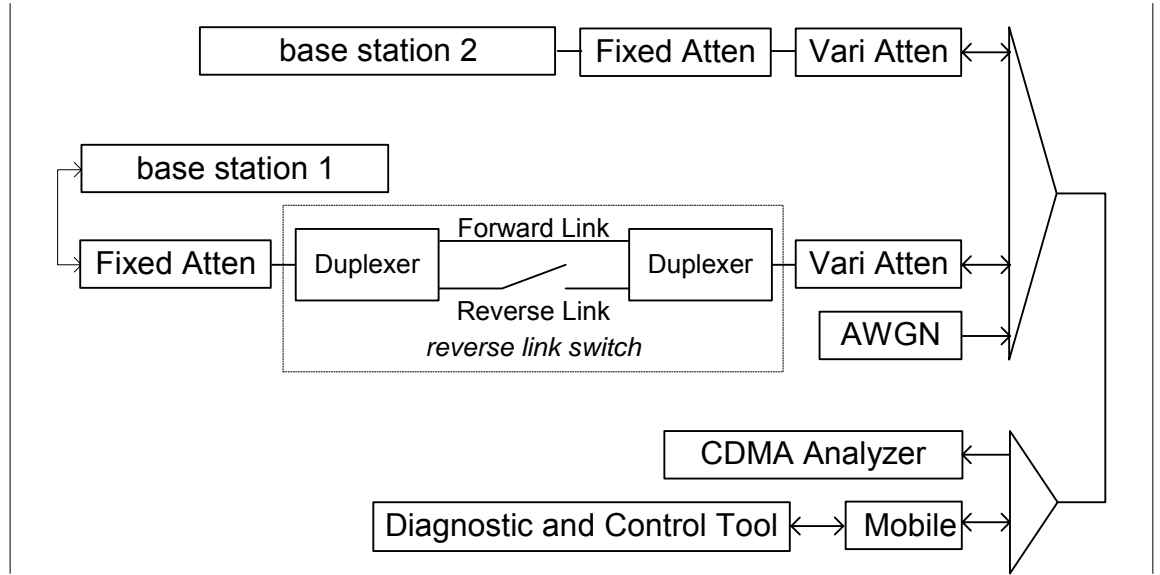


Figure 7

- 1
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1 Annex B RF Parameters

2 B.1 Power Ratios for Common and Traffic Channels

3
 4 Annex B.1 provides the proper power ratios to perform a test when the power ratios are not
 5 specified in the test. The tables below specify power ratios for the Pilot Channel, the Sync
 6 Channel, the Paging Channel, the Forward Common Control Channel, the Broadcast Control
 7 Channel, the Fundamental Channel, the Dedicated Control Channel, the Supplemental Code
 8 Channels and the Supplemental Channels. The traffic channel power ratios are specified to
 9 achieve at least 1% FER under AWGN channel conditions. Most channels can be configured for
 10 more than one data rate, code rate, or frame size. Not all default configurations are listed in this
 11 Annex. However, the power ratios listed in this Annex do provide the most conservative default
 12 ratios when only a subset of the values are listed for a particular channel, since the objective of
 13 these default ratios is to support signaling conformance tests and not minimum performance
 14 tests. All power ratios are valid for Band Classes 0 through 12. Whenever the power ratios are
 15 specified in the test, those power ratios should be used in lieu of power ratios provided in this
 16 Annex.

17
 18 **Table B.1-1 Power Ratios for Common Channels**

Parameter	Units	Value
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Sync } E_c}{I_{or}}$	dB	-16
$\frac{\text{Paging } E_c}{I_{or}}$	dB	-12 (9600 bps)
$\frac{\text{BCCH } E_c}{I_{or}}$	dB	-15.2 (9600bps, no TD)
$\frac{\text{FCCCH } E_c}{I_{or}}$	dB	-12.8 (19200 bps) -9.5 (38400 bps)
I_{oc}	dBm/1.23 MHz	-54

19
 20
 21 **Table B.1-2 Test Parameters for Forward Fundamental Channel (RC1, RC3 and RC4)**

Parameter	Units	Value
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1
$\frac{\text{FCH } E_c}{I_{or}}$ (RC1)	dB	-15.6

$\frac{FCH Ec}{I_{or}}(RC3)$	dB	-16.2
$\frac{FCH Ec}{I_{or}}(RC4)$	dB	-15.4
I _{oc}	dBm/1.23 MHz	-54
Data Rate	bps	9600

1
2
3
4

Table B.1-3 Test Parameters for Forward Fundamental Channel (RC2 and RC5)

Parameter	Units	Value
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1
$\frac{FCH Ec}{I_{or}}(RC2)$	dB	-12.3
$\frac{FCH Ec}{I_{or}}(RC5)$	dB	-13.8
I _{oc}	dBm/1.23 MHz	-54
Data Rate	bps	14400

5
6
7

Table B.1-4 Test Parameters for Forward Dedicated Control Channel (RC3 and RC4)

Parameter	Units	Value
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1
$\frac{FCH Ec}{I_{or}}(RC3)$	dB	-16.2
$\frac{FCH Ec}{I_{or}}(RC4)$	dB	-15.4
I _{oc}	dBm/1.23 MHz	-54
Data Rate	bps	9600

8
9

Table B.1-5 Test Parameters for Forward Dedicated Control Channel (RC5)

Parameter	Units	Value
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1
$\frac{FCH Ec}{I_{or}}$	dB	-13.8
I _{oc}	dBm/1.23 MHz	-54
Data Rate	bps	14400

10

11
12
13

Table B.1-6 Test Parameters for Forward Supplemental Code Channel (RC1)

Parameter	Units	Value
-----------	-------	-------

$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1
$\frac{SCCH Ec}{I_{or}}$	dB	-16.1
$\frac{FCH Ec}{I_{or}}$	dB	-12.0
I_{oc}	dBm/1.23 MHz	-54
Data Rate	bps	9600

1
2
3

Table B.1-7 Test Parameters for Forward Supplemental Code Channel (RC2)

Parameter	Units	Value
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1
$\frac{SCCH Ec}{I_{or}}$	dB	-13.0
$\frac{FCH Ec}{I_{or}}$	dB	-12.0
I_{oc}	dBm/1.23 MHz	-54
Data Rate	bps	14400

4
5
6

Table B.1-8 Test Parameters for Forward Supplemental Channel (RC3 and RC4)

Parameter	Units	Value			
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1			
$\frac{SCH Ec}{I_{or}}$ (RC3)	dB	-13.0	-9.7	-6.6	-3.2
$\frac{SCH Ec}{I_{or}}$ (RC4)	dB	-12.6	-9.3	-6.0	-2.8
$\frac{FCH Ec}{I_{or}}$	dB	-7.0			
I_{oc}	dBm/1.23 MHz	-54			
Data Rate	bps	19200	38400	76800	153600

7
8
9

Table B.1-9 Test Parameters for Forward Supplemental Channel (RC5)

Parameter	Units	Value			
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1			
$\frac{SCH Ec}{I_{or}}$	dB	-10.9	-7.9	-4.6	-1.4
$\frac{FCH Ec}{I_{or}}$	dB	-7.0			

loc	dBm/1.23 MHz	-54			
Data Rate	bps	28800	57600	115200	230400

1
2
3

4 **B.2 CDMA Equations**

5

6 The following equations describe the relationship between various test parameters under different
7 conditions. If the Paging Channel is not supported, the Forward Common Control Channel may
8 be substituted.

9 **B.2.1 Transmit Power of the Base Station**

$$10 \frac{\text{Pilot } E_c}{I_{or}} + \frac{\text{TD Pilot } E_c}{I_{or}} + \frac{\text{Sync } E_c}{I_{or}} + \frac{\text{QPCH } E_c}{I_{or}} + \frac{\text{Paging } E_c}{I_{or}} + \frac{\text{FCCCH } E_c}{I_{or}} + \frac{\text{BCCH } E_c}{I_{or}} +$$

$$11 \frac{\text{CACH } E_c}{I_{or}} + \frac{\text{CPCCH } E_c}{I_{or}} + \frac{\text{FCH } E_c}{I_{or}} + \frac{\text{DCCH } E_c}{I_{or}} + \frac{\text{Power Control } E_c}{I_{or}} + \frac{\text{SCCH } E_c}{I_{or}} +$$

$$12 \frac{\text{SCH } E_c}{I_{or}} + \frac{\text{OCNS } E_c}{I_{or}} = 1$$

13

14 Using the $\frac{E_c}{I_{or}}$ values for the Pilot, Sync and Paging Channels in Table B.1-1,

15 If $\frac{\text{Dedicated } E_c}{I_{or}} = -16 \text{ dB}$ at 9600 bps data rate, then

$$16 \frac{\text{Power Control } E_c}{I_{or}} = -26.41 \text{ dB}$$

$$17 \frac{\text{OCNS } E_c}{I_{or}} = -1.64 \text{ dB}$$

18 Otherwise, if $\frac{\text{Dedicated } E_c}{I_{or}} = -16 \text{ dB}$ at 1200 bps data rate, then

$$19 \frac{\text{Power Control } E_c}{I_{or}} = -17.38 \text{ dB}$$

$$20 \frac{\text{OCNS } E_c}{I_{or}} = -1.75 \text{ dB}$$

21

22 Where "Dedicated" can represent FCH or DCCH.

23

24 **B.2.2 Received Signal Strength for Mobile Station Not in Handoff**

25

$$1 \quad \text{Pilot } \frac{E_c}{I_0} = \frac{\text{Pilot } E_c}{\frac{I_{or}}{\hat{I}_{or}} + 1}$$

2

3 **Single-Path Case**

$$4 \quad \text{Common } \frac{E_b}{N_t} = \frac{\frac{\text{Common } E_c}{I_{or}} \times \text{Common_Chip_Bit}}{\frac{I_{oc}}{\hat{I}_{or}}}$$

$$5 \quad \text{Dedicated } \frac{E_b}{N_t} = \frac{\frac{\text{Dedicated } E_c}{I_{or}} \times \text{Dedicated_Chip_Bit}}{\frac{I_{oc}}{\hat{I}_{or}}}$$

6

7 Where "Common" can be applied to Sync Channel, QCPH, Paging Channel, BCCH, or FCCCH.

8 "Dedicated" can be applied to FCH, DCCH, SCCH, or SCH.

9

10

11 **Two-Path Case**12 According to Channel Simulator Configuration 1 and 2 (see 6.4.1.1), these two paths have the
13 same average power.

$$14 \quad \text{Dedicated } \frac{E_b}{N_t} = \frac{\text{Dedicated } E_c}{I_{or}} \times \text{Dedicated_Chip_Bit} \times \frac{1}{\frac{I_{oc}}{\hat{I}_{or}} + \frac{1}{2}}$$

15

16 Where "Dedicated" can be applied to FCH, DCCH, SCCH, or SCH.

17

18 **Three-Path Case**19 According to Channel Simulator Configuration 4 (see 6.4.1.1), the first two paths have the same
20 average power and the third path has half the average power of the first one.

$$21 \quad \text{Dedicated } \frac{E_b}{N_t} = \frac{\text{Dedicated } E_c}{I_{or}} \times \text{Dedicated_Chip_Bit} \times \left(2 \times \frac{\frac{2}{5}}{\frac{I_{oc}}{\hat{I}_{or}} + \frac{3}{5}} + \frac{\frac{1}{5}}{\frac{I_{oc}}{\hat{I}_{or}} + \frac{4}{5}} \right)$$

22

23 Where "Dedicated" can be applied to FCH, DCCH, SCCH, or SCH.

24

25

1 **B.2.3 Received Signal Strength for Mobile Station in Two-Way Handoff**

2 According to Channel Simulator Configuration 2 (see 6.4.1.1), which is used in the tests of the
 3 Forward Traffic Channel in two-way handoff, there are two paths from each cell and the power
 4 received from each cell is \hat{I}_{or} .

$$5 \quad \text{Pilot } \frac{E_c}{I_0} \text{ (for each pilot)} = \frac{\text{Pilot } E_c}{\frac{I_{oc}}{\hat{I}_{or}} + 2}$$

$$6 \quad \text{Dedicated } \frac{E_b}{N_t} = \frac{\text{Dedicated } E_c}{I_{or}} \times \text{Dedicated_Chip_Bit} \times \frac{\frac{3}{2}}{\frac{I_{oc}}{\hat{I}_{or}} + \frac{3}{2}}$$

7 Where “Dedicated” can be applied to FCH, DCCH, SCCH, or SCH.

8

9 Generally, if the power received from cell 1 and cell 2 are \hat{I}_{or1} and \hat{I}_{or2} , respectively, then

$$10 \quad \text{Pilot } \frac{E_c}{I_0} 1 = \frac{\text{Pilot } E_{c1}}{\frac{I_{oc}}{\hat{I}_{or1}} + \frac{\hat{I}_{or2}}{\hat{I}_{or1}} + 1}$$

11

$$12 \quad \text{Pilot } \frac{E_c}{I_0} 2 = \frac{\text{Pilot } E_{c2}}{\frac{I_{oc}}{\hat{I}_{or2}} + \frac{\hat{I}_{or1}}{\hat{I}_{or2}} + 1}$$

13

1 Annex C Base Station and Mobile Station Configurations

- 2 a. Whenever common channels and/or traffic channels are required to perform a test,
3 and their power ratios are not specified in the test, the power ratios specified in
4 Annex A should be used. Adjust the Orthogonal Channel Noise Simulator (OCNS)
5 gain such that power ratios (E_c/I_{or}) of all specified forward channels add up to one. If
6 OCNS is not available, the levels of code channels and attenuators should be
7 adjusted to maintain proper test parameters.
- 8 b. During handoff tests between sectors of the same cell, Channel 2 from the beta
9 sector shall have a maximum relative offset of 1 μ s from Channel 1 of the alpha
10 sector at the mobile station antenna connector.
- 11 c. During soft and intersector handoff tests, the neighbor list of the base station in the
12 test shall include PN offsets of the other base station in the test.
- 13 d. Pilot PN sequence offsets are denoted by P_i ($i=1, 2, 3, \dots$). The following are
14 assumed unless otherwise specified:
- 15 • $0 \leq P_i \leq 511$
 - 16 • P_i not equal to P_j if i not equal to j
 - 17 • $P_i \bmod \text{PILOT_INC} = 0$
- 18
- 19 e. Base stations should be configured for normal operation as specified in IS-2000
20 unless otherwise specified in a specific test.
- 21 f. Unless otherwise specified, the Reverse Traffic Channel should be operated at a
22 sufficiently high E_b/N_o to ensure insignificant (for example, less than 1%) frame error
23 rate (FER).
- 24 g. Overhead message fields should be those required for normal operation of the base
25 station unless otherwise specified in the following tables or in a specific test.

26

Field	Value (With Hard Handoff)	Value (Without Hard Handoff)
T_ADD	28 (-14 dB)	28 (-14 dB)
T_DROP	32 (-16 dB)	32 (-16 dB)
T_COMP	5 (2.5 dB)	5 (2.5 dB)
T_TDROP	3 (4 sec)	3 (4 sec)
HARD_INCLUDED (EHDM)/ EXTRA_PARMS (GHDM/UHDM)	1	N/A
FRAME_OFFSET	0	N/A
PRIVATE_LCM	0	N/A
RESET_L2	1	N/A

RESET_FPC	1	N/A
SERV_NEG_TYPE	1	N/A
ENCRYPT_MODE	0	N/A
NOM_PWR_EXT	0	N/A
NOM_PWR	0	N/A
NUM_PREAMBLE	0	N/A
BAND_CLASS	(user specify)	N/A
CDMA_FREQ	F2	N/A
PILOT_PN	user specify	N/A
PWR_COMB_IND	0	N/A
CODE_CHAN	1 to 63 (user specify)	N/A

1
2

Field	Value
SID	Use appropriate number for analog system.
VMAC	3
ANALOG_CHAN	Use appropriate analog channel of choice.
SCC	Use one of three SAT Color Code (0, 1 or 2).
MEM	0
AN_CHAN_TYPE	0
DSCC_MSB	0

3
4

Field	Value (Physical Meaning)
SRCH_WIN_A	8 (60 chips)
SRCH_WIN_N	8 (60 chips)
SRCH_WIN_R	8 (60 chips)
NGHBR_MAX_AGE	0 (minimum amount)
PWR_THRESH_ENABLE	0 (threshold reporting off)
PWR_PERIOD_ENABLE	0 (periodic reporting off)
T_ADD	28 (-14 dB E_c/I_o)
T_DROP	32 (-16 dB E_c/I_o)
T_COMP	5 (2.5 dB)
T_TDROP	3 (4 sec)
QPCH_SUPPORTED	0 (QPCH disabled)

5
6

Field	Value (Decimal)
SOFT_SLOPE	0 (0)
RLGAIN_TRAFFIC_PILOT	0 (0 dB)

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Field	Value (Decimal)
NOM_PWR	0 (0 dB)
INIT_PWR	0 (0 dB)
PWR_STEP	1 (1 dB)
NUM_STEP	4 (5 probes/sequence)
NOM_PWR_EXT	0 (0 dB)

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Constant	Value	Unit
N1m	13	frames
N2m	12	frames
N3m	2	frames
N11m	1	frame
T1b	1.28	seconds
T5m	5	seconds
T31m	600	seconds
T40m	3	seconds
T56m	0.2	seconds
T61m	0.08	seconds

2 Note: When operating in P_REV less than 6, N1m equal to 9 may be acceptable.

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