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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 cdma*2000*®[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 ±10% is assumed. Unless otherwise specified, the Ior/Ioc value shall

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be within ±0.1 dB of the value specified, and the Ioc 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.

Ec/Io - 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 – *Genaral 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 Telecomunication 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 correct**ly**

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-Negotiatable Sercive 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

$\frac{\textbf{OCNS Ec}}{\textbf{Ior}}$ **-** 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 x 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.

$\frac{\textbf{Paging Ec}}{\textbf{Ior}}$ **-** 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 $\frac{\mathbf{E_c}}{\mathbf{I_o}}$ **-** 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.

$\frac{\mathbf{Pilot\ Ec}}{\mathbf{Ior}}$ **-** 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 Ec/Io.

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.

$\frac{\textbf{Power Control } \mathbf{E_c}}{\mathbf{I_{or}}}$ **-** 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 x 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 x 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 $\frac{\mathbf{Ec}}{\mathbf{Ior}}$ - 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.

$\frac{\mathbf{Sync\ Ec}}{\mathbf{Ior}}$ **-** 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.

$\frac{\textbf{Traffic Ec}}{\textbf{Ior}}$ **-** 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 Coordiné. 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 μs.

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.

μs - 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*
22 Reserved
23 3GPP2 C.S0023-D, *Removable User Identity Module for Spread Spectrum Systems*, September 2002.

Informative Document References

IR 1. 3GPP2 C.R1001-D, Administration of Parameter Value Assignment for TIA/EIA Spread Spectrum Standards

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).

1.2.1.2 Traceability (See [4]):

2.6.1.3 Sync Channel Acquisition Substate
3.4.1 Access Channel

1.2.1.3 Call Flow Example(s)

None

1.2.1.4 Method of Measurement

a. Connect the base station to the mobile station as shown in Annex A Figure 1.

b. Configure the base station to send values for P_REV and MIN_P_REV in the *Sync Channel Message* greater than the value of MOB_P_REVp in the mobile station.

c. Power on the mobile station.

d. Verify that the mobile station does not indicate CDMA service is available.

e. Attempt to set up a mobile station originated call.

f. Verify that the mobile station does not send any messages on the CDMA Access Channel or Enhanced Access channel.

1.2.1.5 Minimum Standard

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

1.2.2 Base Station Test

None

1.3 Enhanced Access Testing

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

1.3.1 Mobile Station Test

1.3.1.1 Support of the Basic Access Mode

1.3.1.1.1 Definition

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

1.3.1.1.2 Traceability (See [2]):

2.2.1.1.2.1.6 Enhanced Access Channel Procedures

2.2.1.1.2.2.4 Enhanced Access Channel Procedures
2.2.1.1.2.2.5 Common Assignment Channel Procedures
2.2.1.1.2.3.4 Enhanced Access Channel Procedures
Common Assignment Channel Procedures

(See [4]):

2.6.2.2.15 Enhanced Access Parameters Message

1.3.1.1.3 Call Flow Diagram

None

1.3.1.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Configure the base station to set the fields of the *Enhanced Access Parameters 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’.

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

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

c. Make a mobile station originated call.

d. Verify user data in both directions.

e. Set RATE_SIZE_2 subfield corresponding to EACH_BA_RATES_SUPPORTED to '1' and the other subfields to '0' (see Table 1.3.1.1.4-1) and repeat steps b and d.

f. Set RATE_SIZE_4 subfield corresponding to EACH_BA_RATES_SUPPORTED to '1' and the other subfields to '0' (see Table 1.3.1.1.4-1) and repeat steps b and d.

g. Repeat step b and c with ACCESS_MODE_MAX_DURATION set to 1 (5 ms) and RATE_SIZE_1 subfield corresponding to EACH_BA_RATES_SUPPORTED set to 1 (9600 bps) and the other subfields set to '0'.

h. Verify that the mobile station does not transmit any access probes.

i. Repeat steps b and d with ACCESS_MODE_MAX_DURATION set to 80 (400 ms) and RATE_SIZE_1 subfield corresponding to EACH_BA_RATES_SUPPORTED set to 1 (9600 bps) and the other subfields set to '0'.

1.3.1.1.5 Minimum Standard

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

1.3.1.2 TA Timer for Basic Access Mode

1.3.1.2.1 Definition

This test verifies the mobile station shall correctly process the *Enhanced Access Parameters Message* for Basic Access Mode. In addition, it also verifies the proper operation of the TA timer.

1.3.1.2.2 Traceability (See [3]):

2.1.1.2.2.2 Requirement for Transmission and Retransmission Procedures

(See [4]):

2.6.2.2.15 Enhanced Access Parameters Message
2.6.3.1.1 Access Attempts
3.7.2.3.2.33 Enhanced Access Parameters Message

1.3.1.2.3 Call Flow Diagram

None

1.3.1.2.4 Method of Measurement

a. Connect the base station to the mobile station as shown in Annex A Figure 1.

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

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

c. Ensure that the mobile station has been previously registered, and then disable all forms of registration (to ensure that the registration access probes do not interfere with the test).

d. Disable the reverse link to allow the mobile station to exhaust all its access probes. This may be accomplished by instructing the base station not to acknowledge the probes.

e. Make a mobile station-originated Call, and verify that the mobile station uses the access parameters specified in Table 1.3.1.2.4-2.

f. Make a mobile station-terminated call, and verify that the mobile station uses access parameters specified in Table 1.3.1.2.4-2.

g. Repeat steps b through f for Scenario 2 and Scenario 3 as shown in Tables 1.3.1.2.4-1 and 1.3.1.2.4-2.

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

1.3.1.2.5 Minimum Standard

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

1.3.2 Base Station Test

None

1.4 SYNC Channel Support

1.4.1 Mobile Station Test

1.4.1.1 Definition

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

1.4.1.2 Traceability (See [4]):

2.6.1.3 *Sync Channel Acquisition Substate*
3.7.2.3.2.26 *Sync channel message*

1.4.1.3 Call Flow Diagram

None

1.4.1.4 Method of Measurement

Case 1: MS (not capable of TD, or not capable of QPCH or RC>2)
Case 1.1: 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 1.1 in Table 1.4.1.4-1.
e. Verify that the mobile station stays on CDMA Channel 1.
f. Make a Mobile-To-Land voice call and verify audio in both directions.
g. End the call.

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.

Case 1.2: 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.

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

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

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

g. End the call.

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

Case 1.3: BS (P_REV=7, capable of Non-TD BCCH but not 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 1.3 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 1.4: BS (P_REV=7, capable of TD but not Non-TD BCCH)

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* frequency allocation according to case 1.4 in Table 1.4.1.4-1.

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

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

g. End the call.

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.

d. Instruct the base station to send a *Sync Channel Message* with frequency allocation according to case 2.2 in Table 1.4.1.4-2.

e. Verify that the mobile station tunes to CDMA Channel 2.

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

g. End the call.

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

Case 2.3: BS (P_REV=7, capable of Non-TD BCCH but not 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 2.3 in Table 1.4.1.4-2.

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

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 2.4 in Table 1.4.1.4-2.

e. Verify that the mobile station tunes to CDMA Channel 2.

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

g. End the call.

Case 2.5: 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 2.5 in Table 1.4.1.4-2.

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 3: MS (capable of TD and QPCH or RC>2)
Case 3.1: 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 3.1 in Table 1.4.1.4-3.

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 1.4.1.4-3 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)

Case 3.2: 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.

d. Instruct the base station to send a *Sync Channel Message* with frequency allocation according to case 3.2 in Table 1.4.1.4-3.

e. Verify that the mobile station tunes to CDMA Channel 2.

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.

g. End the call.

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

Case 3.3: BS (P_REV=7, capable of Non-TD BCCH but not 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 3.3 in Table 1.1.4.1.4-3.

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

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 3.4 in Table 1.4.1.4-3.

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

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

g. End the call.

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

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 3.5 in Table 1.4.1.4-3.

e. Verify that the mobile station tunes to CDMA Channel 2.

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

g. End the call.

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

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 3.6 in Table 1.4.1.4-3.
e. Verify that the mobile station tunes to CDMA Channel 4.
f. Make a Mobile-Originated voice call and verify audio in both directions.
g. End the call.

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

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 3.7 in Table 1.1.4.1.4-3.
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.

For backward compatibility, MOB_P_REV=6

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

Case 1.1: BS (P_REV<6)

a. Connect the base station to the mobile station as shown in Figure 1.10.2-1. Set PILOT_INC to 1.
b. At the base station, Set Pilot PN offset to a certain value.
c. Configure the base station to send a *Sync Channel Message* withCDMA_FREQ set to CDMA Channel 1.
d. Verify that the mobile station stays on CDMA channel 1.
e. Set up a mobile station originated voice call and verify audio in both directions.
f. End the call.

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

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

b. At the base station, Set Pilot PN offset to an arbitrary value.

c. Configure the base station to send a *Sync Channel Message* with CDMA_FREQ set to CDMA Channel 1 and EXT_CDMA_FREQ set to CDMA Channel 2 (a different frequency than CDMA channel 1).

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

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

f. End the call.

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

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

b. At the base station, Set Pilot PN offset to an arbitrary value.

c. Configure the base station to send a Sync Channel Message with CDMA_FREQ set to CDMA Channel 1 and EXT_CDMA_FREQ set to CDMA Channel 2 (a different frequency than CDMA channel 1).

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

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

f. End the call.

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

Case 2.1: BS (P_REV<6)

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

b. At the base station, Set Pilot PN offset to an arbitrary value.

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

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

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

f. End the call.

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

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

b. At the base station, Set Pilot PN offset to an arbitrary value.

c. Configure the base station to send a Sync Channel Message withCDMA_FREQ set to CDMA Channel 1 and EXT_CDMA_FREQ set to CDMA Channel 2 (a different frequency than CDMA channel 1).

d. Verify that the mobile station stays on CDMA channel 2.

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

f. End the call.

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

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

b. At the base station, Set Pilot PN offset to an arbitrary value.

c. Configure the base station to send a Sync Channel Message with CDMA_FREQ set to CDMA Channel 1 and EXT_CDMA_FREQ set to CDMA Channel 2 (a frequency where QPCH or RC>2 is supported - whichever feature is supported by the mobile station).

d. Verify that the mobile station tunes to CDMA channel 2 and acquire the system.

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

f. End the call.

1.4.1.5 Minimum Standard

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

1.4.2 Base Station Test

N/A.

1.5 Hashing F-CCCH, F-CCCH slot

1.5.1 Mobile Station Test

1.5.1.1 Definition

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

1.5.1.2 Traceability (See [4]):

2.6.7.1 Hash Function
3.6.2.1.2 Common Channel Determination
3.6.2.1.3 Paging Slot Determination

1.5.1.3 Call Flow Diagram

None

1.5.1.4 Methods of Measurement

1.5.1.4.1 F-CCCH Number Hashing

a. Connect the base station and mobile station as shown in Annex A Figure 1, and configure the base station system with multiple F-CCCHs (maximum seven) in *MC-RR Parameters Message*.

b. Send a *Registration Request Order* from the base station on the correct F-CCCH and verify that the mobile station responds with a *Registration Message*.

c. Change the number of F-CCCHs so that a (correct) hashing operation selects a different F-CCCH number assignment, and repeat steps a and b.

1.5.1.4.2 F-CCCH Slot Number Hashing

a. Connect the base station and mobile station as shown in Annex A Figure 1, configure the base station system with slotted mode capability.

b. Send a *Registration Request Order* from the base station on the correct F-CCCH Slot and verify that the mobile station responds with a *Registration Message*.

c. Change the IMSI of the MS, so that a (correct) hashing operation selects a different F-CCCH Slot number assignment then repeat steps a and b.

1.5.1.5 Minimum Standard

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

1.5.2 Base Station Test

1.5.2.1 Definition

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

1.5.2.2 Traceability (See [4]):

2.6.7.1 Hash Function
3.6.2.1.2 Common Channel Determination
3.6.2.1.3 Paging Slot Determination

1.5.2.3 Call Flow Diagram

None

1.5.2.4 Methods of Measurement

1.5.2.4.1 F-CCCH Number Hashing

Case 1: MS (MOB_P_REV=7)

a. Connect the base station and mobile station as shown in Annex A Figure 1, and configure the base station system with a multiple F-CCCHs (maximum seven) in *MC-RR Parameters Message*.

b. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify that the base station has paged the mobile on the correct F-CCCH.

c. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different F-CCCH number assignment, and repeat steps a and b.

Case 2: MS (MOB_P_REV<7)

a. Connect the base station and mobile station as shown in Annex A Figure 1, and configure the base station system with a mix of multiple F-PCHs and F-CCCHs (maximum seven) in *System Parameters Message* and *MC-RR Parameters Message*.

b. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify that the base station has paged the mobile station on F-PCH.

1.5.2.4.2 F-CCCH Slot Number Hashing

a. Connect the base station and mobile station as shown in Annex A Figure 1, configure the base station system with slotted mode capability, and verify the mobile station goes into slotted mode.

b. Send a *Registration Message* from the mobile station. Make a Mobile-Terminated voice call, and verify that the base station has paged the mobile station on the correct F-CCCH slot.

c. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different F-CCCH Slot number assignment, and repeat steps a and b.

1.5.2.5 Minimum Standard

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

1.6 CDMA Channel Hashing on F-PCH

1.6.1 Mobile Station Test

1.6.1.1 Definition

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

1.6.1.2 Traceability (See [4]):

2.6.2.2 *Response to Overhead Information Operation*
2.6.2.2.12.1 *Extended CDMA Channel List Message on Paging Channel*
2.6.2.2.12.2 *Extended CDMA Channel List Message on Primary Broadcast Control Channel*
2.6.7.1 *Hash Function*
3.6.2.1.1 *CDMA Channel Determination*
3.7.2.3.2.28 *Extended CDMA Channel List Message*

1.6.1.3 Call Flow Diagram

None

1.6.1.4 Methods of Measurement

Case 1: MS (not capable of QPCH (or RC>2))
Case 1.1: BS (P_REV<6)

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

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

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

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 Paging Channel on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.

d. Send a *Registration Request Order* from the base station on the correct CDMA channel based on the mobile station's IMSI and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

Case 2: MS (MOB_P_REV=7, capable of QPCH or RC>2)
Case 2.1: BS (P_REV<6)

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

b. Connect the base station and the mobile station as shown in Annex A Figure 2, and configure the base station for multiple channel assignment capability. Ensure that there is one Paging channel on each CDMA Channel.

c. Ensure 3 CDMA Channels are included in *CDMA Channel List Message*.

d. Send a *Registration Request Order* from the base station on the correct CDMA channel based on the mobile station's IMSI and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

Case 2.2: BS (P_REV>=6, incapable of BCCH and QPCH or RC>2 with *Extended CDMA Channel List Message* sent)

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 Paging Channel on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

d. Send a *Registration Request Order* from the base station on the correct CDMA channel based on the mobile station's IMSI and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

Case 2.3: BS (P_REV>=6, incapable of BCCH, capable of QPCH (or RC>2) with *Extended CDMA Channel List Message* sent)

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 Paging Channel on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.

d. Send a *Registration Request Order* from the base station on the correct CDMA channel based on the mobile station's IMSI and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

1.6.1.5 Minimum Standard

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

1.6.2 Base Station Test

1.6.2.1 Definition

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

1.6.2.2 Traceability (See [4]):

2.6.2.2	*Response to Overhead Information Operation*
2.6.2.2.12.1	*Extended CDMA Channel List Message on Paging Channel*
2.6.7.1	*Hash Function*
3.6.2.1.1	*CDMA Channel Determination*
3.7.2.3.2.28	*Extended CDMA Channel List Message*

1.6.2.3 Call Flow Example(s)

None

1.6.2.4 Methods of Measurement

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

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 Paging Channel on each of the 8 CDMA channels.

c. Provision the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 Paging Channel on each of the 3 CDMA channels.

c. Provision the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 Paging Channel on each of the 3 CDMA channels.

c. Provision the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 Paging Channel on each of the 3 CDMA channels.

c. Provision the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

1.6.2.5 Minimum Standard

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

1.7 CDMA Channel Hashing on F-BCCH

1.7.1 Mobile Station Test

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

1.7.1.1 Definition

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

1.7.1.2 Traceability (See [4]):

2.6.2.1.5	*Primary Broadcast Control Channel Monitoring*
2.6.2.2	*Response to Overhead Information Operation*
2.6.2.2.12.2	*Extended CDMA Channel List Message On Primary Broadcast Control Channel*
2.6.7.1	*Hash Function*
3.6.2.1.1	*CDMA Channel Determination*
3.7.2.3.2.28	*Extended CDMA Channel List Message*

1.7.1.3 Call Flow Example(s)

None

1.7.1.4 Method of Measurement

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

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

d. Send a *Registration Request Order* from the base station and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2

d. Send a *Registration Request Order* from the base station and verify the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure TD_HASH_IND is set to '1' for frequency 1 and RC_QPCH_HASH_IND is set to '1' for frequency 1 and 2.

d. Send a *Registration Request Order* from the base station and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

Case 2: MS (not capable of TD (STS) but capable of QPCH (or RC>2))
Case 2.1: BS (without TD (STS) and QPCH (or RC>2))

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

d. Send a *Registration Request Order* from the base station and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2.

d. Send a *Registration Request Order* from the base station and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure TD_HASH_IND is set to '1' for frequency 1 and RC_QPCH_HASH_IND is set to '1' for frequency 1,2 and 3.

d. Send a *Registration Request Order* from the base station and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

Case 3: MS (capable of both TD (STS) and QPCH (or RC>2))
Case 3.1: BS (without TD (STS) and QPCH (or RC>2))

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

b. Connect the base station and mobile station as shown in Annex A Figure 2, and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

d. Send a *Registration Request Order* from the base station and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for frequency 1 and 2.

d. Send a *Registration Request Order* from the base station and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Send an *Extended CDMA Channel List Message* with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure TD_HASH_IND is set to '1' for frequency 1 and 2, RC_QPCH_HASH_IND is set to '1' for all the frequencies.

d. Send a *Registration Request Order* from the base station and verify that the mobile station responds with a *Registration Message*.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

1.7.1.5 Minimum Standard

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

1.7.2 Base Station Test

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

1.7.2.1 Definition

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

1.7.2.2 Traceability IS-2000.5-A-2

2.6.2.1.5 Primary Broadcast Control Channel Monitoring
2.6.2.2 Response to Overhead Information Operation
2.6.2.2.12.2 Extended CDMA Channel List Message On Primary Broadcast Control Channel
2.6.7.1 Hash Function
3.6.2.1.1 CDMA Channel Determination
3.7.2.3.2.28 Extended CDMA Channel List Message

1.7.2.3 Call Flow Example(s)

None

1.7.2.4 Method of Measurement

Case 1: Configure the base station to operate without TD and QPCH (RC>2)
Case 1.1: MS (not capable of either TD or QPCH (RC>2))

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

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

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

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Configure the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Configure the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for freq 1 and 2

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Configure the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='0', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Configure the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='0' and NUM_FREQ='0011' from the base station and make sure RC_QPCH_HASH_IND is set to '1' for frequency 1 and 2.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

Case 3: Configure the base station to operate with TD (STS) and QPCH (RC>2)
Case 3.1: MS (not capable of either TD or QPCH (RC>2))

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Configure the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure TD_HASH_IND is set to '1' for frequency 1 and RC_QPCH_HASH_IND is set to '1' for frequency 1 and 2.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Configure the system so that *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure TD_HASH_IND is set to '1' for frequency 1 and RC_QPCH_HASH_IND is set to '1' for frequency 1,2 and 3.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

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

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

b. Connect the base station and mobile station as shown in Annex A Figure 2 and configure the base station with 1 primary BCCH on each of the 3 CDMA channels.

c. Configure the system so that the *Extended CDMA Channel List Message* is sent with RC_QPCH_SEL_INCL='1', TD_SEL_INCL='1' and NUM_FREQ='0011' from the base station and make sure TD_HASH_IND is set to '1' for frequency 1 and 2, RC_QPCH_HASH_IND is set to '1' for all the frequencies.

d. Send a *Registration Message* from the mobile station, then make a Mobile-Terminated voice call, and verify audio in both directions.

e. Change the IMSI in the mobile station so that a (correct) hashing operation selects a different CDMA channel number assignment, and repeat steps a to d.

1.7.2.5 Minimum Standard

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

1.8 F-CCCH SUPPORT

1.8.1 Mobile Station Test

1.8.1.1 Definition

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

1.8.1.2 Traceability (See [4]):

2.6.2.1.1 *Forward Channel Monitoring Procedures*
2.6.2.1.1.4 *Common Channel Supervision*
2.6.3.1.8 *Paging Channel and Forward Common Control Channel Monitoring*

1.8.1.3 Call Flow Example(s)

None

1.8.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Instruct the mobile station originate a voice call.

c. Instruct the base station to respond with a Layer 2 ACK and *Extended Channel Assignment Message* over F-CCCH.

d. Verify that the mobile station can set up the traffic channel for this voice call correctly.

1.8.1.5 Minimum Standard

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

1.8.2 Base Station Test

N/A.

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

1.9.1 Mobile Station Test

1.9.1.1 Definition

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

1.9.1.2 Traceability (See [4]):

2.7.1.3.2.3 Data Burst Message

1.9.1.3 Call Flow Example(s)

None

1.9.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Delete all outstanding short messages in the network for the mobile station.

c. Create a short message in the Message Center for the mobile station. Ensure that the short message length is less than the maximum allowed size on the paging channel or F-CCCH so that it can be sent to the mobile station on the Paging Channel or F-CCCH .

d. Power on the mobile station and wait until it is in the Mobile Station Idle State.

e. Instruct the network to send the short message to the mobile station on F-PCH. Verify the base station sends a *Data Burst Message* to the 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

f. Upon receiving the *Data Burst Message* at the mobile station, verify that the following:

1. The mobile station alerts the user for the incoming short message and correctly displays the received short message.

2. The mobile station transmits an Access Channel *Data Burst Message* to

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

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

1.9.1.5 Minimum Standard

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

1.9.2 Base Station Test

1.9.2.1 Definition

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

1.9.2.2 Traceability (See [4]):

3.7.3.3.2.4 Data Burst Message

1.9.2.3 Call Flow Example(s)

None

1.9.2.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Delete all outstanding short messages in the network for the mobile station.

c. Create a short message in the Message Center for the mobile station. Ensure that the short message length is less than the maximum allowed size on the paging channel or F-CCCH so that it can be sent to the mobile station on the Paging Channel or F-CCCH .

d. Power on the mobile station and wait until it is in the Mobile Station Idle State.

e. If F-PCH is supported, instruct the network to send the short message to the mobile station on F-PCH. Verify that the base station sends a *Data Burst Message* to the 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

f. Upon receiving the *Data Burst Message* at the mobile station, verify the following:

1. The content of the short message is correct

2. The network marks the message as sent upon receipt of the Access Channel *Data Burst Message* to acknowledge the short message

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

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

1.9.2.5 Minimum Standard

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

1.10 Quick Paging Channel CCI

1.10.1 Mobile Station Test

1.10.1.1 Definition

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

1.10.1.2 Traceability (See [4]):

2.6.2.1.1.3 *Slotted Mode Requirements*
2.6.2.1.2 *Quick Paging Channel Monitoring Procedures*
2.6.2.1.4 *Idle handoff*
2.6.7.1 *Hash Function*
3.6.2.5 *Quick Paging Channel Processing*
3.7.2.3.2.13 *Extended System Parameters Message*
3.7.2.3.2.14 *Extended Neighbor List Message*

1.10.1.3 Call Flow Example(s)

None

1.10.1.4 Method of Measurement

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

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

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

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

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)

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	

f. Slowly (over a period of several seconds, but not more than T31m = 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).

1.10.1.5 Minimum Standard

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

1.10.2 Base Station Test Case

None

1.11 Quick Paging Channel with Paging Indicator

1.11.1 Mobile Station Test

1.11.1.1 Definition

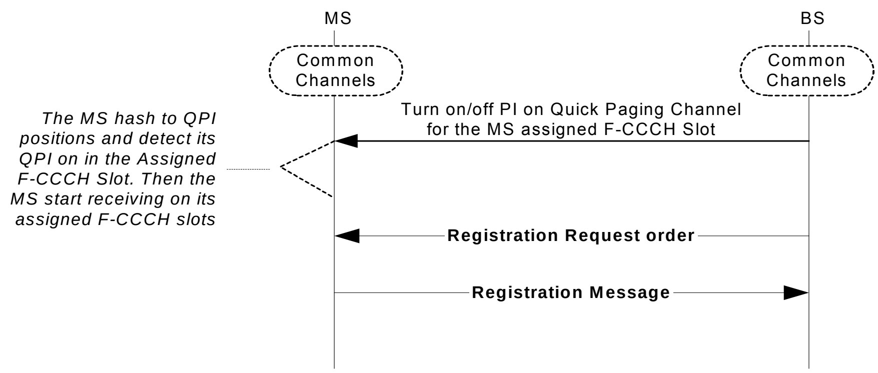
For mobile stations that support the Quick Paging Channel, this test will verify the following:

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

1.11.1.2 Traceability (See [4]):

2.6.2.1.2 *Quick Paging Channel Monitoring Procedures.*
2.6.7.1 *Hash Function*
2.7.1.3.2.1 *Registration Message*
3.7.2.3.2.13 *Extended System Parameters Message*

1.11.1.3 Call Flow Example(s)



1.11.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

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)

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

d. Send a *Registration Request Order* from the base station at expected Forward Common Control Channel slot on the Forward Common Control Channel, and verify that the mobile station responds with a *Registration Message*.

e. Repeat steps b through d with the QPCH_RATE set to 1 (9600 bps).

f. Repeat steps b through d using the Paging Channel.

1.11.1.5 Minimum Standard

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

1.11.2 Base Station test

None

1.12 *Status Request Message* Processing

1.12.1 Mobile Station Test

1.12.1.1 Definition

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

1.12.1.2 Traceability (See [4]):

2.6.3.5	*Mobile Station Origination Attempt Substate*
2.6.4.1.2	*Service Configuration and Negotiation*
2.6.4.1.14	*Processing the Service Configuration Record*
2.6.4.1.15	*Processing the Non-Negotiable Service Configuration Record*
2.6.4.2	*Traffic Channel Initialization Substate*
2.7.1.3.2.4	*Origination Message*
2.7.1.3.2.5	*Page Response Message*
2.7.1.3.2.10	*Extended Status Response Message*
2.7.2.3.2.14	*Service Connect Completion Message*
2.7.2.3.2.16	*Status Response Message*
3.6.3.5	*Response to Origination Message*
3.6.4.1.2	*Service Configuration and Negotiation*
3.7.2.3.2.15	*Status Request Message*
3.7.2.3.2.21	*Extended Channel Assignment Message*
3.7.3.3.2.20	*Service Connect Message*
3.7.5.7	*Service Configuration*
3.7.5.20	*Non-Negotiable Service Configuration*

1.12.1.3 Call Flow Example(s)

None

1.12.1.4 Method of Measurement

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

b. Instruct the base station to send a *Status Request Message* with on the f-csch to request one or more of the information records listed in section 2.7.4 of [4].

c. Verify the following:

1. If P_REV_IN_USE is greater than 3:

   a) The mobile station sends an *Extended Status Response Message* with the appropriate band class, operating mode, and information record; or

   b) The mobile station sends a *Mobile Station Reject Order* with ORDQ = 6 if the mobile station does not support the band class and/or operating mode specified in the *Status Request Message*; or

   c) The mobile station sends a *Mobile Station Reject Order* with ORDQ = 8 if the information record would exceed the allowable length or

   d) The mobile station sends a *Mobile Station Reject Order* with ORDQ = 9 if the information record is not supported for the specified band class and operating mode.

2. If P_REV_IN_USE is less than or equal to 3:

   a) The mobile station sends a *Status Response Message* with the appropriate band class, operating mode, and information record; or

   b) The mobile station sends a *Mobile Station Reject Order* with ORDQ = 6 if the mobile station does not support the band class and/or operating mode specified in the *Status Request Message*; or

   c) The mobile station sends a *Mobile Station Reject Order* with ORDQ = 8 if the information record would exceed the allowable length.

   d) The mobile station sends a *Mobile Station Reject Order* with ORDQ = 9 if the information record is not supported for the specified band class and operating mode.

d. Set up a mobile originated call.

e. Instruct the base station to send a *Status Request Message* on the f-dsch to request one or more of the information records listed in section 2.7.4 of [4].

f. Verify the following:

1. The mobile station sends a *Status Response Message* with the appropriate band class, operating mode, and information record; or

2. The mobile station sends a *Mobile Station Reject Order* with ORDQ = 6 if the mobile station does not support the band class and/or operating mode specified in the *Status Request Message*.

3. The mobile station sends a *Mobile Station Reject Order* with ORDQ = 9 if the information record is not supported for the specified band class and operating mode.

g. Repeat steps a through f for all information records.

1.12.1.5 Minimum Standard

The mobile station shall comply with steps c, and f.

1.12.2 Base Station Test

None

2 Basic Call processing

2.1 Forward Radio Link Failure

2.1.1 Mobile Station Test

2.1.1.1 Definition

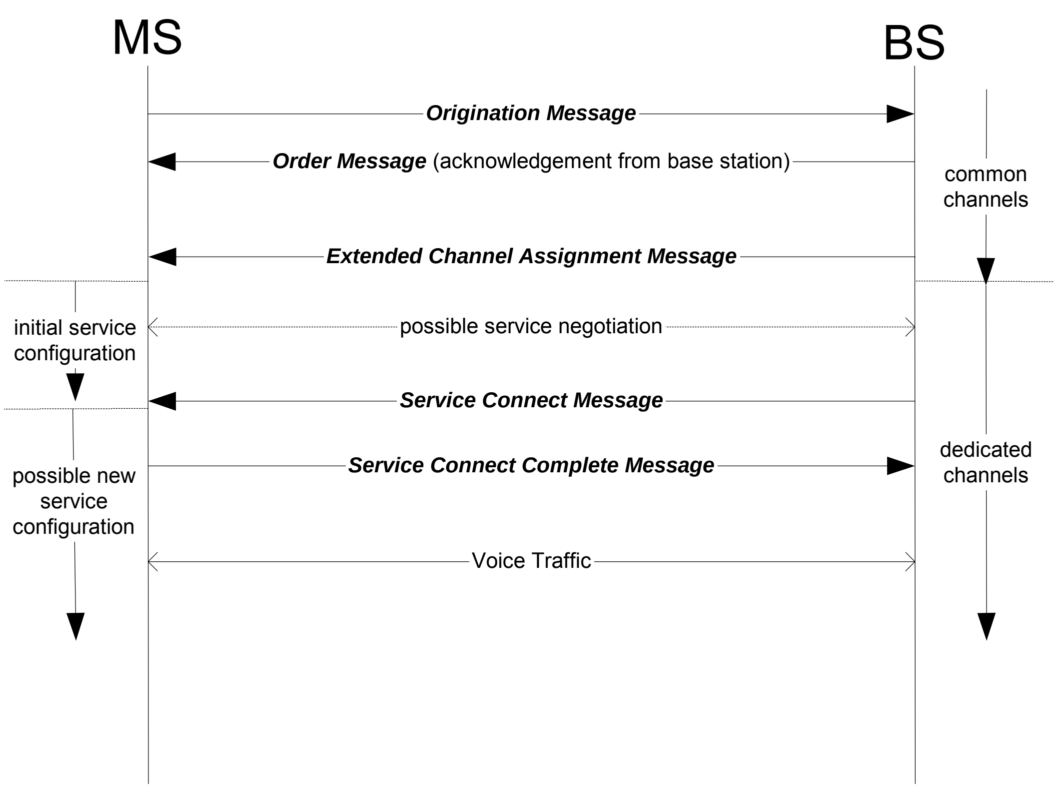
This tests mobile station's response to a loss of the forward RF link beginning at 4 points in mobile station originated call set up and conversation.

2.1.1.2 Traceability (See [4]):

2.6.2.1.1.4 Common Channel Supervision

2.6.4.1.8 Forward Traffic Channel Supervision

2.1.1.3 Call Flow Diagram



2.1.1.4 Method of Measurement

a. Configure a test setup with a connection of a single base station and the mobile station to allow the forward radio link to be abruptly attenuated, or interfered with, enough to cause continuous loss of all forward frames, as shown in Annex A Figure 6

b. Configure the setup for good RF links.

c. Allow the mobile station to come to the idle state on the base station.

d. Attempt a mobile station originated call.

e. Abruptly cause loss of the forward RF link beginning in Test 1 in table 2.1.1.4-1.

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

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

f. Restore the normal RF link after a minimum of 15 seconds for test ID 1, 2 and 3 and 25 seconds for test ID 4.

g. Verify that the call has ended.

h. Verify that the mobile station returns to the idle state on the base station.

i. Repeat steps b through h for intervals in Tests 2 through 4 in Table 2.1.1.4-1

2.1.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps gand h.

2.1.2 Base Station Test

None

2.2 Test Service Options

2.2.1 Mobile Station Test

2.2.1.1 Definition

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

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

2.6.4.1.2 Service Configuration and Negotiation
2.6.4.1.3 3.6.4.1.2 Service Configuration and Negotiation

2.2.1.3 Call Flow Diagram

None

2.2.1.4 Method of Measurement

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

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

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

c. Verify that the test calls are completed successfully.

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

2.2.1.5 Minimum Standard

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

2.2.2 Base Station Test

None

2.3 Busy Tone

2.3.1 Mobile Station Test

2.3.1.1 Definition

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

2.3.1.2 Traceability (See [4]):

2.6.4.4 Release Substate
3.6.4.3 Traffic Channel Substate
3.7.5 Information Records
Table 3.7.5.5-3 Tone Signals

2.3.1.3 Call Flow Diagram

None

2.3.1.4 Method of Measurement

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

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

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)

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

2.3.1.5 Minimum Standard

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

2.3.2 Base Station Test

None

2.4 Mobile station Response to *Reorder Order*

2.4.1 Mobile Station Test

2.4.1.1 Definition

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

2.4.1.2 Traceability (See [4]):

Table 3.7.4-1 Order and Order Qualification Codes
3.6.2.3 Mobile Station Directed Messages, Reorder Order
Table 3.7.5.5-3 Tone Signals, Network congestion (reorder) tone on: a 480 Hz tone added to a 620 Hz tone repeated in a 250 ms on, 250 ms off cycle
Table 3.7.5.5-3 Tone Signals, Abbreviated network congestion (reorder): a 480 Hz tone added to a 620 Hz tone repeated in a 250 ms on, 250 ms off cycle for four seconds
3.6.3.5 Response to Origination Message
3.6.2.3 Mobile Station Directed Messages

2.4.1.3 Call Flow Diagram

None

2.4.1.4 Method of Measurement

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

b. Attempt a mobile station originated call.

c. Instruct the base station to send a *Reorder Order* instead of a channel assignment, as a base station might do in a blocking situation where all traffic channel resources are unavailable.

d. Repeat step c for each *Origination message* received by the base station.

e. Verify the mobile station plays a'call origination cancelled' indication after an implementation specific number of origination attempts have been completed.

f. Verify that the mobile station returns to the idle state on the base station.

2.4.1.5 Minimum Standard

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

2.4.2 Base Station Test

None

2.5 Slot Cycle Index

2.5.1 Mobile Station Test

2.5.1.1 Definition

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

2.5.1.2 Traceability (See [4]):

2.6.2.1.1 Forward Channel Monitoring Procedures
3.6.2.1.3 Paging Slot Determination
3.6.2.3 Mobile Station Directed Messages
2.7.1.3.2.1 Registration Message
2.7.1.3.2.4 Origination Message
2.7.1.3.2.5 Page Response Message
2.7.4.7 Terminal Information

2.5.1.3 Call Flow Diagram

None

2.5.1.4 Method of Measurement

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

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

Test_ID	MAX_SLOT_CYCLE_INDEX (base station)	SLOT_CYCLE_INDEXp (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

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

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

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

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

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

2.5.1.5 Minimum Standard

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

2.5.2 Base Station Test

None

2.6 MSID, MCC, and IMSI

2.6.1 Mobile Station Test

2.6.1.1 Definition

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

2.6.1.2 Traceability (See [4]):

3.7.2.3.2.13 Extended System Parameters Message
2.6.2.2.5 Extended System Parameters Message
2.6.2.3 Mobile Station Page Match Operation
2.3.1 Mobile Station Identification Number
2.3.1.1 Encoding of IMSI_M_S and IMSI_T_S 11
Table 3.7.2.3.2.13-1. Preferred MSID Types
3.6.2.2 Overhead Information

(See [3]):

2.1.1.3.1.1 Definition of Addressing Fields
2.1.1.3.1.3 Requirements for Setting IMSI Class and IMSI Class-specific Subfield Parameters

(See [23]):

3.4.32 EF_USGIND (Removable UIM_ID Usage Indicator)

2.6.1.3 Call Flow Diagram

None

2.6.1.4 Method of Measurement

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

a. For each step below, set USE_TMSI = ‘0’ in the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message*. Also program either the mobile station or the base station for the values of MCC and IMSI_11_12, to achieve the matching or non-matching conditions indicated.

b. PREF_MSID_TYPE = ‘00’. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘00’. Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ’000’ and sends IMSI_S and ESN in the *Origination Message* and *Page Response Message*.

c. PREF_MSID_TYPE = ‘10’, matching MCC and matching IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘10’. Verify the values of both MCC and IMSI_11_12 are the same (match) in the mobile station and base station. Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘010’ and sends IMSI_S (does not send MCC and IMSI_11_12) in the *Origination Message* and *Page Response Message*.

d. PREF_MSID_TYPE = ‘10’, non-matching MCC and matching IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘10’. Verify that the values of IMSI_11_12 are the same (match) in the mobile station and base station, but the values of MCC are different (don’t match). Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘010’ and sends MCC and IMSI_S (does not send IMSI_11_12) in the *Origination Message* and *Page Response Message*.

e. PREF_MSID_TYPE = ‘10’, matching MCC and non-matching IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘10’. Verify that the values of MCC are the same (match) in the mobile station and base station, but the values of IMSI_11_12 are different (don’t match). Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘010’ and sends IMSI_11_12 and IMSI_S (does not send MCC) in the *Origination Message* and *Page Response Message*.

f. PREF_MSID_TYPE = ‘10’, non-matching MCC and non-matching IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘10’. Verify that the values of both MCC and IMSI_11_12 are different in the mobile station and base station (neither matches). Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘010’ and sends MCC, IMSI_11_12 and IMSI_S in the *Origination Message* and *Page Response Message*.

g. PREF_MSID_TYPE = ‘10’, wildcard MCC and wildcard IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with the following fields:

h.

Field	Value
PREF_MSID_TYPE	‘10’
MCC	‘1111111111’ (wildcard)
IMSI_11_12	‘1111111’ (wildcard)

i. Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘010’ and sends IMSI_S (but does not send MCC and IMSI_11_12) in the *Origination Message* and *Page Response Message*.

j. PREF_MSID_TYPE = ‘11’, matching MCC and matching IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘11’. Verify that the values of both MCC and IMSI_11_12 are the same in the mobile station and base station (both match). Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘011’ and sends IMSI_S and ESN (does not send MCC and IMSI_11_12) in the *Origination Message* or *Page Response Message*.

k. PREF_MSID_TYPE = ‘11’, non-matching MCC and matching IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘11’. Verify that the values of IMSI_11_12 are the same in the mobile station and base station (match), but the values of MCC are different (don’t match). Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘011’ and sends MCC and IMSI_S and ESN (does not send IMSI_11_12) in the *Origination Message* and *Page Response Message*.

l. PREF_MSID_TYPE = ‘11’, matching MCC and non-matching IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘11’. Verify that the values of MCC are the same in the mobile station and base station (match), but the values of IMSI_11_12 are different (don’t match). Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘011’ and sends IMSI_11_12, IMSI_S and ESN (does not send MCC) in the *Origination Message* and *Page Response Message*.

m. PREF_MSID_TYPE = ‘11’, non-matching MCC and non-matching IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with PREF_MSID_TYPE = ‘11’. Verify that the values of both MCC and IMSI_11_12 are different in the mobile station and base station. Make a mobile station originated call and a mobile station terminated call. Verify that the mobile station sets MSID_TYPE = ‘011’ and sends MCC, IMSI_11_12 and IMSI_S and ESN in the *Origination Message* and *Page Response Message*.

n. PREF_MSID_TYPE = ‘11’, wildcard MCC and wildcard IMSI_11_12. Configure the base station *Extended System Parameters Message* or *ANSI-41 System Parameters Message* with the following fields:

Field	Value
PREF_MSID_TYPE	‘11’
MCC	‘1111111111’ (wildcard)
IMSI_11_12	‘1111111’ (wildcard)

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

2.6.1.5 Minimum Standard

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

2.6.2 Base Station Test

None

2.7 TMSI Assignment and Expiration

2.7.1 Mobile Station Test

2.7.1.1 Definition

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

2.7.1.2 Traceability (See [4]):

2.3.15 Temporary Mobile Station Identity
2.6.3.1.6 Full-TMSI Timer
2.6.5.5.2.5 Full-TMSI Timer Expiration
2.7.1.3.2.8 TMSI Assignment Completion Message
2.7.2.3.2.17 TMSI Assignment Completion Message
3.7.2.3.2.19 TMSI Assignment Message
3.7.3.3.2.22 TMSI Assignment Message
Figure 2.3.15-1. TMSI Zone Example
Full TMSI combination of TMSI_ZONE and TMSI_CODE. The full TMSI is a globally unique address for the mobile station.
TMSI Zone administrative zone that allows the TMSI to be reused.
DELETE_FOR_TMSI A storage variable in the mobile station that indicates whether the mobile station should delete its current TMSI if the TMSI was assigned in a different TMSI zoneTMSI_ZONE TMSI zone number of the base station

2.7.1.3 Call Flow Diagram

None

2.7.1.4 Method of Measurement

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

Field	Value
PREF_MSID_TYPE	'10'
USE_TMSI	'1'

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

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

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

e. Make a mobile station originated call.

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

g. End the call.

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

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

j. End the call.

k. Wait for the TMSI timer to expire.

l. Make a mobile station originated call.

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

n. End the call.

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

p. Verify that the call completes successfully.

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

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

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

2.7.1.5 Minimum Standard

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

2.7.2 Base Station Test

2.8 DTMF

2.8.1 Mobile Station Test

2.8.1.1 Definition

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

2.8.1.2 Traceability (See [4]):

2.7.2.3.2.7 Send Burst DTMF Message
2.7.2.3.2.1 Continuous DTMF Tone Order
3.7.3.3.2.9 Send Burst DTMF Message
Table 2.7.1.3.2.4-4 Representation of DTMF Digits
Table 2.7.2.3.2.7-1 Recommended DTMF Pulse Width
Table 2.7.2.3.2.7-2 Recommended Minimum Inter-digit Interval
Table 3.7.4-1 Order and Order Qual Codes Used on the f-csch and the f-dsch
Table 2.7.2.3-1 Messages on r-dsch

2.8.1.3 Call Flow Diagram

None

2.8.1.4 Method of Measurement

a. Configure the mobile station for short DTMF tones, i. e. the mobile station will send individual *Send Burst DTMF Message* in response to individual key presses while in a call.

b. Allow the mobile station to come to the idle state on the base station, and set up a voice call.

c. Mobile station sends individual DTMF digits. While the call is in progress, make single presses of each of the mobile station buttons 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, *, and # in sequence.

d. Verify that the mobile station sends 12 *Send Burst DTMF Message*s, one for each digit in step c, with fields as indicated below:

Field	Value
NUM_DIGITS	‘00000001’
DIGITi	DIGIT code corresponding to the button
DTMF_ON_LENGTH	A valid value
DTMF_OFF_LENGTH	A valid value

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

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:

Field	Value
NUM_DIGITS	‘00001100’ (12 digits)
DIGITi (12 occurrences)	12 DTMF digit codes representing “1234567890*#”
DTMF_ON_LENGTH	valid value
DTMF_OFF_LENGTH	valid value

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

h. End the call.

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.

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.

k. Verify that the mobile station sends 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 for the button pressed

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:

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

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 Message*s, 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)
DIGITi (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)

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

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

2.8.1.5 Minimum Standard

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

2.8.2 Base Station Test

None

2.9 Initial Service Configuration and Negotiation

2.9.1 Mobile Station Test

2.9.1.1 Definition

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

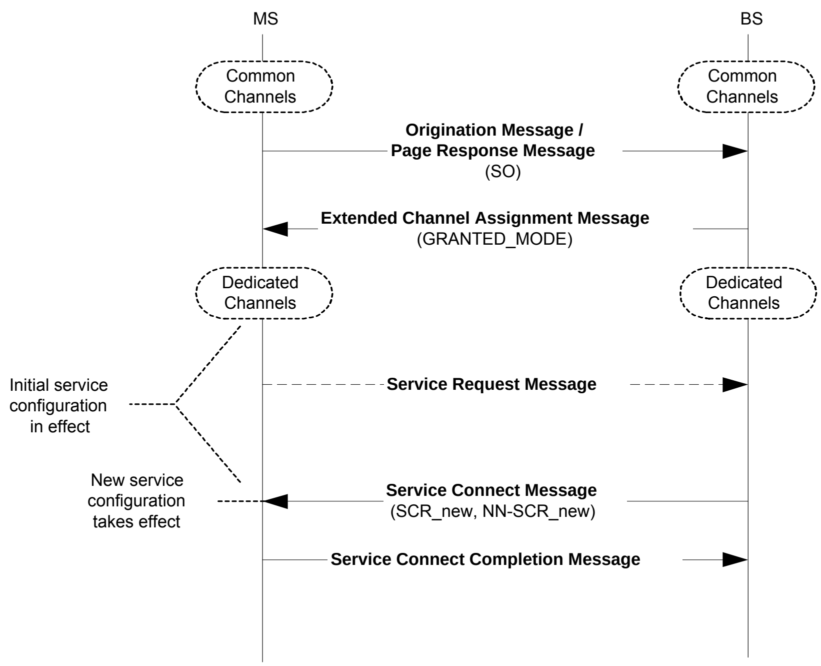
2.9.1.2 Traceability (See [4]):

2.6.4.1.2	*MS Service Configuration and Negotiation procedures*
2.6.4.1.14	*Processing the Service Configuration Record*
2.6.4.1.15	*Processing the Non-Negotiable Service Configuration Record*
2.6.4.2	*Traffic Channel Initialization Substate*
2.7.1.3.2.4	*Origination Message*
2.7.1.3.2.5	*Page Response Message*
2.7.2.3.2.12	*(MS) Service Request Message*
2.7.2.3.2.13	*(MS) Service Response Message*
2.7.2.3.2.14	*(MS) Service Connect Completion Message*
2.7.4.18	*Service Configuration information record*
3.6.4.1.2	*BS Service Configuration and Negotiation procedures*
3.7.2.3.2.21	*Extended Channel Assignment Message*
3.7.3.3.2.18	*(BS) Service Request Message*
3.7.3.3.2.19	*(BS) Service Response Message*
3.7.3.3.2.20	*(BS) Service Connect Message*
3.7.3.3.2.31	*General Handoff Direction Message*
3.7.3.3.2.36	*Universal Handoff Direction Message*

3.7.5.7 (BS) Service Configuration information record

3.7.5.20 (BS) Non-Negotiable Service Configuration information record

2.9.1.3 Call Flow Example(s)



2.9.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Initiate a mobile station originated call.

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

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

d. Upon establishing dedicated channels, instruct the base station to send a *Service Connect Message*, with a valid and acceptable *Service Configuration Information Record* (SCR) and *Non-Negotiable Service Configuration Information Record* (NN-SCR) to the mobile station. The parameters of SCR and NN-SCR should be set based on the known capabilities of the mobile station under test, such that it is guaranteed the mobile station will accept the service configuration specified by these two information records.

e. Verify the following:

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

   a) The service configuration in use is the one jointly specified by the DEFAULT_CONFIG value sent in the *Extended Channel Assignment Message* and the default Non-Negotiable part of the service configuration parameters specified in the Traffic Channel Initialization substate.

2. When the new service configuration sent in the *Service Connect Message* takes effect, verify the following:

   a) The service configuration in use is the one specified by SCR and NN-SCR in the *Service Connect Message* sent by the base station. This can be verified by instructing the base station to send a *Status Request Message* to retrieve the service configuration in use at the mobile station.

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

3. The base station receives a *Service Connect Completion Message* from the mobile station.

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

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

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

g. Verify the following:

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

   a) The service configuration in use is the one jointly specified by the default multiplex option that is derived from the radio configuration corresponding to Table 3.7.2.3.2.21-7 and the default Non-Negotiable part of the service configuration parameters specified in the Traffic Channel Initialization substate.

2. When the new service configuration sent in the *Service Connect Message* takes effect, verify the following:

a) The service configuration in use is the one specified by SCR and NN-SCR in the *Service Connect Message* sent by the base station. This can be verified by instructing the base station to send a *Status Request Message* to retrieve the service configuration in use at the mobile station.

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

3. The base station receives a *Service Connect Completion Message* from the mobile station.

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

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

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

i. Verify the following:

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

a) The service configuration in use is the one jointly specified by the default multiplex option that is derived from the radio configuration corresponding to Table 3.7.2.3.2.21-7 and the default Non-Negotiable part of the service configuration parameters specified in the Traffic Channel Initialization substate.

2. When the new service configuration sent in the *Service Connect Message* takes effect, verify the following:

a) The service configuration in use is the one specified by SCR and NN-SCR in the *Service Connect Message* sent by the base station. This can be verified by instructing the base station to send a *Status Request Message* to retrieve the service configuration in use at the mobile station.

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

3. The base station receives a *Service Connect Completion Message* from the mobile station.

4. The mobile station does not send a *Service Request Message* to the base station prior to the *Service Connect Message* is received from the base station.

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

1. Replace all the occurrences of *Service Connect Message* by *General Handoff Direction Message*.
2. Replace all the occurrences of *Service Connect Completion Message* by *Extended Handoff Completion Message*.

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

1. Replace all the occurrences of *Service Connect Message* by *Universal Handoff Direction Message*.
2. Replace all the occurrences of *Service Connect Completion Message* by *Extended Handoff Completion Message*.

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

2.9.1.5 Minimum Standard

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

2.9.2 Base Station Test

2.9.2.1 Definition

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

2.9.2.2 Traceability

See 2.9.1.2

2.9.2.3 Call Flow Example(s)

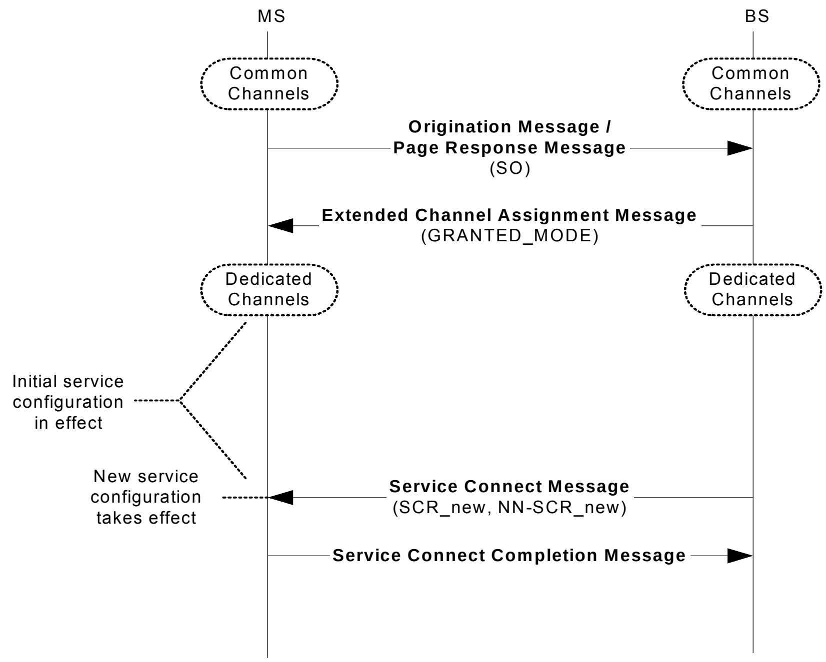


Figure 2.26.2.3-1 Call Flow Example for Initial Service Configuration and Negotiation

2.9.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

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

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:

    1. *Service Connect Message*

    2. *General Handoff Direction Message*

    3. *Universal Handoff Direction Message*

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.

e. Verify the following:

    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:

a) If GRANTED_MODE in step c is set to '00', the service configuration in use is the one jointly specified by the DEFAULT_CONFIG value sent in the *Extended Channel Assignment Message* and the default Non-Negotiable part of the service configuration parameters specified in the Traffic Channel Initialization substate.

b) If GRANTED_MODE in step c is set to '01' or '10', the service configuration in use is the one jointly specified by the default multiplex option that is derived from the radio configuration corresponding to Table 3.7.2.3.2.21-7 and the default Non-Negotiable part of the service configuration parameters specified in the Traffic Channel Initialization substate.

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

a) The service configuration in use is the one specified by SCR and NN-SCR in the *Service Connect Message*/*General Handoff Direction Message*/*Universal Handoff Direction Message* sent by the base station.

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

f. Repeat steps a through e for mobile station terminated calls. In this case, *Origination Message* is replaced by *Page Response Message*.

g. Repeat steps a though e for various values of the service option and radio configuration preference (forward/reverse) requested by the mobile station either in the *Origination Message* or *Page Response Message*.

2.9.2.5 Minimum Standard

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

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

2.10.1 Mobile Station Test

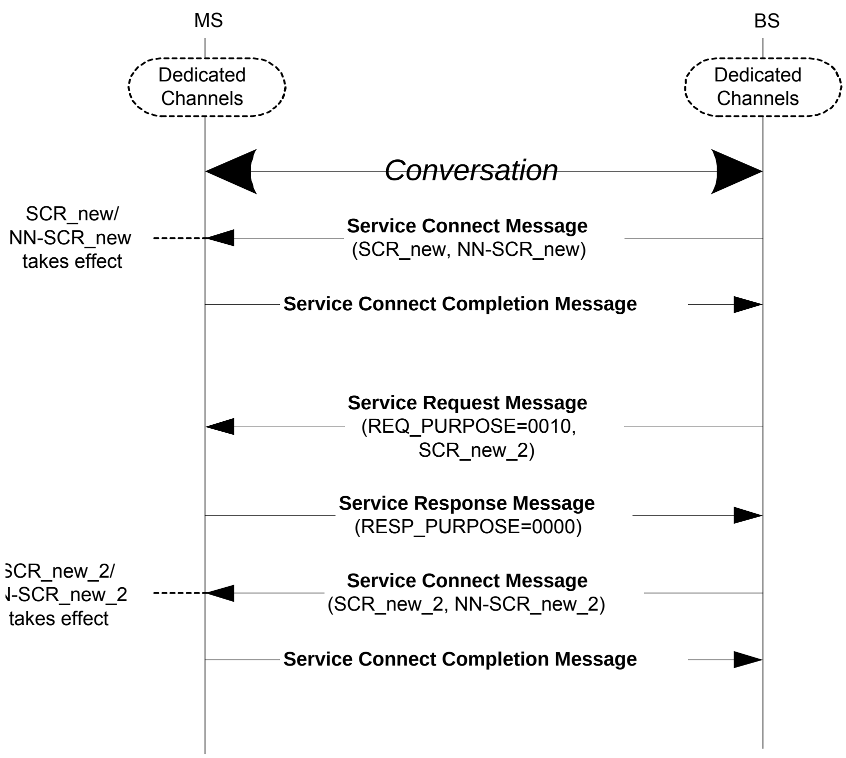
2.10.1.1 Definition

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

2.10.1.2 Traceability

See 2.9.1.2

2.10.1.3 Call Flow Example(s)



2.10.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a mobile station terminated call. Verify user traffic (Ex. Audio) on both directions.

c. Instruct the base station to send a *Service Connect Message* to the mobile station with a valid and acceptable SCR/NN-SCR.

d. Verify the following:

    1. The base station receives a *Service Connect Completion Message* from the mobile station.

    2. When the new service configuration takes effect, verify user traffic (Ex. Audio) on both directions.

e. Instruct the base station to initiate service negotiation by sending a *Service Request Message* with REQ_PURPOSE set to ‘0010’, proposing a valid and acceptable service configuration to the mobile station.

f. Verify that, upon receiving the *Service Request Message*, the mobile station sends a *Service Response Message* with RESP_PURPOSE set to one of the following –

   1. ‘0000’ to accept this service configuration.

   2. ‘0001’ to reject this service configuration

   3. ‘0010’ to propose a different service configuration

g. If mobile station sends *Service Response Message* with RESP_PURPOSE set to ‘0000’ or ‘0010’ in step f above, instruct the base station to accept this service configuration by sending a *Service Connect Message* to the mobile station with the accepted SCR and a valid and acceptable NN-SCR.

h. Verify the following:

   1. The base station receives a *Service Connect Completion Message* from the mobile station.

   2. When the new service configuration takes effect, verify user traffic (Ex. Audio) on both directions.

   3. If mobile station sends *Service Response Message* with RESP_PURPOSE set to ‘0001’ in step f above, verify following:

      a) The base station does not receive a *Service Connect Completion Message* from the mobile station.

      b) The service configuration previously in use continues to be in effect and user traffic continues without any interruptions.

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

   1. Replace all the occurrences of *Service Connect Message* by *General Handoff Direction Message*.

   2. Replace all the occurrences of *Service Connect Completion Message* by *Extended Handoff Completion Message*.

j. Repeat steps a through h, but with following modifications –

   1. Replace all the occurrences of *Service Connect Message* by *Universal Handoff Direction Message*.

   2. Replace all the occurrences of *Service Connect Completion Message* by *Extended Handoff Completion Message*.

2.10.1.5 Minimum Standard

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

2.10.2 Base Station Test

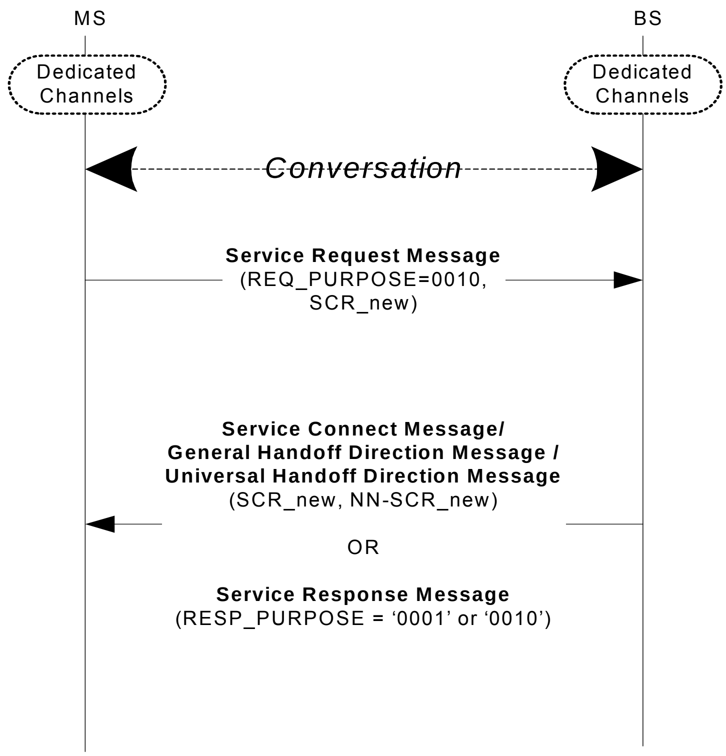
2.10.2.1 Definition

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

2.10.2.2 Traceability

See 2.9.1.2

2.10.2.3 Call Flow Example(s)



2.10.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a mobile station terminated call. Instruct the mobile station not to include SYNC_ID field in the *Page Response Message*. Verify user traffic (Ex. Audio) on both directions.

c. Instruct the mobile station to initiate service negotiation by sending a *Service Request Message* with REQ_PURPOSE set to '0010', proposing a valid and acceptable service configuration to the base station.

d. Verify that, upon receiving the *Service Request Message*, the base station sends one of the following messages –

   1. *Service Connect Message*
   2. *General Handoff Direction Message* (with SCR and/or NN-SCR)
   3. *Universal Handoff Direction Message* (with SCR and/or NN-SCR)
   4. *Service Response Message* with RESP_PURPOSE set to one of the following –

      a) ‘0001’ to reject this service configuration

      b) ‘0010’ to propose a different service configuration

e. If base station sends *Service Connect Message* in step d above, instruct the mobile station to accept this service configuration and send a *Service Connect Completion Message* to the base station at the action time associated with the message sent in step d.

f. Verify that when the new service configuration takes effectthere is user traffic (Ex. Audio) in both directions.

g. If base station sends *General Handoff Direction Message*/*Universal Handoff Direction Message* in step d above, instruct the mobile station to accept this service configuration and send a *Extended Handoff Completion Message* to the base station at the action time associated with the message sent in step d.

h. Verify that when the new service configuration takes effect there is user traffic (Ex. Audio) in both directions.

i. If base station sends *Service Response Message* with RESP_PURPOSE set to ‘0001’ in step d above, verify following: The service configuration previously in use continues to be in effect and user traffic continues without any interruptions.

j. If base station sends *Service Response Message* with RESP_PURPOSE set to ‘0010’ in step d above, instruct the mobile station to send *Service Request Message* with RESP_PURPOSE set to ‘0001’ to reject the service configuration. Verify that the service configuration previously in use continues to be in effect and user traffic continues without any interruptions.

2.10.2.5 Minimum Standard

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

2.11 Reject Scenarios during Service Negotiation

2.11.1 Mobile Station Test

None

2.11.2 Base Station Test

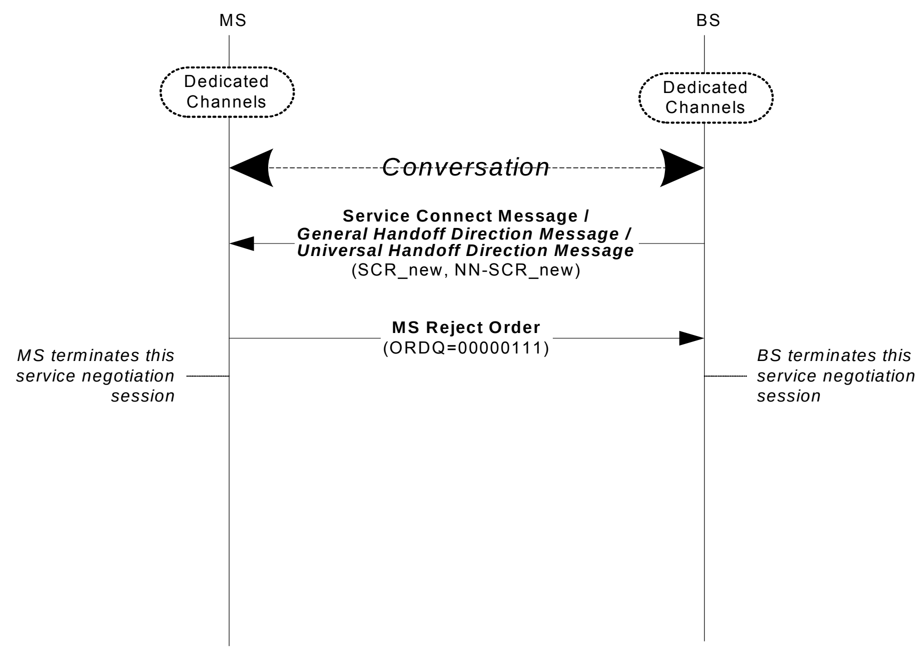
2.11.2.1 Definition

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

2.11.2.2 Traceability

See 2.9.1.2

2.11.2.3 Call Flow Example(s)



2.11.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

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

c. When the base station sends a *Service Connect Message*/*General Handoff Direction Message* (with SCR and/or NN-SCR)/*Universal Handoff Direction Message* (with SCR and/or NN-SCR) to the mobile station, instruct the mobile station to send a *Mobile Station Reject Order* with ORDQ set to '00000111'.

d. Verify the following:

   1. The base station does not send a *Service Connect Message*/*General Handoff Direction Message*/*Universal Handoff Direction Message* to the

mobile station with the same SERV_CON_SEQ sent in the rejected *Service Connect Message*/*General Handoff Direction Message*/*Universal Handoff Direction Message*.

2. The service configuration previously in use continues to be in effect and user traffic continues without any interruptions.

e. Disconnect previous call. Set up a mobile station originated call.

f. If the base station sends a *Service Request Message* with REQ_PURPOSE field set to ‘0010’ to the mobile station, instruct the mobile station to reject the proposed service configuration by sending a *Service Response Message* with RESP_PURPOSE field set to ‘0001’ and verify the following:

   1. The base station does not send a *Service Request Message* to the mobile station with the same SERV_REQ_SEQ sent in the rejected *Service Request Message*.

   2. The service configuration previously in use continues to be in effect and user traffic continues without any interruptions.

2.11.2.5 Minimum Standard

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

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

2.12.1 Mobile Station Test

2.12.1.1 Definition

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

2.12.1.2 Traceability

See 2.9.1.2

2.12.1.3 Call Flow Example(s)

None

2.12.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a mobile station originated call. Verify user traffic (Ex. Audio) on both directions.

c. Instruct the base station to send a *General Handoff Direction Message* to the mobile station with a valid and acceptable SCR included (SCR_INCLUDED=1) and not including a NN-SCR (NNSCR_INCLUDED=0) in the message.

d. Once the new service configuration takes effect, verify the following:

    1. The part of the service configuration specified by the new SCR takes effect.

    2. The part of the service configuration specified by the NN-SCR remains unchanged.

    3. Verify user traffic (Ex. Audio) on both directions.

e. Instruct the base station to send a *General Handoff Direction Message* to the mobile station with a valid and acceptable NN-SCR included (NNSCR_INCLUDED=1) and not including a SCR (SCR_INCLUDED=0) in the message.

f. Once the new service configuration takes effect, verify the following:

    1. The part of the service configuration specified by the new NN-SCR takes effect.

    2. The part of the service configuration specified by the SCR remains unchanged.

    3. Verify user traffic (Ex. Audio) on both directions.

g. Repeat steps a through f with the following modifications: Instead of sending a *General Handoff Direction Message*, instruct the base station to send a *Universal Handoff Direction Message*.

h. Verify that all the outcomes are identical to the case when the *General Handoff Direction Message* was sent.

2.12.1.5 Minimum Standard

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

2.12.2 Base Station Test

None

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

2.13.1 Mobile Station Test

2.13.1.1 Definition

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

2.13.1.2 Traceability

See 2.9.1.2

2.13.1.3 Call Flow Example(s)

None

2.13.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a call. Verify user traffic (Ex. Audio) on both directions.

c. Instruct the base station to initiate service negotiation to change only a subset of service configuration parameters, by sending a *Service Request Message* with REQ_PURPOSE set to ‘0010’ to the mobile station to propose a new service configuration. The service configuration parameters not to be changed should not be included in the SCR (Ex. If DCCH related parameters are not to be changed, then DCCH_CC_INCL should be set to ‘0’ and FOR_DCCH_RC, REV_DCCH_RC, and DCCH_FRAME_SIZE will not be included). The parameters of SCR should be set based on the known capabilities of the mobile station under test, such that it is guaranteed the mobile station will accept the service configuration specified by the SCR.

d. Verify that upon receiving the *Service Request Message*, the mobile station sends a *Service Response Message* with RESP_PURPOSE set to ‘0000’.

e. Upon receiving the *Service Response Message*, instruct the base station to send a *Service Connect Message* with a SCR (as per step c above) and an NN-SCR that only includes a subset of parameters.

f. Verify the following:

    1. The base station receives a *Service Connect Completion Message* from the mobile station.

    2. When the new service configuration takes effect, verify that for those service configuration parameters not included in the final SCR (Ex. DCCH_CC_INCL=0) and NN-SCR sent by the base station, their previously in use value continues to be in effect.

    3. When the new service configuration takes effect, verify that for those service configuration parameters included in the final SCR and NN-SCR sent by the base station, their new values as specified in *Service Connect Message* are in use.

    4. Verify user traffic (Ex. Audio) on both directions.

g. Repeat steps c through f for various combinations of subset of SCR and NN-SCR parameters.

h. Repeat steps a through g, but with following modifications -

    1. Replace all the occurrences of *Service Connect Message* by *General*

Handoff Direction Message.

2. Replace all the occurrences of *Service Connect Completion Message* by *Extended Handoff Completion Message*.

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

1. Replace all the occurrences of *Service Connect Message* by *Universal Handoff Direction Message*.

2. Replace all the occurrences of *Service Connect Completion Message* by *Extended Handoff Completion Message*.

2.13.1.5 Minimum Standard

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

2.13.2 Base Station Test

2.13.2.1 Definition

This test verifies that the base station can carry out the service negotiation with only a partial SCR and the expected service configuration takes effect.

2.13.2.2 Traceability

See 2.9.1.2

2.13.2.3 Call Flow Example(s)

None

2.13.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a call. Verify user traffic (Ex. Audio) on both directions.

c. Instruct the mobile station to initiate service negotiation to change only a subset of service configuration parameters, by sending a *Service Request Message* with REQ_PURPOSE set to ‘0010’ to the base station to propose a new service configuration. The service configuration parameters not to be changed should not be included in the SCR (Ex. If DCCH related parameters are not to be changed, then DCCH_CC_INCL should be set to ‘0’ and FOR_DCCH_RC, REV_DCCH_RC, and DCCH_FRAME_SIZE will not be included). The parameters of SCR should be set based on the known capabilities of the base station under test, such that it is guaranteed the base station will accept the service configuration specified by the SCR.

d. If the base station accepts the service configuration proposed by the mobile station in step c, verify the following:

1. When the new service configuration takes effect, verify that for those service configuration parameters not included in the final SCR (Ex.

DCCH_CC_INCL=0) sent by the base station their previously in use value continues to be in effect.

2. When the new service configuration takes effect, verify that for those service configuration parameters included in the final SCR sent by the base station, their new values as specified in *Service Connect Message* are in use.
3. If the base station does not include all the parameters in NN-SCR, then when the new service configuration takes effect, verify that for those parameters not included in the final NN-SCR their previously in use value continues to be in effect.
4. If the base station does not include all the parameters in NN-SCR, then when the new service configuration takes effect, verify that for those service configuration parameters included in the final NN-SCR sent by the base station, their new values as specified in *Service Connect Message* are in use.
5. Verify user traffic (Ex. Audio) on both directions.

e. Repeat steps c through d for various combinations of subset of SCR parameters.

2.13.2.5 Minimum Standard

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

2.14 *Release Order* on the Access Channel

2.14.1 Mobile Station Test

2.14.1.1 Definition

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

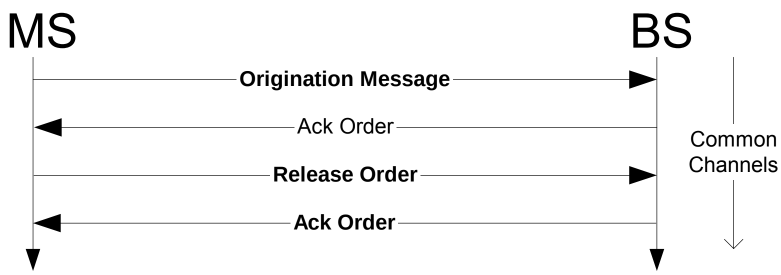
2.14.1.2 Traceability (See [4]):

3.6.3 Access Channel Processing
3.6.3.4 Response to Orders
2.6.3 System Access State
2.6.3.1.4 System Access State Exit Procedures
2.6.3.5 Mobile Station Origination Attempt Substate

(See [3]):

2.1.1.2.2.1 Overview of Transmission and Retransmission Procedures

2.14.1.3 Call Flow Diagram



2.14.1.4 Method of Measurement

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

b. Configure the Base Station to not send an *Extended Channel Assignment Message*.

c. Attempt a mobile station originated call.

d. Shortly after the mobile station has received acknowledgement of its *Origination Message*, press the mobile station END key, or otherwise terminate the call attempt from the mobile station side before dedicated channels are assigned.

e. Verify that the mobile station sends a *Release Order* (normal release) on the Access Channel in assured mode requiring confirmation of delivery, aborts the call attempt, returns to the idle state on the base station.

2.14.1.5 Minimum Standard

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

2.14.2 Base Station Test

None

2.15 Service Configuration and Negotiation Using Stored Service Configuration

Applicability: All systems with P_REV_IN_USE of 7 or higher.

2.15.1 Mobile Station Test

2.15.1.1 Definition

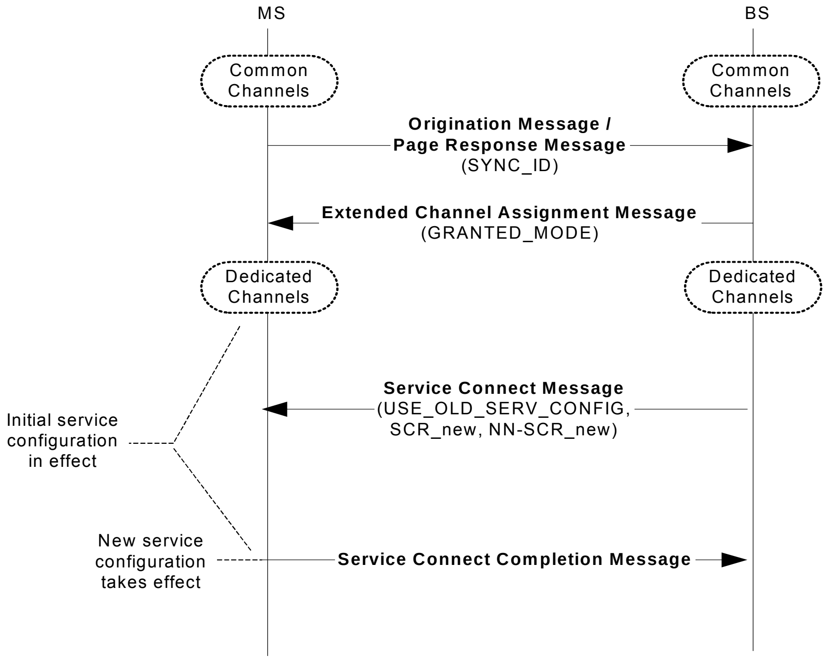
This test verifies that the mobile station can propose to use stored service configuration using SYNC_ID in the Service Configuration and Negotiation process.

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

2.15.1.2 Traceability (See [4]):

2.6.2.2.5	*Extended System Parameters Message*
2.6.2.2.14.1	*Stored Parameters*
2.6.2.5	*Mobile Station Origination Operation*
2.6.3.3	*Page Response Substate*
2.6.3.5	*Mobile Station Origination Attempt Substate*
2.6.4.1.2	*(MS) Service Configuration and Negotiation (procedures)*
2.6.4.1.12	*Processing the Service Configuration Record*
2.6.4.1.13	*Processing the Non-Negotiable Service Configuration Record*
	Traffic Channel Initialization Substate
2.6.4.4	*Release Substate*
2.6.6.2.5	*Handoff Messages*
2.6.6.2.5.1	*Processing of Forward Traffic Channel Handoff Messages*
2.7.1.3.2.4	*Origination Message*
2.7.1.3.2.5	*Page Response Message*
2.7.2.3.2.12	*(MS) Service Request Message*
2.7.2.3.2.13	*(MS) Service Response Message*
2.7.2.3.2.14	*(MS) Service Connect Completion Message*
2.7.4.18	*(MS) Service Configuration (information record)*
	(BS) Service Configuration and Negotiation (procedures)
3.7.2.3.2.13	*Extended System Parameters Message*
	Extended Channel Assignment Message
3.7.2.3.2.31	*MC-RR Parameters Message*
3.7.3.3.2.18	*(BS) Service Request Message*
3.7.3.3.2.19	*(BS) Service Response Message*
3.7.3.3.2.20	*(BS) Service Connect Message*
3.7.3.3.2.31	*General Handoff Direction Message*
3.7.3.3.2.36	*Universal Handoff Direction Message*
3.7.5.7	*(BS) Service Configuration (information record)*
3.7.5.20	*(BS) Non-Negotiable Service Configuration (information record)*

2.15.1.3 Call Flow Example(s)



2.15.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1. Instruct the base station to set USE_SYNC_ID field to '1' in *Extended System Parameters Message* and *MC-RR Parameters Message*.

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

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

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

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

c. Upon establishing dedicated channels, instruct the base station to send *Service Connect Message* to the mobile station, with the USE_OLD_SERV_CONFIG field set to ‘00’. The base station shall include valid and acceptable *Service Configuration Information Record* (SCR) and *Non-Negotiable Service Configuration Information Record* (NN-SCR) in the *Service Connect Message*. The parameters of SCR and NN-SCR should be set based on the known capabilities of the mobile station under test, such that it is guaranteed the mobile station will accept the service configuration specified by these two information records. Ensure that the new service configuration is different from the stored one.

d. Verify the following:

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

a) The service configuration in use is the one specified by SCR and NN-SCR in the *Service Connect Message* sent by the base station. This can be verified by instructing the base station to send a *Status Request Message* to retrieve the service configuration in use at the mobile station.

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

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

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

1. In step c, instruct the base station to send *Service Connect Message* to the mobile station, with the USE_OLD_SERV_CONFIG field set to ‘01’.

f. Verify the following:

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

a) The service configuration in use is the stored service configuration corresponding to the SYNC_ID included by the mobile station in the *Origination Message*. This can be verified by instructing the base station to send a *Status Request Message* to retrieve the service configuration in use at the mobile station.

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

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

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

1. In step c, instruct the base station to send *Service Connect Message* to the mobile station, with the USE_OLD_SERV_CONFIG field set to ‘10’. The base station shall include valid and acceptable *Service Configuration Information Record* (SCR) and *Non-Negotiable Service Configuration Information Record* (NN-SCR) in the *Service Connect Message*. In the SCR and NN-SCR, do not include some of the parameters in the stored service configuration corresponding to

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

h. Verify the following:

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

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

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

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

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

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

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

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

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

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

2.15.1.5 Minimum Standard

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

2.15.2 Base Station Test

2.15.2.1 Definition

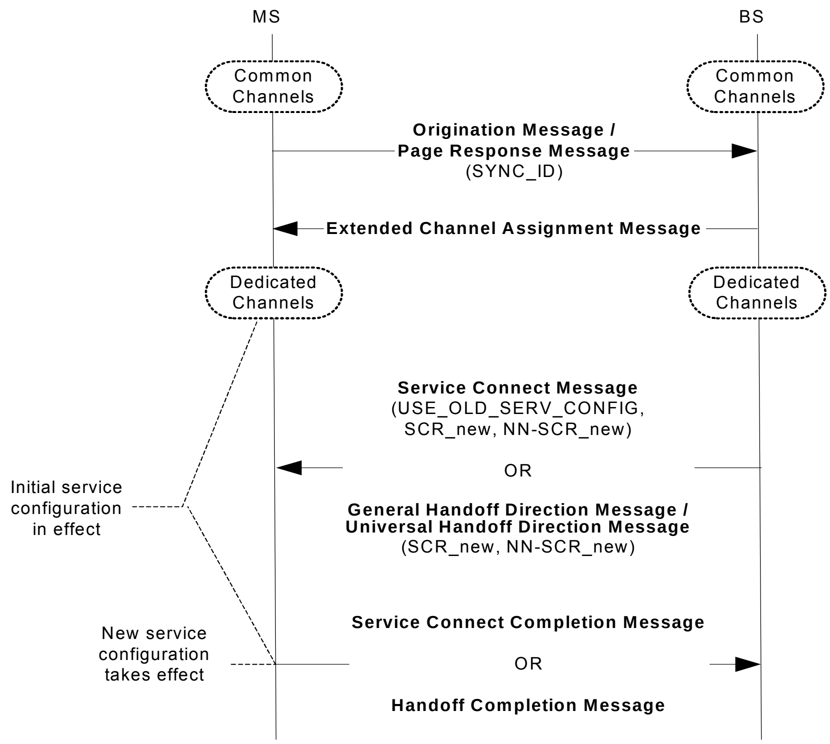
This test verifies that in the Service Configuration and Negotiation process the base station can accept the stored service configuration proposed by mobile station using SYNC_ID.

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

2.15.2.2 Traceability

See 2.15.2.2

2.15.2.3 Call Flow Example(s)



2.15.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1. Verify that the base station sets USE_SYNC_ID field to '1' in *Extended System Parameters Message* and/or *MC-RR Parameters Message*.

   1. Identify a type of call for which the base station would allocate SYNC_ID in the *Service Connect Message*/*General Handoff Direction Message*/*Universal Handoff Direction Message*. Instruct the mobile station to initiate a call with this call type.

   2. Verify that the base station does include SYNC_ID field in the *Service Connect Message*/*General Handoff Direction Message*/*Universal Handoff Direction Message* sent to the mobile station.

   3. Once the service configuration sent in the *Service Connect Message*/*General Handoff Direction Message*/*Universal Handoff Direction Message* has taken effect, disconnect the call.

b. Instruct the mobile station to originate a call with same call type as in step b above, with a SYNC_ID field value set to the SYNC_ID assigned by base station in step b above in the *Origination Message*.

c. Upon establishing dedicated channels, verify that the base station sends one of the following message –

d. *Service Connect Message*/*General Handoff Direction Message* (SCR and NNSCR included) /*Universal Handoff Direction Message* (SCR and NNSCR included).

e. When the new service configuration specified in the *Service Connect Message*/*General Handoff Direction Message*/*Universal Handoff Direction Message* takes effect, verify the following:

    1. If the base station sends *Service Connect Message* with USE_OLD_SERV_CONFIG field set to '00' in step d above:

        a) The service configuration in use is the one specified by SCR and NN-SCR in the *Service Connect Message* sent by the base station.

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

    2. If the base station sends *Service Connect Message* with USE_OLD_SERV_CONFIG field set to '01' in step d above:

        a) The service configuration in use is the stored configuration corresponding to the SYNC_ID included by the mobile station in the *Origination Message*.

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

    3. If the base station sends *Service Connect Message* with USE_OLD_SERV_CONFIG field set to '10' in step d above:

        a) service configuration in use is the stored configuration corresponding to the SYNC_ID included by the mobile station in the *Origination Message*, with modifications specified by SCR and NN-SCR in the *Service Connect Message*.

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

    4. If the base station sends *General Handoff Direction Message*/*Universal Handoff Direction Message* in step d above:

        a) The service configuration in use is the one specified by SCR and NN-SCR in the *General Handoff Direction Message*/*Universal Handoff Direction Message* sent by the base station.

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

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

    1. In step b, instruct mobile station to include an invalid SYNC_ID field in the *Origination Message*.

    2. If the base station sends a *Service Connect Message* in step d, verify

that the base station does not set USE_OLD_SERV_CONFIG field to '01' or '10' in the *Service Connect Message*

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

1. In step b, instruct mobile station not to include a SYNC_ID field in the *Origination Message*.

2. If the base station sends a *Service Connect Message* in step d, verify that the base station does not set USE_OLD_SERV_CONFIG field to '01' or '10' in the *Service Connect Message*

h. Repeat steps a through i for mobile station terminated calls. In this case, *Origination Message* is replaced by *Page Response Message*.

2.15.2.5 Minimum Standard

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

2.16 Intra-Band Channel Assignment

2.16.1 Mobile Station Test

2.16.1.1 Definition

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

2.16.1.2 Traceability (See [4]):

2.6.2.4	*Mobile Station Order and Message Processing Operation*
2.6.3.5	*Mobile Station Origination Attempt Substate*
2.7.1.3.2.4	*Origination Message*
2.7.1.3.2.5	*Page Response Message*
3.7.2.3.2.8	*Channel Assignment Message*
3.7.2.3.2.21	*Extended Channel Assignment Message*

2.16.1.3 Call Flow Example(s)

None

2.16.1.4 Method of Measurement

a. Connect the mobile station and base stations as shown in Annex A Figure 2. Base station 1 and base station 2 are operating the same band class with different frequencies.

b. Ensure the mobile station is operating in the *Idle State* on bases station 1.

c. Set up a mobile station originated call.

d. Instruct the base station to send a *Channel Assignment Message* or *Extended Channel Assignment Message* with the following settings:

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

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

e. Verify the mobile station tunes to the new frequency and completes the call on base station 2.

f. Verify user data in both directions.

g. End the call.

h. Set up a mobile station terminated call and repeat steps d through g.

2.16.1.5 Minimum Standard

The mobile station shall comply with steps e and f.

2.16.2 Base Station Test

None

2.17 Voice Call set-up with RC 11 and RC 8 and SO 73/ SO 68/ SO 3

2.17.1 Mobile Station Test

2.17.1.1 Definition

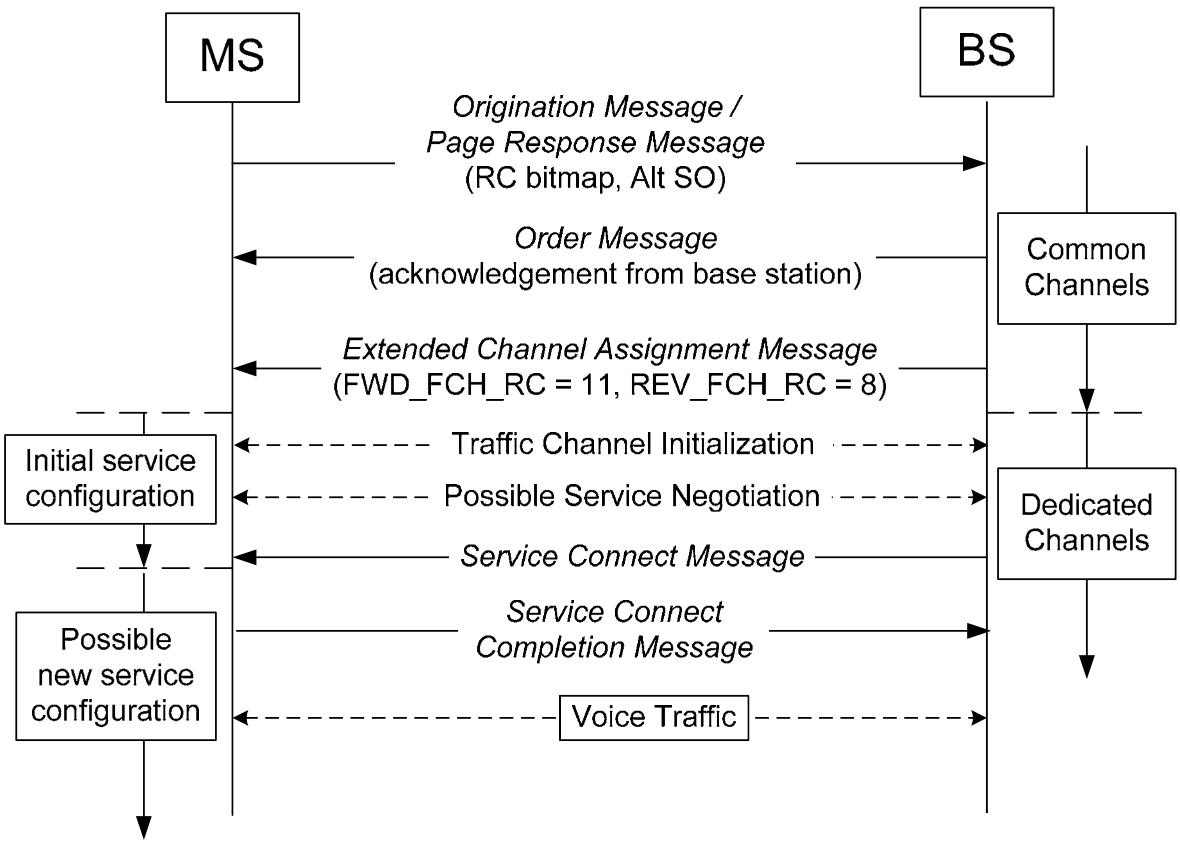
This tests mobile station's inclusion of RC 11 and RC 8 in the Channel Configuration Capability Information record in a origination and page response messages during mobile station originated and terminated calls respectively. Negotiation of SO 73, SO 68 and SO 3 is also verified. This test also verifies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

2.17.1.2 Traceability (See [4]):

2.7.1.3.2.5 *Page Response Message*
2.7.1.3.2.2.4 *Origination Message*

2.7.2.3.2.14 *Service Connect Completion Message*
3.7.2.3.2.17 *General Page Message*
3.7.2.3.2.21 *Extended Channel Assignment Message*
3.7.3.3.2.20 *Service Connect Message*
3.7.5.7 *Service Configuration*

2.17.1.3 Call Flow Diagram



2.17.1.4 Method of Measurement

a. Configure the setup for good RF links.

b. Configure the base station to advertize a value of 7 in the MAX_NUM_ALT_SO field of the *Extended System Parameters Message*.

c. Allow the mobile station to come to the idle state on the base station.

d. Attempt a mobile station originated call.

e. Verify that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and RC 8 in REV_FCH_RC_MAP in the *Origination Message*.

f. Verify that the mobile station includes SO 73 in the origination message. Note, when PREV_IN_USE is equal to 6, mobile station should include SO 73 in SO or ALT_SO fields in the *Origination Message*. If the PREV_IN_USE is greater than 6, the mobile station may include SO 73 in the SO or ALT_SO or the SO_BITMAP field.

g. Instruct the base station to send an *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.

h. Instruct the base station to transmit a *Service Connect Message* specifying the SO 73 in the SERVICE_OPTION field.

i. Verify that the mobile station transmits a *Service Connect Completion Message*.

j. Verify that the mobile station starts transmitting and receiving frames for voice traffic.

k. Terminate the voice call.

l. Repeat steps a through k with mobile station terminated call in steps c. In this case, *Origination Message* is replaced by *Page Response Message*.

m. Configure the base station to advertize a value of 0 in the MAX_NUM_ALT_SO field of the *Extended System Parameters Message*.

n. Allow the mobile station to come to the idle state on the base station.

o. Attempt a mobile station originated call.

p. Verify that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and RC 8 in REV_FCH_RC_MAP in the *Origination Message*.

q. Instruct the base station to send an *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.

r. Instruct the base station transmits a *Service Connect Message* s*pecify*ing the SO 73 in the SERVICE_OPTION field.

s. Verify that the mobile station transmits a *Service Connect Completion Message*.

t. Verify that the mobile station starts transmitting and receiving frames for voice traffic.

u. Terminate the voice call.

v. Repeat steps o-q. If the mobile station included SO 73 in the Origination Message.skip to step cc.

w. Instruct the base station to transmit a *Status Request Message* to the mobile station querying the Service Option Information or Extended Service Option Information record.

x. Verify that the mobile station sends a *Status Response Message* and includes Service Option Information or the Extended Service Option Information Record as requested by the base station and includes SO 73 in the record.

y. Ensure that the base station transmits a *Service Connect Message* specifying the SO 73 in the SERVICE_OPTION field.

z. Verify that the mobile station transmits a *Service Connect Completion Message*.

aa. Verify that the mobile station starts transmitting and receiving frames for voice traffic.

bb. Terminate the voice call.

cc. Attempt a mobile station originated call.

dd. Repeat steps y-bb.

ee. Repeat steps m through bb for mobile station terminated calls. In this case, *Origination Message* is replaced by *Page Response Message*.

ff. Establish a mobile station terminated call.

gg. f the test is being conducted for SO 73 or SO 68, instruct the base station to send a Service Option Control Message with RATE_REDUC parameter set to '001'.

hh. Verify that the mobile station continues transmitting and receiving frames for voice traffic.

ii. If the test is being conducted for SO 73 or SO 68, instruct the base station to send a Service Option Control Message with RATE_REDUC parameter set to '111'.

jj. Verify that the mobile station continues transmitting and receiving frames for voice traffic.

kk. Repeat the steps a through q and v through jj for SO 68 and SO 3 instead of SO 73.

2.17.1.5 Minimum Standard

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

2.17.2 Base Station Test

None

2.18 Radio Configuration Parameters Message Processing

2.18.1 Mobile Station Test

2.18.1.1 Definition

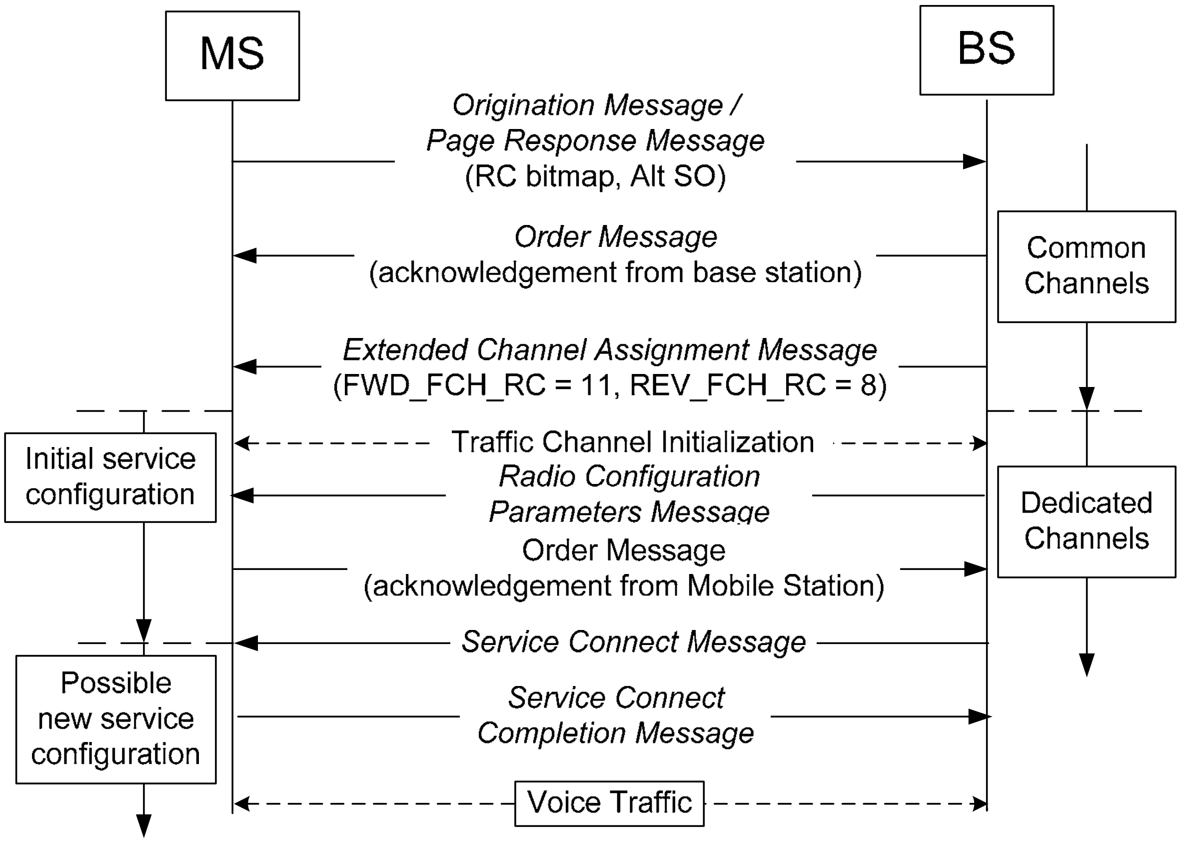
This test verifies that mobile station changes the RC 11 and RC 8 parameters received in the Radio Configuration Parameters message. In the test procedure below it is preferred to use service option 74 to generate the Non-Critical Rate 1/8th frames. If instead the mobile station is muted, the vocoder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

2.18.1.2 Traceability (See [4]):

2.7.1.3.2.2 *Order Message*
2.7.1.3.2.5 *Page Response Message*
2.7.1.3.2.2.4 *Origination Message*
2.7.2.3.2.14 *Service Connect Completion Message*
3.7.2.3.2.17 *General Page Message*
3.7.2.3.2.21 *Extended Channel Assignment Message*

3.7.3.3.2.20 *Service Connect Message*
3.7.5.7 *Service Configuration*
3.7.3.3.2.51 *Radio Configuration Parameters Message*

2.18.1.3 Call Flow Diagram



2.18.1.4 Method of Measurement

a. Configure the base station to advertize a value of 7 in the MAX_NUM_ALT_SO field of the *Extended System Parameters Message* and setup for good RF links.

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

c. Attempt a mobile station originated call.

d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and RC 8 in REV_FCH_RC_MAP in the *Origination Message*.

e. Ensure that the mobile station includes SO 74 in the SO or ALT_SO or SO_BITMAP field in the origination message.

f. Instruct the base station to send an *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.

g. Ensure that the mobile station initializes the traffic channel.

h. Instruct the base station to transmit *Service Connect Message* specifying the SO 74 in the SERVICE_OPTION field.

i. Ensure that the mobile station transmits *Service Connect Completion Message* to the base station.

j. Verify that the mobile station starts transmitting and receiving frames for voice traffic.

k. Mute the mobile station such that the vocoder generates only one-eighth rate non-critical frames or instruct the base station to transmit a Service Option Control Mesasge with CTL_REC_TYPE set to 0 and RTC_MODE set to ‘101’ (fixed Rate 1/8th non-critical).

l. Verify that the out of every four consecutive R-FCH frames the mobile station sends only one 1/8th rate frame and blanks other three frames.

m. Instruct the base station to send a *Radio Configuration Parameters Message* to the mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of ‘010’. Ensure that the base station transmits the *Radio Configuration Parameters Message* using assured L2 delivery.

n. Verify that the access terminal transmits an *Order Message* acknowledging the receipt of *Radio Configuration Parameters Message*.

o. Verify that the mobile station starts using the parameters received in the *Radio Configuration Parameters Message* at the ACTION_TIME carried implicitly or explicitly in the message. Note, this can be verified by the use of REV_FCH_BLANKING_DUTYCYCLE value carried in the *Radio Configuration Parameters Message*. Verify that the out of every eight consecutive R-FCH frames the mobile station sends only one 1/8th rate frame and blanks other seven frames.

p. Instruct the base station to send a *Radio Configuration Parameters Message* to the mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of ‘000’.

q. Verify that the mobile station sends 1/8th rate frame on the R-FCH and does not blank any frames. Note, frames may be erased on the R-FCH and should not be counted as blanked frames.

r. Terminate the voice call.

s. Repeat steps b through k.

2.18.1.5 Minimum Standard

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

2.18.2 Base Station Test

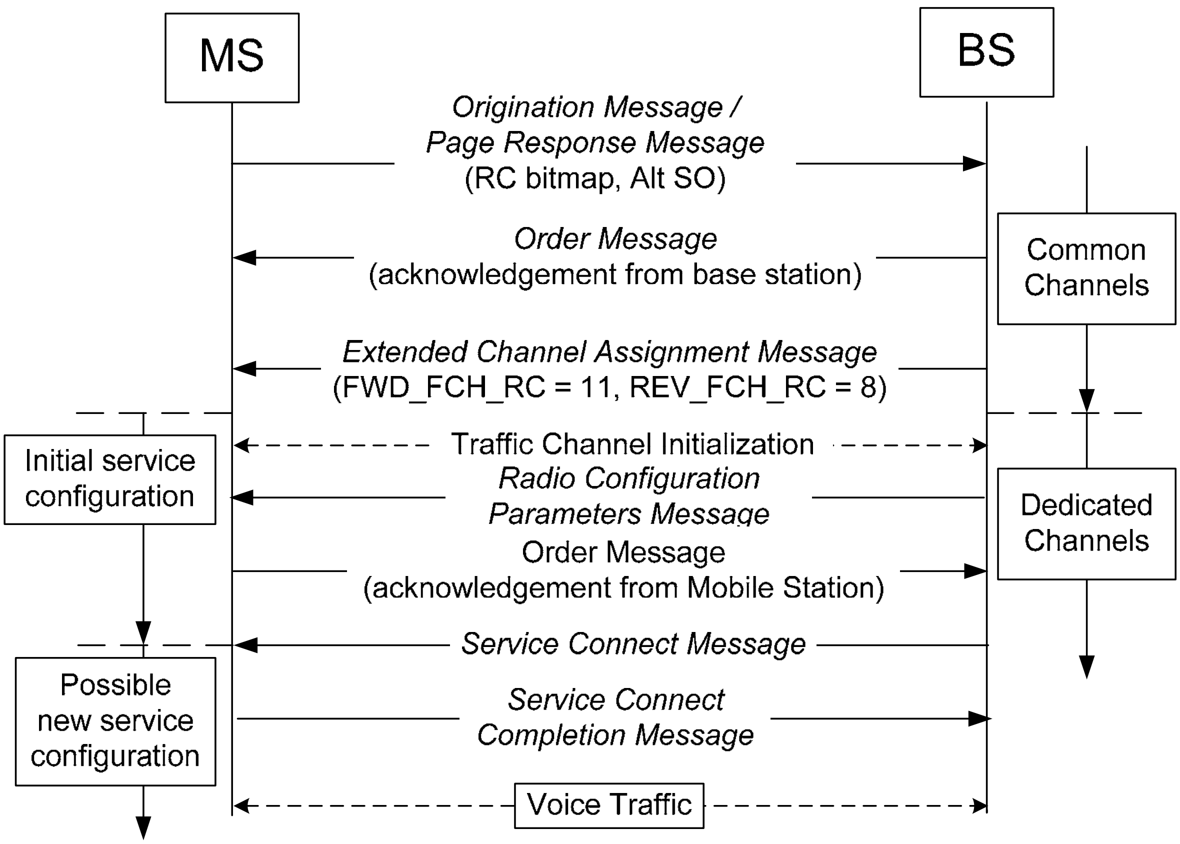
2.18.2.1 Definition

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

2.18.2.2 Traceability (See [4]):

2.7.1.3.2.2	*Order Message*
2.7.1.3.2.5	*Page Response Message*
2.7.1.3.2.2.4	*Origination Message*
2.7.2.3.2.14	*Service Connect Completion Message*
3.7.2.3.2.17	*General Page Message*
3.7.2.3.2.21	*Extended Channel Assignment Message*
3.7.3.3.2.20	*Service Connect Message*
3.7.5.7	*Service Configuration*
3.7.3.3.2.51	*Radio Configuration Parameters Message*

2.18.2.3 Call Flow Diagram



2.18.2.4 Method of Measurement

a. Configure the setup for good RF links.

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

c. Attempt a mobile station originated call.

d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and RC 8 in REV_FCH_RC_MAP in the *Origination Message*.

e. Ensure that the mobile station includes SO 73 in the alternative SO list in the origination message.
f. Ensure that the base station sends an *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.
g. Ensure that base station sends a *Radio Configuration Parameters Message* to the mobile station with REV_FCH_BLANKING_DUTYCYCLE set to non-default value. Ensure that the base station transmits the *Radio Configuration Parameters Message* using assured L2 delivery.
h. Ensure that the access terminal transmits an *Order Message* acknowledging the receipt of *Radio Configuration Parameters Message*.
i. Verify that the base station starts using the parameters transmitted in the *Radio Configuration Parameters Message* at the USE_TIME specified in the message. Note, this can be verified by the use of FWD_FCH_BLANKING_DUTYCYCLE value carried in the *Radio Configuration Parameters Message* after SO 73 is negotiated, as specified in following steps.
j. Instruct the base station to transmit *Service Connect Message* specifying the SO 73 in the SERVICE_OPTION field.
k. Ensure that the mobile station transmits *Service Connect Completion Message* to the base station.
l. Verify that the base station starts transmitting and receiving frames for voice traffic.
m. Terminate the voice call.
n. Repeat steps b through f.
o. Instruct the base station to transmit *Service Connect Message* specifying the SO 73 in the SERVICE_OPTION field.
p. Ensure that the mobile station transmits *Service Connect Completion Message* to the base station.
q. Repeat step g.
r. Cause the radio conditions to degrade such that the *Order Message* acknowledging the *Radio Configuration Parameters Message* that is transmitted by the mobile station is dropped during transmission.
s. Verify that the base station continues transmitting and receiving frames for voice traffic and continues to use default RC 11 and RC 8 parameters. Ensure that this period is greater than 200 ms.
t. Verify that the base station to retransmits the *Radio Configuration Parameters Message* to the mobile station with FOR_FCH_BLANKING_DUTYCYCLE and REV_FCH_BLANKING_DUTYCYCLE set to non-default value of 8.
u. Ensure that the access terminal transmits an *Order Message* acknowledging the receipt of *Radio Configuration Parameters Message*.
v. Verify that the base station continues transmitting and receiving frames for voice traffic.

2.18.2.5 Minimum Standard

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

2.19 GEM Processing for Radio Configuration Parameters Record Processing

2.19.1 Mobile Station Test

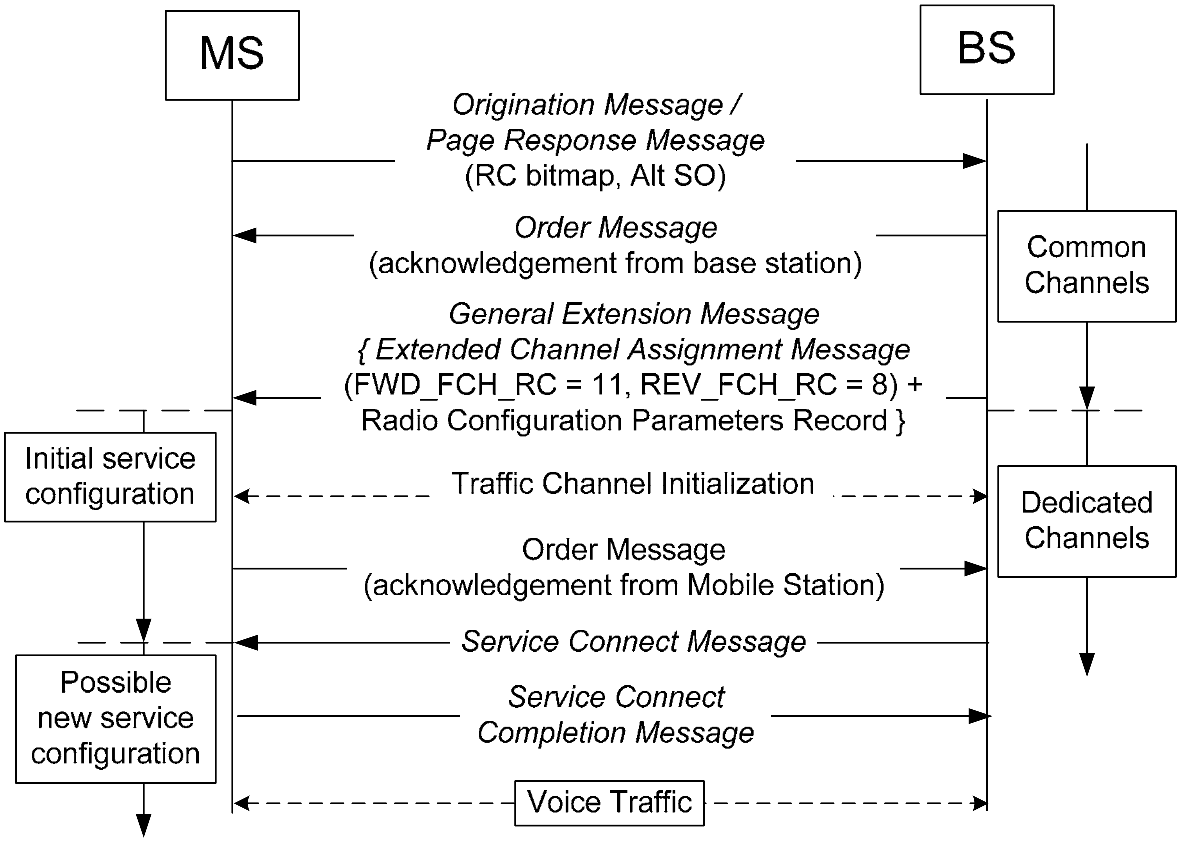
2.19.1.1 Definition

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

2.19.1.2 Traceability (See [4]):

2.7.1.3.2.5	*Page Response Message*
2.7.1.3.2.2.4	*Origination Message*
2.7.2.3.2.14	*Service Connect Completion Message*
3.7.2.3.2.17	*General Page Message*
3.7.2.3.2.21	*Extended Channel Assignment Message*
3.7.3.3.2.20	*Service Connect Message*
3.7.5.7	*Service Configuration*
3.7.3.3.2.51	*Radio Configuration Parameters Message*

2.19.1.3 Call Flow Diagram



2.19.1.4 Method of Measurement

a. Configure the setup for good RF links.

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

c. Attempt a mobile station originated or terminated call.

d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and RC 8 in REV_FCH_RC_MAP in the *Origination Message* or *Page Response Message*.

e. Ensure that the mobile station includes SO 74 in the alternative SO list in the origination message. Note, the base station should be configured to advertize a value of 7 in the MAX_NUM_ALT_SO field of the *Extended System Parameters Message*.

f. Instruct the base station to send a General Extension Message carrying

    1. *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8 and

    2. *Radio Configuration Parameters Record* with REV_FCH_BLANKING_DUTYCYCLE set to non-default value.

g. Verify that the access terminal transmits an *Order Message* acknowledging the receipt of *Extended Channel Assignment Message*.

h. Instruct the base station to transmit *Service Connect Message* specifying the SO 74 in the SERVICE_OPTION field. If SO 74 is not supported at the base station, then use SO 73 and mute the mobile station.

i. Ensure that the mobile station transmits *Service Connect Completion Message* to the base station.

j. If SO 74 has been assigned, instruct the base station to transmit a Service Option Control Mesasge with CTL_REC_TYPE set to 0 and RTC_MODE set to '101' (fixed Rate 1/8th non-critical).

k. Verify that the mobile station starts using the parameters received in the *Radio Configuration Parameters Record*. Note, this can be verified by the use of REV_FCH_BLANKING_DUTYCYCLE value carried in the *Radio Configuration Parameters Record* after SO 73 is negotiated. For example, when the mobile station is muted or SO 74 is used, out of every eight frames on the R-FCH, the mobile station should transmit only one 1/8th rate frame and blank other seven frames when REV_FCH_BLANKING_DUTYCYCLE is set to a value of '010'..

l. Verify that the mobile station starts transmitting and receiving frames *for* voice traffic.

m. Terminate the call.

2.19.1.5 Minimum Standard

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

2.19.2 Base Station Test

None

2.20 Mobile Station Reject Order generation for GEM

2.20.1 Mobile Station Test

2.20.1.1 Definition

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

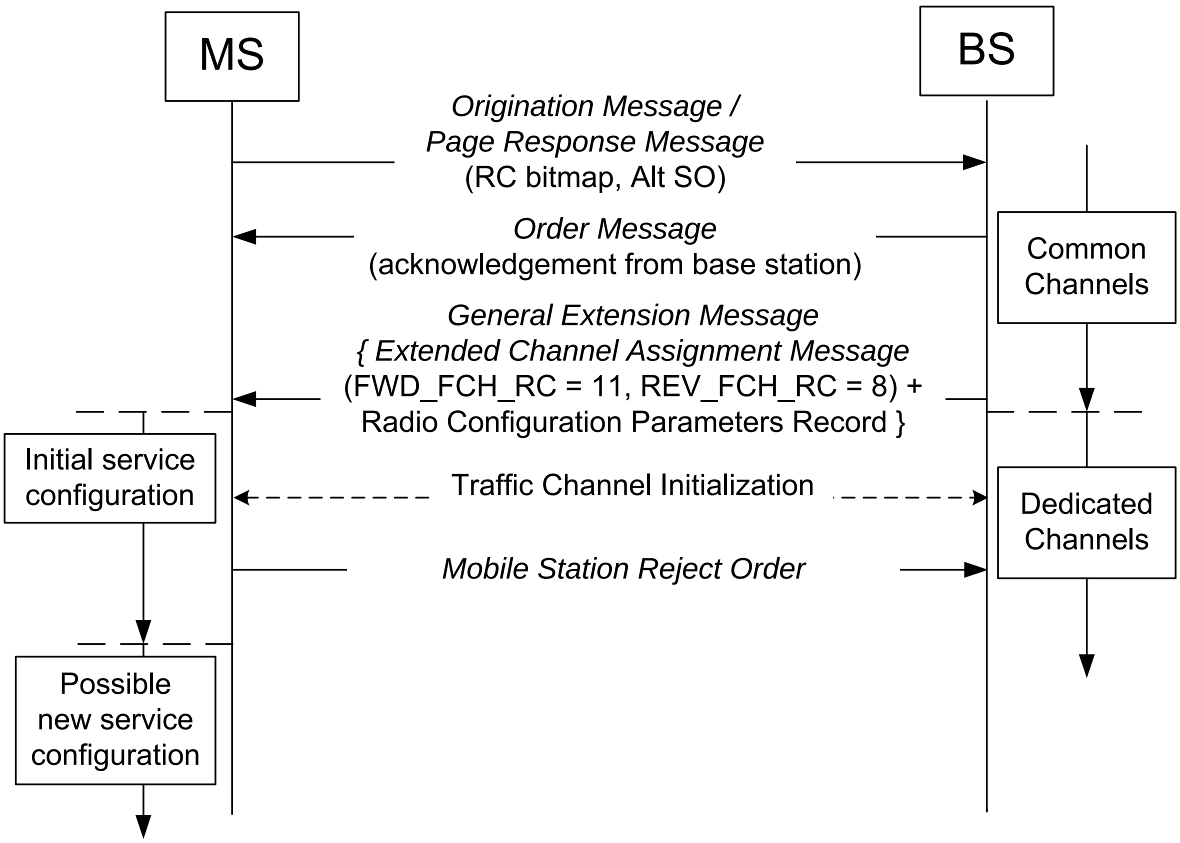
2.20.1.2 Traceability (See [4]):

2.6.18 *Processing of General Extension Message*
2.7.1.3.2.5 *Page Response Message*
2.7.1.3.2.2.4 *Origination Message*
2.7.2.3.2.14 *Service Connect Completion Message*
3.7.2.3.2.17 *General Page Message*
3.7.2.3.2.21 *Extended Channel Assignment Message*
3.7.3.3.2.20 *Service Connect Message*

3.7.5.7 *Service Configuration*

3.7.3.3.2.51 *Radio Configuration Parameters Message*

2.20.1.3 Call Flow Diagram



2.20.1.4 Method of Measurement

a. Configure the setup for good RF links.

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

c. Attempt a mobile station originated or terminated call.

d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and RC 8 in REV_FCH_RC_MAP in the *Origination Message* or *Page Response Message*.

e. Ensure that the mobile station includes SO 73 in the alternative SO list in the origination message. Note, the base station should be configured to advertize a value of 7 in the MAX_NUM_ALT_SO field of the *Extended System Parameters Message*.

f. Instruct the base station to send a General Extension Message carrying

    1. *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8 and

   2. A General Extension record with GE_REC_TYPE set to ‘11111111’.

g. Verify that the access terminal transmits a *Mobile Station Reject Order* with ORDQ equal to 00011101.

h. Repeat steps b-e.

i. Instruct the base station to send a General Extension Message carrying

   1. Extended Channel Assignment Message with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8 and

   2. A General Extension record with GE_REC_TYPE set to 00000001 and set the value of one of the parameters in the Radio Configuration Parameters Record to an invalid range. For example, set FOR_FCH_BLANKING_DUTYCYCLE to ‘111’ or PWR_CNTL_STEP_ZERO_RATE to ‘111’.

j. Verify that the access terminal transmits a *Mobile Station Reject Order* with ORDQ equal to ‘00011111’.

2.20.1.5 Minimum Standard

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

2.20.2 Base Station Test

None

2.21 Forward Link Error with RC11/RC12

2.21.1 Mobile Station Test

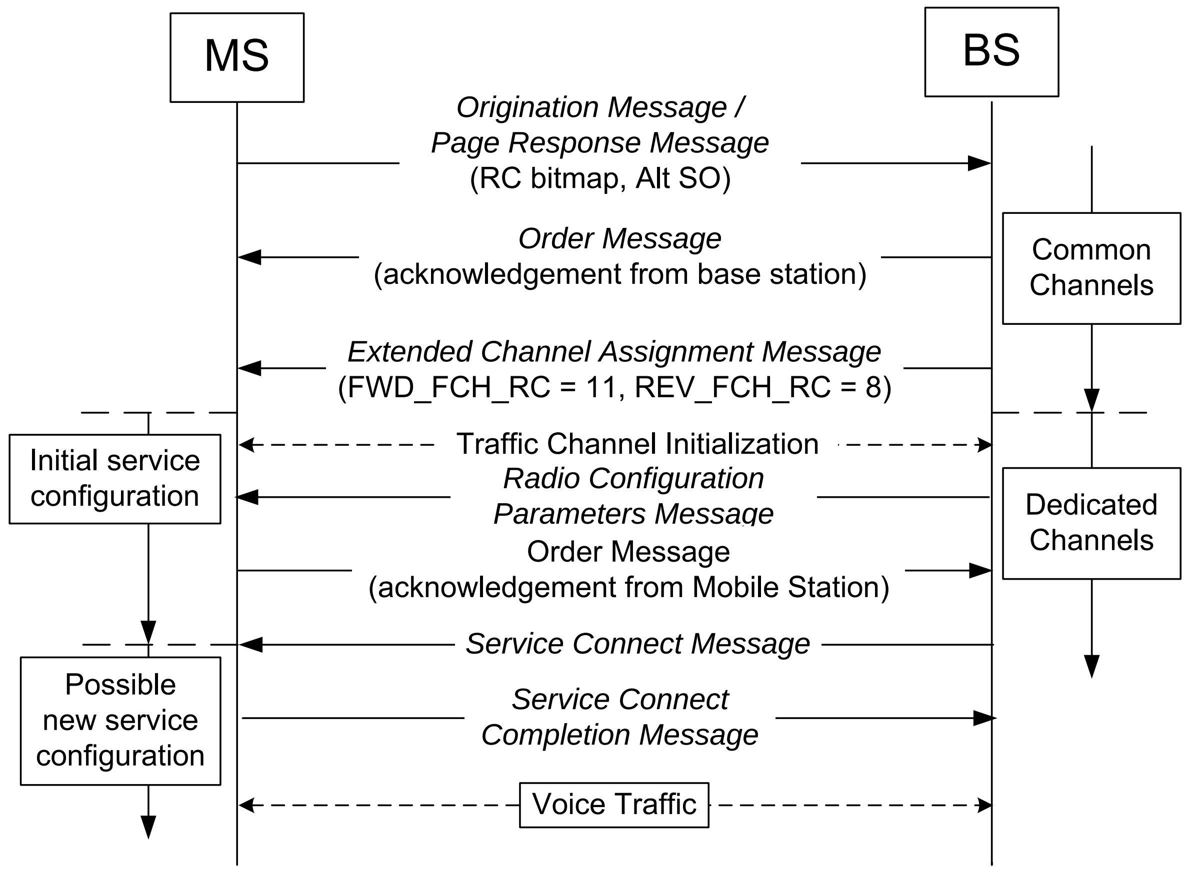
2.21.1.1 Definition

This test verifies forward link error trigger functionality in the mobile for different smart blanking options for the RC11/RC12 assignment on the forward link.

2.21.1.2 Traceability (See [4]):

2.6.2.1.1.4 *Common Channel Supervision*
2.6.4.1.8 *Forward Traffic Channel Supervision*
2.6.4.1.8.1.1 *Triggers*

2.21.1.3 Call Flow Diagram



2.21.1.4 Method of Measurement

a. Configure a test setup with a connection of a single base station and the mobile station to allow the forward radio link to be abruptly attenuated, or interfered with, enough to cause continuous loss of all forward frames for a specified duration, as shown in Annex A Figure 6.

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

c. Attempt a mobile station originated or terminated call.

d. Instruct the base station to assign RC11/RC12 on the forward fundamental channel and to assign a value of '010' for 'FOR_FCH_BLANKING_DUTYCYCLE and '011' for FOR_N2M_IND using the *Radio Configuration Parameters Message* or the Radio Configuration Parameters Record.

e. Instruct the base station to transmit only guaranteed physical layer frames. This can be achieved by using of SO 74.

f. Abruptly cause loss of the forward RF link beginning in for a period greater than FOR_N2M_IND guaranteed frames (i.e. > (FOR_N2M_IND + 1) * FOR_FCH_BLANKING_DUTYCYCLE * 20 ms) and less than 5 seconds. Note that FOR_N2M_IND and FOR_FCH_BLANKING_DUTYCYCLE values are in number of frames and not the actual attribute values. FOR_FCH_BLANKING_DUTYCYCLE value of ‘000’, ‘001’ and ‘010’ correspond to 0, 4 and 8 frames respectively. FOR_N2M_IND value of ‘000’, ‘001’, ‘010’, and ‘011’ correspond to 2, 4, 6 and 8 frames respectively.

g. Verify that the mobile station disables its reverse link transmitter after it receives FOR_N2M_IND consecutive guaranteed FL frames with insufficient signal quality.

h. Verify that the mobile station starts its transmitter after receiveing N3m (2) consecutive guaranteed frames from on the forward link or if the mobile station receives the forward fundamental channel with sufficient signal quality for a period of N3m × 20ms (= 40 ms).

i. Terminate the call.

j. Repeat steps c-g with the exception that the base station is continuously transmitting frames to the mobile station. This can be achieved for example by using SO 74 and generating critical 1/8th rate frames.

k. Verify that the mobile station starts its transmitter after receiveing N_{3m} (2) consecutive frames from on the forward link or if the mobile station receives the forward fundamental channel with sufficient signal quality for a period of N3m × 20ms (= 40 ms).

l. Repeat steps c-e.

m. Abruptly cause loss of the forward RF link beginning in for a period equal to FOR_N2M_IND * FOR_FCH_BLANKING_DUTYCYCLE * 20 ms – 20 ms such that less than FOR_N2M_IND guaranteed frames are lost. Note that FOR_FCH_BLANKING_DUTYCYCLE and FOR_N2M_IND values are in number of frames and not the actual attribute values.

n. Verify that the mobile station does not disable its reverse link transmitter.

o. Terminate the call.

p. Repeat steps c-o for FOR_N2M_IND attribute values of ‘000’, 001’ and ‘010’.

q. Repeat steps c-p for FOR_FCH_BLANKING_DUTYCYCLE attribute value of ‘001’.

r. Repeat steps c-e with FOR_FCH_BLANKING_DUTYCYCLE attribute value of ‘000’ and configure the base station to continuously transmit frames to the mobile station. This can be achieved for example by using SO 74 and generating critical 1/8th rate frames.

s. Abruptly cause loss of the forward RF link beginning in for a period greater than N_{2M} frames and less than 5 seconds.

t. Verify that the mobile station disables its reverse link transmitter after it receives N_{2M} consecutive FL frames with insufficient signal quality.

u. Verify that the mobile station starts its transmitter after receiveing N3m (2) consecutive frames from on the forward link or if the mobile station receives the forward fundamental channel with sufficient signal quality for a period of N3m × 20ms (= 40 ms).

v. Terminate the call.

w. Repeat step c-e with FOR_FCH_BLANKING_DUTYCYCLE attribute value of ‘000’ and configure the base station is continuously transmitting frames to the mobile station. This can be achieved for example by using SO 74 and generating critical 1/8th rate frames..

x. Abruptly cause loss of the forward RF link beginning in for a period less than N_{2M} frames.

y. Verify that the mobile station does not disable its reverse link transmitter.

z. Repeat steps r-y for for FOR_N2M_IND attribute values of ‘000’, 001’ and ‘010’. Note, FOR_N2M_IND value is not used when FOR_FCH_BLANKING_DUTYCYCLE attribute value of ‘000’ is used.

aa. Repeat steps a-z with REV_FCH_BLANKING_DUTYCYCLE set to ‘000’.

2.21.1.5 Minimum Standard

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

2.21.2 Base Station Test

None

2.22 Traffic Channel Assignment in QoF

2.22.1 Mobile Station Test

2.22.1.1 Definition

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

2.22.1.2 Traceability (See [4]):

2.7.1.3.2.5 *Page Response Message*
2.7.1.3.2.2.4 *Origination Message*
2.7.2.3.2.14 *Service Connect Completion Message*
3.7.2.3.2.17 *General Page Message*
3.7.2.3.2.21 *Extended Channel Assignment Message*
3.7.3.3.2.20 *Service Connect Message*
3.7.5.7 *Service Configuration*

2.22.1.3 Call Flow Diagram

None

2.22.1.4 Method of Measurement

a. Configure the setup for good RF links.

b. Attempt a mobile station originated or terminated call.

c. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and RC 8 in REV_FCH_RC_MAP in the *Origination Message*.

d. Ensure that the mobile station includes SO 74 in the SO or ALT_SO or SO_BITMAP field in the origination message.

e. Instruct the base station to send an *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8 and to set the QOF_MASK_ID_FCH set to ‘11’.

f. Ensure that the mobile station initializes the traffic channel.

g. Instruct the base station to transmit *Service Connect Message* specifying the SO 74 in the SERVICE_OPTION field.

h. Ensure that the mobile station transmits *Service Connect Completion Message* to the base station.

i. Instruct the base station to send a Radio Configuration Parameters Message with QOF_SET_IN_USE set to ‘11’.

j. Verify that the mobile station starts transmitting and receiving frames for voice traffic.

2.22.1.5 Minimum Standard

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

2.23 Call Recovery Request Message

2.23.1 Mobile Station Test

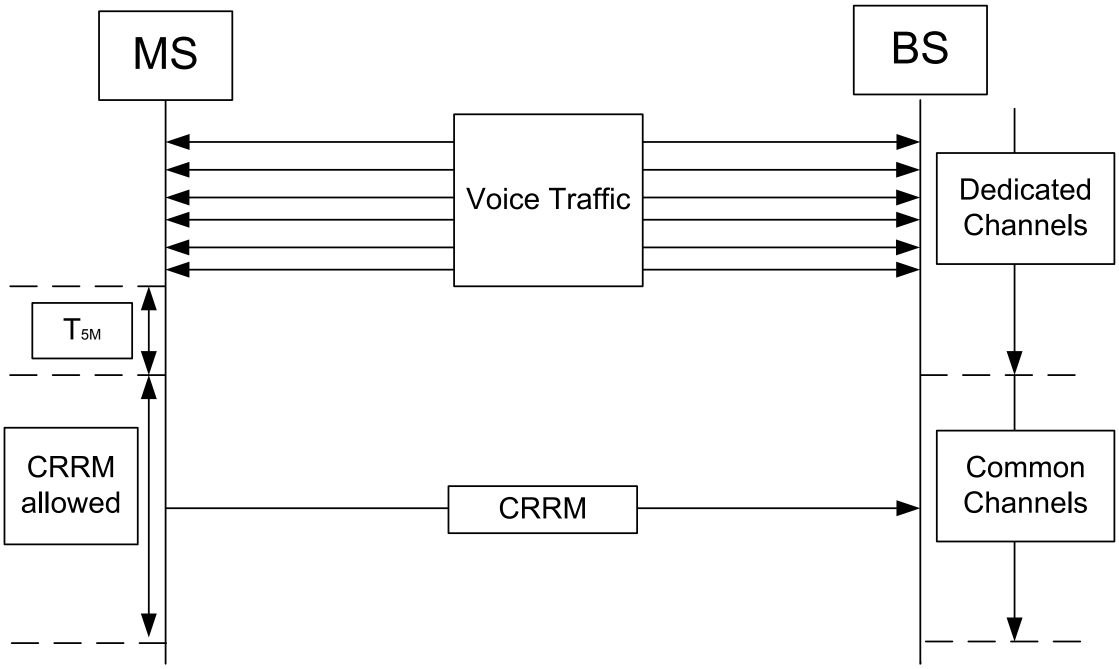
2.23.1.1 Definition

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

2.23.1.2 Traceability (See [4]):

2.6.2.1.1.4 *Common Channel Supervision*
2.6.4.1.8 *Forward Traffic Channel Supervision*
2.7.1.3.2.17 *Call Recovery 1 Request Message*
2.6.4.1.8.1.1 *Triggers*

2.23.1.3 Call Flow Diagram



2.23.1.4 Method of Measurement

a. Configure a test setup with a connection of a single base station and the mobile station to allow the forward radio link to be abruptly attenuated, or interfered with, enough to cause continuous loss of all forward frames for a specified duration, as shown in Annex A Figure 6

b. Configure the setup for good RF links.

c. Allow the mobile station to come to the idle state on the base station.

d. Instruct the base station to set the value of CRRM_MSG_IND to ‘1’ in the overhead messages.

e. Attempt a mobile station originated call.

f. Ensure that the mobile and base station are sending and receiving voice frames.

g. Abruptly cause loss of the forward RF link beginning in for a period greater than T_{5m} (5 seconds) and less than 20 seconds.

h. Ensure that the RF conditions are restored.

i. Verify that the mobile station transmits the *Call Recovery Request Message* to the base station.

j. Terminalte the call.

k. Repeat steps c-f.

l. Abruptly cause loss of the forward RF link beginning in for a period greater than 20 seconds.

m. Ensure that the RF conditions are restored.

n. Verify that the mobile station does not transmit *Call Recovery Request Message* to the base station.

o. Terminalte the call.

p. Instruct the base station to set the value of CRRM_MSG_IND to ‘0’ in the overhead messages.

q. Repeat steps c-h.

r. Verify that the mobile station does not transmit *Call Recovery Request Message* to the base station.

2.23.1.5 Minimum Standard

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

2.23.2 Base Station Test

None

2.24 General Overhead Information Message

2.24.1 Mobile Station Test

2.24.1.1 Definition

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

2.24.1.2 Traceability (See [4]):

2.6.2.2.22 *General Overhead Information Message*
3.7.2.3.2.42 *General Overhead Information Message*
3.7.2.3.2.31 *MC-1 RR Parameters Message*
3.7.2.3.2.1 *System 1 Parameters Message*

2.24.1.3 Call Flow Diagram

None

2.24.1.4 Method of Measurement

a. Configure the setup for good RF links.

b. Instruct the base station to set the value of GEN_OVHD_INF_IND to '1' and GEN_OVHD_CYCLE_INDEX to '101' in the overhead messages.

c. Allow the mobile station to become idle.

d. Attempt a mobile station originated call before the *General Overhead Information Message* is received from the base station.

e. Verify that the mobile station transmits an *Origination Message*.

f. Terminalte the call.

g. Allow the mobile station to become idle.

h. Attempt a mobile station terminated call before the *General Overhead Information Message* is received from the base station.

i. Verify that the mobile station transmits a *Page Response Message*.

j. Terminalte the call.

2.24.1.5 Minimum Standard

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

2.24.2 Base Station Test

None

2.25 Additional Geo Location Type Record

2.25.1 Mobile Station Test

2.25.1.1 Definition

This test verifies the mobile station response to *Status Request Message* for Additional Geo-Location Capability records

2.25.1.2 Traceability (See [4]):

2.7.1.3.2.10 Extended Status Response Message
2.7.2.3.2.16 Status Response Message
3.7.2.3.2.15 Status Request Message
3.7.3.3.2.16 Status Request Message

2.25.1.3 Call Flow Diagram

None

2.25.1.4 Method of Measurement

a. Initiate a call.

b. Instruct base station to send a *Status Request Message* with RECORD_TYPE = '00101111' (Additional Geo-Location Capability) on f-dsch.

c. Verify that the mobile station responds with a *Status Response Message* with RECORD_TYPE = ‘00101111’ (Additional Geo-Location Capability) and includes the Additional Geo-1 Location Capability record.

d. End the call.

e. Instruct base station to send a *Status Request Message* with RECORD_TYPE = ‘00101111’ (Additional Geo-Location Capability) on f-csch.

f. Verify that the mobile station responds with an *Extended Status Response Message* with RECORD_TYPE = ‘00101111’ (Additional Geo-Location Capability) and includes the Additional Geo-1 Location Capability record.

2.25.1.5 Minimum Standard

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

2.25.2 Base Station Test

None

2.26 SO 33 call set-up with RC 11 and RC 8

2.26.1 Mobile Station Test

2.26.1.1 Definition

This test verifies SO 33 call set-up with FL RC 11 and RL RC 8 assignment. It also verifies various power control mode assignments though Radio Configuration Parameters Messge.

2.26.1.2 Traceability (See [1]):

2.1.3.1.11 Reverse Power Control Subchannel

(See [4]):

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

2.26.1.3 Call Flow Examples

2.26.1.4 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. Set up a mobile station originated call using Service Option 33.

c. Instruct the base station to send the *Extended Channel Assignment Message* with 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)	

d. Instruct the base station to send and to send a *Radio Configuration Parameters Mesasge* with REV_FCH_BLANKING_DUTYCYCLE set to ‘000’ and to send the *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	

e. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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)

f. Verify that the mobile station and base station are able to send and receive IP packets.

g. Repeat steps a-f with the exception that FPC_MODE is set to ‘010’.

h. Repeat steps a-f with the exception that RPC_MODE is set to ‘01’ and FPC_MODE is set to ‘011’.

i. Repeat steps a-f with the exception that RPC_MODE is set to ‘01’ and FPC_MODE is set to ‘010’.

j. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to the default value, RPC_MODE is set to ‘01’ and FPC_MODE is set to ‘010’.

k. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to the default value, RPC_MODE is set to ‘01’ and FPC_MODE is set to ‘010’.

l. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to the default value, RPC_MODE is set to default value of ‘00’ and FPC_MODE is set to ‘010’.

2.26.1.5 Minimum Standard

The mobile station shall comply with the requirement in step f for all cases.

2.26.2 Base Station Test

None

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3 Idle handoff

3.1 PCH only is available in neighbor BS, NGHBR_CONFIG= '000'

3.1.1 Mobile Station test

3.1.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has the same number of frequencies with paging channels as current base station and there is a frequency in the neighbor which has the same number of paging channels as current CDMA frequency assignment.

3.1.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message

3.1.1.3 Call Flow Diagram

None

3.1.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2

b. Set the test parameters as specified in Table 3.1.1.4-1.

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/Io	dB	-10.2	-20.2

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 2 Paging Channels (without BCCH) on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List Message* or *General Neighbor List Message* on each of the paging channels of freq 1 with NGHBR_CONFIG= ‘000’ (FREQ_INCL= ‘0’ if applicable).

g. Configure all the paging channel messages on freq 2 of base station 1 according to scenario 1 of Table 3.1.1.4-2. Make sure that NGHBR_CONFIG is set to the value 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
ENLM	FREQ_INCL	‘1’	N/A	‘1’	‘1’	‘0’
	NGHBR_FREQ	freq 3	N/A	freq 3	freq 3	N/A
GNLM	FREQ_FIELDS_INCL	N/A	‘1’	‘0’	‘0’	‘1’
	NGHBR_FREQ	N/A	freq 3	N/A	N/A	freq 3
Note: NLM can only be sent on Band Class 0; ENLM can not be sent on Band Class 0						

h. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 2.

i. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

j. Power up the mobile station.

k. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

l. Verify that the mobile station sends a *Page Response Message* to base station 1.

m. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

n. Wait until the mobile station completes an idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, PCH) pair.

o. Verify that the mobile station sends a *Page Response Message* to base station 2.

p. Repeat step a to n with the following modification in step n:

    1. Wait until the mobile station completes an idle handoff and then instruct base station 2 to page the mobile station on a (freq, PCH) pair other than the hashed (freq, PCH) pair.

q. Verify that the mobile station does not send a *Page Response Message* to base station 2.

r. Repeat step a to q except the following:

    1. In step e: Configure base station 2 to have freq 3 and freq 2, with 2 Paging Channels (without BCCH) on each frequency.

    2. In step f and g: Swap freq 1 for freq 2.

    3. In step i: Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 3 followed by freq 2.

s. Repeat step a to r for scenarios 2 to 5 in Table 3.1.1.4-1.

3.1.1.5 Minimum Standard

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

3.1.2 Base Station Test

None

3.2 PCH only is available in neighbor base station, NGHBR_CONFIG= '001'

3.2.1 Mobile Station test

3.2.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has the same number of frequencies with paging channels as current base station and there is a frequency in the neighbor which has different number of paging channels as current CDMA frequency assignment.

3.2.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message

2.6.2.2.8: General Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message

3.2.1.3 Call Flow Diagram

None

3.2.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 3 Paging Channels (without BCCH) on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List Message* or *General Neighbor List Message* on each of the paging channels of freq 1 with NGHBR_CONFIG= '001', FREQ_INCL= '0' if the latter two.

g. Configure all the paging channel messages on the freq 2 of base station 1 according to scenario 1 of Table 3.1.1.4-2.

h. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 2.

i. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

j. Power up the mobile station.

k. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

l. Verify that the mobile station sends a *Page Response Message* to base station 1.

m. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

n. Wait until the mobile station completes an idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, PCH).

o. Verify that the mobile station sends a *Page Response Message* to base station 2.

p. Repeat step a to o with the following modification in step n:

    1. Wait until the mobile station completes an idle handoff and then instruct base station 2 to page the mobile station on a (freq, PCH) pair other than the hashed (freq, PCH).

q. Verify that the mobile station does not send a *Page Response Message* to base station 2.

r. Repeat step a to q except the following:

    1. In step e: Configure base station 2 to have freq 3 and freq 2, with 3 Paging Channels (without BCCH) on each frequency.
    2. In step f and g: Swap freq 1 for freq 2.
    3. In step i: Configure base station2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 3 followed by freq 2.

s. Repeat step a to r for scenarios 2 to 5 in Table 3.1.1.4-2.

3.2.1.5 Minimum Standard

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

3.2.2 Base Station test

None

3.3 PCH only is available in neighbor base station, NGHBR_CONFIG= '010'

3.3.1 Mobile Station Test

3.3.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has different number of frequencies with paging channels as current base station and there is a frequency in the neighbor which has a primary paging channel.

3.3.1.2 Traceability (See [4])

2.6.2.1.4: Idle Handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message

3.3.1.3 Call Flow Diagram

None

3.3.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 with 2 Paging Channels (without BCCH). Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 2 Paging Channels (without BCCH) on each frequency.Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List Message* or *General Neighbor List Message* on each of the paging channels of freq 1 with NGHBR_CONFIG= ‘010’, (FREQ_INCL= ‘0’ if applicable).

g. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* with freq 1.

h. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channel of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

i. Power up the mobile station.

j. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

k. Verify that the mobile station sends a *Page Response Message* to base station 1.

l. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

m. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, PCH).

n. Verify that the mobile station sends a *Page Response Message* to base station 2.

o. Adjust the level of base station 1 and 2 to the original setting.

p. Configure all the paging channels on the freq 1 of base station 1 according to scenario 1 of Table 3.1.1.4-2.

q. Ensure that the mobile station has updated the overhead messages on freq 1 of base station 1.

r. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

s. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, PCH).

t. Verify that the mobile station sends a *Page Response Message* to base station 2.

u. Repeat step a to t with the following modification:

   1. In step m and s: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on a (freq, PCH) pair other than the hashed (freq, PCH).

   2. In step n and t: Verify that the mobile station does not send a *Page Response Message* to base station 2.

v. Repeat step a to u for scenarios 2 to 5 in Table 3.1.1.4-2.

3.3.1.5 Minimum Standard

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

3.3.2 Base Station test

None

3.4 Unknown configuration in neighbor base station, NGHBR_CONFIG= '011'

3.4.1 Mobile Station test

3.4.1.1 Definition

This test verifies that an idle handoff is successfully completed if the current base station has no knowledge of neighbor base station except pilots.

3.4.1.2 Traceability (See [4]):

2.6.2.1.4: Idle Handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message

3.4.1.3 Call Flow Diagram

None

3.4.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1, with 1 Primary Paging Channel (without BCCH). Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with a primary paging channel on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 2 to send a *CDMA Channel Message* or an *Extended CDMA Channel Message* on each of the paging channel of each frequency with the frequency list as follows: freq 1 followed by freq 3.

g. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List Message* or *General Neighbor List Message* on the primary paging channel of freq 1 with NGHBR_CONFIG= ‘011’, (FREQ_INCL= ‘0’ if applicable).

h. Power up the mobile station.

i. Send a *General Page Message* from base station 1.

j. Verify that the mobile station sends a *Page Response Message* to base station 1.

k. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

l. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, PCH).

m. Verify that the mobile station sends a *Page Response Message* to base station 2.

n. Adjust the level of base station 1 and 2 to the original setting.

o. Configure all the paging channels on the freq 1 of base station 1 according to scenario 1 of Table 3.1.1.4-2.

p. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

q. Verify that the mobile station sends a *Page Response Message* to base station 1.

r. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

s. Wait until the mobile station completes the idle handoff and then instruct the base station 2 to page the mobile station on the hashed (freq, PCH).

t. Verify that the mobile station sends a *Page Response Message* to base station 2.

u. Repeat step a to t with the following modification:

    1. In step l and s: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on a (freq, PCH) pair other than the hashed (freq, PCH).

2. In step m and t: Verify that the mobile station does not send a *Page Response Message* to base station 2.

v. Repeat step a to u for scenarios 2 to 5 in Table 3.1.1.4-2.

3.4.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps j, m and t.

3.4.2 Base Station Test

None

3.5 PCH+BCCH/FCCCH are available in neighbor base station, NGHBR_CONFIG= '000', BCCH_IND_INCL= '0'

3.5.1 Mobile Station Test

3.5.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has the same number of frequencies with paging channels as current base station and there is a frequency in the neighbor which has the same number of paging channels as current CDMA frequency assignment. BCCH/FCCCH is also available in the neighbor base station.

3.5.1.2 Traceability (See [4])

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message

3.5.1.3 Call Flow Diagram

None

3.5.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 2 Paging Channels on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 2 to support freq 3 with 1 primary BCCH and 1 FCCCH associated with this BCCH.

g. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List Message* or *General Neighbor List Message* on each of the paging channels of freq 1 with NGHBR_CONFIG= ‘000’, (FREQ_INCL= ‘0’ if applicable), and only in *General Neighbor List Message*, ensure BCCH_IND_INCL= ‘0’.

h. Configure all the paging channels on the freq 2 of base station 1 according to scenario 1 of Table 3.1.1.4-2. And in *General Neighbor List Message*, ensure BCCH_IND_INCL= ‘0’.

i. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 2.

j. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channel of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

k. Configure base station 2 to send an *Extended CDMA Channel List Message* with freq 3 on primary BCCH.

l. Instruct the base station 2 to send an *Extended System Parameters Message* of all the paging channels on freq 1 and 3 with BCCH_SUPPORTED= ‘1’.

m. Power up the mobile station.

n. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

o. Verify that the mobile station sends a *Page Response Message* to base station 1.

p. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

q. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the FCCCH of freq 3.

r. Verify that the mobile station sends a *Page Response Message* to base station 2 on freq 3.

s. Repeat step a to r with the following modification:

    1. In step q: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the paging channel on each frequency.

    2. In step r: Verify that the mobile station does not send a *Page Response Message* to base station 2.

t. Repeat step a to s except the following:

1. In step e: Configure base station 2 to have freq 3 and freq 2, with 2 Paging Channels on each frequency.
2. In step g and h: Swap freq 1 for freq 2.
3. In step j: Configure base station2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 3 followed by freq 2.

u. Repeat step a to t for scenarios 2 to 5 in Table 3.1.1.4-2.

3.5.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps o, r.

3.5.2 Base Station Test

None

3.6 PCH+BCCH/FCCCH are available in neighbor base station, NGHBR_CONFIG= ‘001’, BCCH_IND_INCL= ‘0’

3.6.1 Mobile Station Test

3.6.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has the same number of frequencies with paging channels as current base station and there is a frequency in the neighbor which has different number of paging channels as current CDMA frequency assignment. BCCH/FCCCH is also available in the neighbor base station.

3.6.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message

3.6.1.3 Call Flow Diagram

None

3.6.1.4 Method of Measurement

a. Set up test as shown in Figure Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 3 Paging Channels on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 2 to support freq 3 with 1 primary BCCH and 1 FCCCH associated with this BCCH.

g. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List Message* or *General Neighbor List Message* on each of the paging channels of freq 1 with NGHBR_CONFIG= '001', (FREQ_INCL= '0' if applicable), and only in *General Neighbor List Message*, ensure BCCH_IND_INCL= '0'.

h. Configure all the paging channels on the freq 2 of base station 1 according to scenario 1 of Table 3.1.1.4-2. And in *General Neighbor List Message*, ensure BCCH_IND_INCL= '0'.

i. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 2.

j. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

k. Configure base station 2 to send an *Extended CDMA Channel List Message* with freq 3 on primary BCCH.

l. Instruct the base station 2 to send an *Extended System Parameters Message* of all the paging channels on freq 1 and 3 with BCCH_SUPPORTED= '1'.

m. Power up the mobile station.

n. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

o. Verify that the mobile station sends a *Page Response Message* to base station 1.

p. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

q. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the FCCCH of freq 3.

r. Verify that the mobile station sends a *Page Response Message* to base station 2 on freq 3.

s. Repeat step a to r with the following modification:

    1. In step q: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the paging channel on each frequency.

2. In step r: Verify that base station 2 does not receive a *Page Response Message* from the mobile station.

t. Repeat step a to s except the following:

1. In step e: Configure base station 2 to have freq 3 and freq 2, with 3 Paging Channels on each frequency.

2. In step g and h: Swap freq 1 for freq 2.

3. In step j: Configure base station2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 3 followed by freq 2.

u. Repeat step a to t for scenarios 2 to 5 in Table 3.1.1.4-2.

3.6.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps o and r.

3.6.2 Base Station Test

None

3.7 PCH+BCCH/FCCCH are available in neighbor base station, NGHBR_CONFIG= '010', BCCH_IND_INCL= '0'

3.7.1 Mobile Station Test

3.7.1.1 Definition

This test verifies that idle handoff is successfully completed if the neighbor base station has different number of frequencies with paging channels as current base station and there is a frequency in the neighbor which has a primary paging channel. BCCH/FCCCH is also available in the neighbor base station.

3.7.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message

3.7.1.3 Call Flow Diagram

None

3.7.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 with 2 Paging Channels (without BCCH). Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3 with 2 Paging Channels each. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 2 to support freq 3 with 1 BCCH and 1 FCCCH associated with this BCCH.

g. Instruct the base station 2 to send an *Extended System Parameters Message* of all the paging channels on freq 1 and 3 with BCCH_SUPPORTED= ‘1’.

h. Configure base station 1 to send a *Neighbor List Message*, *Extended Neighbor List Message* or *General Neighbor List Message* on each of the paging channels of freq 1 with NGHBR_CONFIG= ‘010’, (FREQ_INCL= ‘0’ if applicable), and only in *General Neighbor List Message*, ensure BCCH_IND_INCL= ‘0’.

i. Configure base station 1 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels with freq 1.

j. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each of the paging channels of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

k. Configure base station 2 to send an *Extended CDMA Channel List Message* with freq 3 on primary BCCH.

l. Power up the mobile station.

m. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

n. Verify that the mobile station sends a *Page Response Message* to base station 1.

o. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

p. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on FCCCH of freq 3.

q. Verify that the mobile station sends a *Page Response Message* to base station 2 on freq 3.

r. Adjust the level of base station 1 and 2 to the original setting.

s. Configure all the paging channels on the freq 1 of base station 1 according to scenario 1 of Table 3.1.1.4-2. And in *General Neighbor List Message*, ensure BCCH_IND_INCL= ‘0’.

t. Ensure that the mobile station has updated the overhead messages on freq 1 of base station 1.

u. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

v. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on FCCCH of freq 3.

w. Verify that base station 2 receives a *Page Response Message* from the mobile station on freq 3.

x. Repeat step a to w with the following modification:

   1. In step p and v: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the paging channel on each frequency.

   2. In step q and w: Verify that base station 2 does not receive a *Page Response Message* from the mobile station.

y. Repeat step a to x for scenarios 2 to 5 in Table 3.1.1.4-2.

3.7.1.5 Minimum Standard

The mobile station shall comply with the requirements in stepsn, q and w.

3.7.2 Base Station Test

None

3.8 PCH+BCCH/FCCCH are available in neighbor base station, BCCH_SUPPORT= ‘1’ (e.g. NGHBR_CONFIG= ‘000’)

3.8.1 Mobile Station Test

3.8.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has the same number of frequencies with paging channels as current base station and there is a frequency in the neighbor which has the same number of paging channels as current CDMA frequency assignment. BCCH/FCCCH is also available in the neighbor base station.

3.8.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message

3.8.1.3 Call Flow Diagram

None

3.8.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 and freq 2, with 2 Paging Channels (without BCCH) on each frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 2 Paging Channels on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 2 to support freq 3 with 1 primary BCCH and 1 FCCCH associated with this BCCH.

g. Configure base station 1 to send a *General Neighbor List Message* on each of the paging channels of freq 1 with NGHBR_CONFIG= ‘000’, FREQ_INCL= ‘0’, BCCH_SUPPORT= ‘1’.

h. Configure all the paging channels on the freq 2 of base station 1 according to scenario 1 of Table 3.1.1.4-2. And in *General Neighbor List Message*, ensure BCCH_SUPPORT= ‘1’.

i. Configure base station 2 to send an *Extended CDMA Channel List Message* with freq 3 on primary BCCH.

j. Power up the mobile station.

k. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

l. Verify that the mobile station sends a *Page Response Message* to base station 1.

m. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

n. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on FCCCH of freq 3.

o. Verify that the mobile station sends a *Page Response Message* to base station 2 on freq 3.

p. Repeat step a to o with the following modification:

    1. In step n: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the paging channel on each frequency.

2. In step o: Verify that base station 2 does not receive a *Page Response Message* from the mobile station.

q. Repeat step a to p except the following:

1. In step e: Configure base station 2 to have freq 3 and freq 2, with 2 Paging Channels on each frequency.
2. In step g and h: Swap freq 1 for freq 2.

r. Repeat step a to q for scenarios 2 to 5 in Table 3.1.1.4-2.

3.8.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps l and o.

3.8.2 Base Station Test

None

3.9 BCCH/FCCCH is available in neighbor base station, NGHBR_CONFIG= '000'

3.9.1 Mobile Station test

3.9.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has the same number of frequencies with primary BCCH/FCCCH as current base station and there is a frequency in the neighbor which has the same number of FCCCH as current CDMA frequency assignment.

3.9.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
2.6.2.2.17: Universal Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message
3.7.2.3.2.34: Universal Neighbor List Message

3.9.1.3 Call Flow Diagram

None

3.9.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 and freq 2, with 1 primary BCCH and 2 FCCCHs on each frequency.

e. Configure base station 2 to support freq 1 and freq 3, with 1 primary BCCH and 2 FCCCHs on each frequency.

f. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of freq 1 with NGHBR_CONFIG= ‘000’, FREQ_INCL= ‘0’.

g. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of freq 2 with NGHBR_CONFIG= ‘000’, FREQ_INCL= ‘1’ and NGHBR_FREQ is set to freq 3.

h. Configure base station 1 to send an *Extended CDMA Channel List Message* on the BCCH of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 2.

i. Configure base station 2 to send an *Extended CDMA Channel List Message* on the BCCH of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

j. Power up the mobile station.

k. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

l. Verify that the mobile station sends a *Page Response Message* to base station 1.

m. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

n. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, FCCCH).

o. Verify that the mobile station sends a *Page Response Message* to base station 2.

p. Repeat step a to o with the following modification:

    1. In step n: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on a (freq, FCCCH) pair other than the hashed (freq, FCCCH).

    2. In step o: Verify that the mobile station does not send a *Page Response Message* to base station 2.

q. Repeat step a to p except the following:

    1. In step e: Configure base station 2 to have freq 3 and freq 2, with 1 primary BCCH and 2 FCCCHs on each frequency.

    2. In step f and g: Swap freq 1 for freq 2.

    3. In step i: Configure base station2 to send an *Extended CDMA Channel List Message* on the BCCH of each frequency with the frequency list

inside the message as follows: freq 3 followed by freq 2.

3.9.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps l and o.

3.9.2 Base Station Test

None

3.10 BCCH/FCCCH is available in neighbor base station, NGHBR_CONFIG= ‘010’

3.10.1 Mobile Station Test

3.10.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has different number of frequencies with primary BCCH/FCCCH as current base station and there is a frequency in the neighbor, which has a primary BCCH.

3.10.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
2.6.2.2.17: Universal Neighbor List Message
3.7.2.3.2.3 : Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message
3.7.2.3.2.34: Universal Neighbor List Message

3.10.1.3 Call Flow Diagram

None

3.10.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 with 1 primary BCCH and 2 FCCCHs on each frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 1 primary BCCH and 2 FCCCHs on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of freq 1 with NGHBR_CONFIG= ‘010’, FREQ_INCL= ‘0’.

g. Configure base station 1 to send an *Extended CDMA Channel List Message* with freq 1.

h. Configure base station 2 to send an *Extended CDMA Channel List Message* on the BCCH of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

i. Power up the mobile station.

j. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

k. Verify that the mobile station sends a *Page Response Message* to base station 1.

l. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

m. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, FCCCH).

n. Verify that the mobile station sends a *Page Response Message* to base station 2.

o. Adjust the level of base station 1 and base station 2 to the original.

p. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of freq 1 with NGHBR_CONFIG= ‘010’, FREQ_INCL= ‘1’ and NGHBR_FREQ is set to be freq 3.

q. Ensure that the mobile station has updated all the overhead messages of the BCCH of freq 1 of base station 1.

r. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

s. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, FCCCH).

t. Verify the mobile station sends a *Page Response Message* to base station 2.

u. Repeat step a to t with the following modification:

    1. In step m and s: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on a (freq, FCCCH) pair other than the hashed (freq, FCCCH).

    2. In step n and t: Verify that the mobile station does not send a *Page Response Message* to base station 2.

3.10.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps n and t.

3.10.2 Base Station Test

None

3.11 BCCH/FCCCH is available in neighbor base station, NGHBR_CONFIG= ‘100’

3.11.1 Mobile Station Test

3.11.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has the same number of frequencies with primary BCCH/FCCCH as current base station and there is a frequency in the neighbor, which has a primary BCCH.

3.11.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
2.6.2.2.17: Universal Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message
3.7.2.3.2.34: Universal Neighbor List Message

3.11.1.3 Call Flow Diagram

None

3.11.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-2.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 and freq 2, with 1 primary BCCH and 2 FCCCHs on each frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 1 primary BCCH and 3 FCCCHs on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station. Moreover, configure the data rate of these 3 FCCCHs to be different from that of 2 FCCCHs in base station 1.

f. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of freq 1 with NGHBR_CONFIG= ‘100’, FREQ_INCL= ‘0’.

g. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of freq 2 with NGHBR_CONFIG= ‘100’, FREQ_INCL= ‘1’ and NGHBR_FREQ is set to freq 3.

h. Configure base station 1 to send an *Extended CDMA Channel List Message* on the BCCH of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 2.

i. Configure base station 2 to send an *Extended CDMA Channel List Message* on the BCCH of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

j. Power up the mobile station.

k. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

l. Verify the mobile station sends a *Page Response Message* to base station 1.

m. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

n. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, FCCCH).

o. Verify that the mobile station sends a *Page Response Message* to base station 2.

p. Repeat step a to o with the following modification:

    1. In step n: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on a (freq, FCCCH) pair other than the hashed (freq, FCCCH).

    2. In step o: Verify that the mobile station does not send a *Page Response Message* to BS 2.

q. Repeat step a to p except the following:

    1. In step e: Configure base station 2 to have freq 3 and freq 2, with 1 primary BCCH and 3 FCCCHs on each frequency.

    2. In step f and g: Swap freq 1 for freq 2.

    3. In step i: Configure base station2 to send an *Extended CDMA Channel List Message* on the BCCH of each frequency with the frequency list inside the message as follows: freq 3 followed by freq 2.

3.11.1.5 Minimum Standard

The mobile station shall comply with the requirement in step o.

3.11.2 Base Station Test

None

3.12 PCH ONLY is available in neighbor base station, NGHBR_CONFIG= '001'

3.12.1 Mobile Station Test

3.12.1.1 Definition

This test verifies that an idle handoff is successfully completed if the neighbor base station has no frequency with primary BCCH and the same number of frequencies with PCH as the current base with BCCH. There is a frequency in the neighbor, which has different number of PCH from the number of FCCCHs of the current base station.

3.12.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
2.6.2.2.17: Universal Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message
3.7.2.3.2.34: Universal Neighbor List Message

3.12.1.3 Call Flow Diagram

None

3.12.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1 and freq 2, with 1 primary BCCH and 2 FCCCHs on each frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with 2 PCHs on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of freq 1 with NGHBR_CONFIG= '001', FREQ_INCL= '0'.

g. Configure base station 1 to send a *Universal Neighbor List Message* on the BCCH of freq 2 with NGHBR_CONFIG= '001', FREQ_INCL= '1' and NGHBR_FREQ is set to freq 3.

h. Configure base station 1 to send an *Extended CDMA Channel List Message* on the BCCH of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 2.

i. Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each paging channel of each frequency with the frequency list inside the message as follows: freq 1 followed by freq 3.

j. Power up the mobile station.

k. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

l. Verify that the mobile station sends a *Page Response Message* to base station 1.

m. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

n. Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on the hashed (freq, PCH).

o. Verify that the mobile station sends a *Page Response Message* to base station 2.

p. Repeat step a to o with the following modification:

    1. In step n: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on a (freq, PCH) pair other than the hashed (freq, PCH).

    2. In step o: Verify that the mobile station does not send a *Page Response Message* to base station 2.

q. Repeat step a to p except the following:

    1. In step e: Configure base station 2 to have freq 3 and freq 2, with 3 PCHs on each frequency.

    2. In step f and g: Swap freq 1 for freq 2.

    3. In step i: Configure base station 2 to send a *CDMA Channel List Message* or an *Extended CDMA Channel List Message* on each paging channel of each frequency with the frequency list inside the message as follows: freq 3 followed by freq 2.

3.12.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps l and o.

3.12.2 Base Station Test

None

3.13 Only pilots are known in neighbor base station, NGHBR_CONFIG= ‘011’

3.13.1 Mobile Station Test

3.13.1.1 Definition

This test verifies an idle handoff correctly if the current base station has no knowledge of neighbor base station except pilot.

3.13.1.2 Traceability (See [4]):

2.6.2.1.4: Idle handoff
2.6.2.2.3: Neighbor List Message
2.6.2.2.7: Extended Neighbor List Message
2.6.2.2.8: General Neighbor List Message
2.6.2.2.17: Universal Neighbor List Message
3.7.2.3.2.3: Neighbor List Message
3.7.2.3.2.14: Extended Neighbor List Message
3.7.2.3.2.22: General Neighbor List Message
3.7.2.3.2.34: Universal Neighbor List Message

3.13.1.3 Call Flow Diagram

None

3.13.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

b. Set the test parameters as specified in Table 3.1.1.4-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Configure base station 1 to support freq 1, with 1 Primary BCCH and 1 FCCCH on this frequency. Freq 1 and Freq 2 should be configured to frequency channels supported by the mobile station.

e. Configure base station 2 to support freq 1 and freq 3, with a primary BCCH/FCCCH on each frequency. Freq 3 should be configured to frequency channel supported by the mobile station.

f. Configure base station 1 to send a *Universal Neighbor List Message* on the primary BCCH of freq 1 with NGHBR_CONFIG= ‘011’, FREQ_INCL= ‘0’.

g. Power up the mobile station.

h. Instruct base station 1 to page the mobile station by sending the *General Page Message.*

i. Verify that the mobile station sends a *Page Response Message* to base station 1.

j. Raise the level of base station 2 and lower the level of base station 1 until the level of base station 2 is at least 3 dB higher than that of base station 1.

k. Wait until the mobile station completes the idle handoff and then instruct the base station 2 to page the mobile station on the hashed (freq, FCCCH).

l. Verify that the mobile station sends a *Page Response Message* to BS 2.

m. Adjust the level of base station 1 and base station 2 to the original setting.

n. Configure base station 1 to send a *Universal Neighbor List Message* on the primary BCCH of freq 1 with NGHBR_CONFIG= ‘011’, FREQ_INCL= ‘1’ and NGHBR_FREQ is set to be freq 3.

o. Ensure that a mobile station has updated all the overhead message of the Primary BCCH on freq 1 of base station 1.

p. Raise the level of base station 2 and lower the level of base station 1 until the level of BS 2 is at least 3 dB higher than that of BS 1.

q. Wait until the mobile station completes the idle handoff and then instruct the base station 2 to page the mobile station on the hashed (freq, FCCCH).

r. Verify that the mobile station sends a *Page Response Message* to base station 2.

s. Repeat step a to r with the following modification:

   1. In step k and q: Wait until the mobile station completes the idle handoff and then instruct base station 2 to page the mobile station on a (freq, FCCCH) pair other than the hashed (freq, FCCCH).

   2. In step l and r: Verify that the mobile station does not send a *Page Response Message* to base station 2.

3.13.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps l and r.

3.13.2 Base Station test

None

3.14 Search Window Size and Offset (Idle State)

3.14.1 Mobile Station Test

3.14.1.1 Definition

The mobile station is operating in idle state and monitoring sector α of base station #1. Delay is applied to both sector ß of base station #1 and base station #2. The level of neighbor pilots are raised sufficiently high to ensure an idle handoff is possible.

In section 3.14.1.4.1, the pilot strength measurements of base station #2 and sector ß of base station #1 are checked against the search window size and search window offset settings for each of the neighbor pilots. If the delay is greater than the search window size for the neighbor pilot then the mobile station shall not an idle handoff to that neighbor pilot.

In section 3.14.1.4.2, the pilot strength measurements of base station #2 and sector ß of base station #1are checked against a common search window size (i.e. SRCH_WIN_N). If the delay is greater than the search window size for the neighbor pilot then the mobile station shall not an idle handoff to that neighbor pilot.

Formulas

Num_Chips = Set_Chip_Offset - Sim_Chip_Offset

Chip_Delay (µs) = $\frac{\text{Num\_chip x 244m}}{300\text{m}/\mu s}$

Set_Chip_Offset is the desired number of chip offsets for a particular test case. Sim_Chip_Offset is the inherent delay for a pilot due to the time alignment/calibration of the equipment. Chip_Delay is the actual delay in usec the tester should vary with the test equipment (e.g. fader) to achieve the proper Set_Chip_Offset (this includes the inherent delay measured for Sim_Chip_Offset. When properly adjusted, the Set_Chip_Offset should equal to the neighbor pilot’s chip offset from zero chip delay.

3.14.1.2 Traceability (See [4]):

2.6.6: Handoff Procedures

2.6.6.2.1: Pilot Search

Table 2.6.6.2.1: Search Window Sizes

Table 2.6.6.2.1-2: Search Window Offset

3.6.6: Handoff Procedures

3.7.2.3.2.1: System Parameters Message

3.7.2.3.2.22: General Neighbor List Message

3.7.2.3.2.34: Universal Neighbor List Message

3.14.1.3 Call Flow Example(s)

3.14.1.4 Method of Measurement

3.14.1.4.1 Method of Measurement with NGHBR_SRCH_MODE = ‘10’ (search window size per neighbor)

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

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 ß 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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	9 (80 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

d. Determine the inherent delay of the channel simulator (i.e. Sim_Chip_Offset).

e. For Tests 1, 6, 9, 12, 15, 18, 23, 26, 29 and 32, set the delay on both Channel 2 and on Channel 3 to a Chip_Delay such that Set_Chip_Offset =(SRCH_WIN_NGHBR of P3)/4 + SRCH_OFFSET_NGHBR of P3 (i.e Set_Chip_Offset of P2 is equal to Set_Chip_Offset of P3).

f. Set the test parameters as specified in Table 3.14.1.4.1-2 for state S1 in all 3 channels.

Table 3.14.1.4.1-2 Test Parameters for Search Window per Neighbor (Idle State)

Parameter	Unit	Channel 1	Channel 2	Channel 3
Îor/Ioc	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
Ioc	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

Note: The Pilot Ec/I0 value is calculated from the parameters set in the table. It is not a settable parameter itself.

g. Allow the mobile station to monitor Channel 1 while in idle state.

h. Raise the level of Channel 2 to Îor/Ioc = +5 dB (State S2 for Channel 2 in Table 3.14.1.4.1-2).

i. Reset the test parameter as specified in Table 3.10.3.1-2 for state S1 in all 3 channels.

j. Raise the level of Channel 3 to Îor/Ioc = +5 dB (State S2 for Channel 3 in Table 3.14.1.4.1-2).

k. Verify the following:

1. The mobile station shall perform an idle handoff to Channel 2 in step h.
2. The mobile station shall perform an idle handoff to Channel 3 in step j.

l. For Tests 2, 7 10, 13, 16, 19, 24, 27, 30 and 33, set the delay on both Channel 2 and Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR of P3)/2 + SRCH_OFFSET_NGHBR of P3.

m. Repeat steps f to j.

n. Verify the following:

1. The mobile station shall not perform an idle handoff to Channel 2 in step h.
2. The mobile station shall perform an idle handoff to Channel 2 in step j.

o. For Tests 3, 8, 11, 14, 17, 20, 25, 28, 31 and 34, set the delay on both Channel 2 and Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR of P3)/2 + SRCH_OFFSET_NGHBR of P3 + 10 chips.

p. Repeat steps f to j.

q. Verify that the mobile station does not perform an idle handoff(s) in either step h or j.

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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	1 (window_size/2)

s. For Tests 4 and 21, set the delay on both Channel 2 and Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR of P3)/2 + SRCH_OFFSET_NGHBR of P3.

t. Repeat steps g to k.

u. Verify the following:

1. The mobile station shall not perform an idle handoff to Channel 2 in step h.
2. The mobile station shall perform an idle handoff to Channel 3 in step j.

v. 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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	4 (-window_size/2)

w. For Tests 5 and 22, set the delay on both Channel 2 and Channel 3 to a Chip_Delay such that Set_Chip_Offset =(SRCH_WIN_NGHBR of P3)/2.

x. Repeat steps g to k.

y. Verify the following:

1. The mobile station shall perform an idle handoff to Channel 2 in step h.
2. The mobile station shall not perform an idle handoff to Channel 3 in step j.

z. For Tests 6, 7 and 8 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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	8 (60 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	10 (100 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

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

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)

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

Neighbor Setting for P2	
NGHBR_PN	P2

SRCH_WIN_NGHBR	12 (160 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	14 (320 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

cc. For Tests 15, 16 and 17 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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	13 (226 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	15 (452 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

dd. 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*.

ee. 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*.

ff. 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*.

gg. 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*.

hh. For Tests 32, 33 and 34 repeat Tests 15, 16 and 17, correspondingly with the exception that *Universal Neighbor List Message* is used instead of the *General Neighbor List Message*.

3.14.1.4.2 Method of Measurement with NGHBR_SRCH_MODE = ‘00’ (same search window size for all neighbor)

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

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 ß 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.

f. Set the test parameters as specified in Table 3.14.1.4.1-2 for state S1 in all 3 channels.

g. Allow the mobile station to monitor Channel 1 while in idle state.

h. Raise the level of Channel 2 to Îor/Ioc = +5 dB (State S2 for Channel 2 in Table 4.5.1.4.1-2).

i. Reset the test parameter as specified in Table 3.10.3.1-2 for state S1 in all 3 channels.

j. Raise the level of Channel 3 to Îor/Ioc = +5 dB (State S2 for Channel 3 in Table 4.5.1.4.1-2).

k. Verify the following:

    1. The mobile station shall perform an idle handoff to Channel 2 in step h.

    2. The mobile station shall perform an idle handoff to Channel 2 in step j.

l. For Tests 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20, set the delay on Channel 2 to a Chip_Delay such that Set_Chip_Offset of P2 =(SRCH_WIN_N/2)+10 chips, and set the delay on Channel 3 to a Chip_Delay such that Set_Chip_Offset=(SRCH_WIN_N/4)+10 chips.

m. Repeat steps f to j.

n. Verify the following:

    1. The mobile station shall not perform an idle handoff to Channel 2 in step h.

    2. The mobile station shall perform an idle handoff to Channel 2 in step j.

o. For Tests 3 and 4 repeat steps b to n with SRCH_WIN_N set to 10 (100 chips).

p. For Tests 5 and 6 repeat steps b to n with SRCH_WIN_N set to 13 (226 chips).

q. For Tests 7 and 8 repeat steps b to n with SRCH_WIN_N set to 14 (320 chips).

r. For Tests 9 and 10 repeat steps b to n with SRCH_WIN_N set to 15 (452 chips).

s. Set the following values in the *Universal Neighbor List Message*:

Field	Value
NGHBR_SRCH_MODE	‘00’
SRCH_WIN_N	7 (40 Chips)

t. For Tests 11 and 12 repeat steps b to n using parameter values in step t sent over the *Universal Neighbor List Message* instead of the *General Neighbor List Message*.

u. For Tests 13 and 14 repeat steps b to n with SRCH_WIN_N set to 10 (100 chips) in the *Universal Neighbor List Message* in step t.

v. For Tests 15 and 16 repeat steps b to n with SRCH_WIN_N set to 13 (226 chips) in the *Universal Neighbor List Message* in step t.

w. For Tests 17 and 18 repeat steps b to n with SRCH_WIN_N set to 14 (320 chips) in the *Universal Neighbor List Message* in step t.

x. For Tests 19 and 20 repeat steps b to n with SRCH_WIN_N set to 15 (452 chips) in the *Universal Neighbor List Message* in step t.

3.14.1.5 Minimum Standard

3.14.1.5.1 NGHBR_SRCH_MODE = ‘10’ (search window size per neighbor):

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 Tests 4 to 5 and Tests 21 to 22.

3.14.1.5.2 NGHBR_SRCH_MODE = ‘00’ (same search window size for all neighbor):

Verify step k for Tests 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19.
Verify step n for Tests 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20.

3.14.2 Base Station Test

None

4 Handoff

4.1 Soft Handoff With Dynamic Threshold

4.1.1 Mobile Station Test

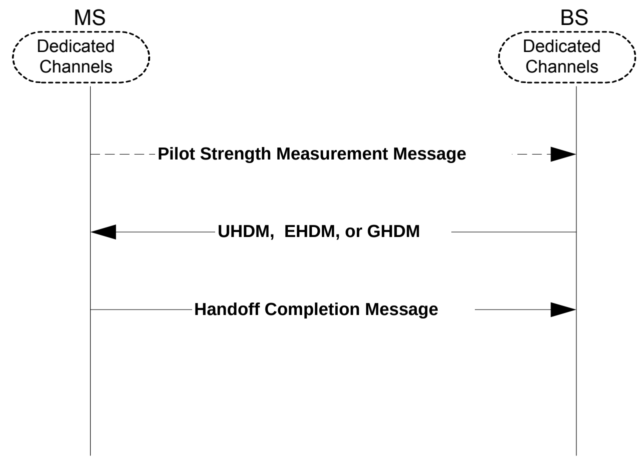
4.1.1.1 Definition

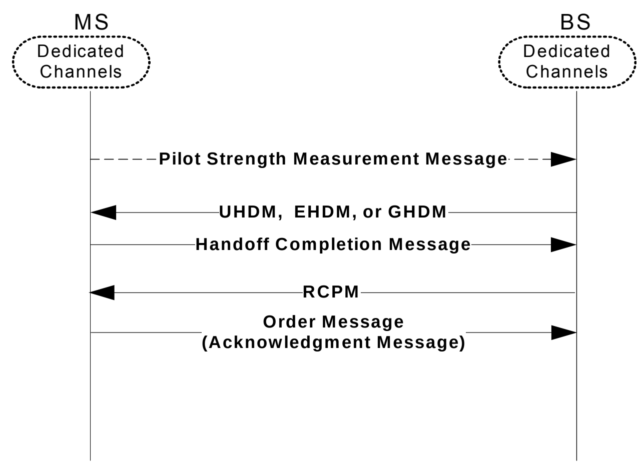
This test verifies the proper operation of mobile station soft handoff. Soft handoff with dynamic thresholds is verified. This test verifies both adding pilot to and dropping pilot from the soft handoff Active Set. Tests 1 through 4 apply to cases when SOFT_SLOPE is not equal to '000000' (dynamic threshold enabled).

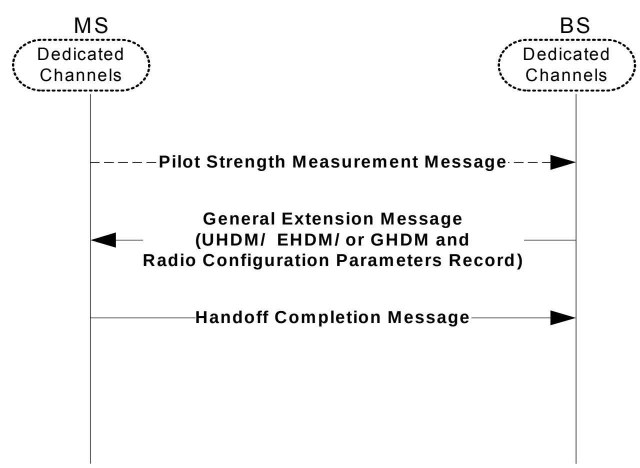
4.1.1.2 Traceability (See [4]):

2.6.2.2.5: Extended System Parameters Message
2.6.4.1.4: Processing the In-Traffic System Parameters Message
2.6.6.2.3: Handoff Drop Timer
2.6.6.2.5.1: Processing of Forward Traffic Channel Handoff Messages
2.6.6.2.5.2: Processing of Reverse Traffic Channel Handoff Messages
2.6.6.2.6.2: Maintenance of the Candidate Set
2.6.6.2.6.3: Maintenance of the Neighbor Set
2.6.6.2.8.2.1: Restoring the Configuration
2.6.6.3: Examples
2.7.2.3.2.5: Pilot Strength Measurement Message
3.6.6.2.1.1: System Parameters
3.7.2.3.2.13: Extended System Parameters Message
3.7.3.3.2.7: In-Traffic System Parameters Message
3.7.3.3.2.17: Extended Handoff Direction Message
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message
3.7.2.3.2.44 General Extension Message
3.7.3.3.2.51 Radio Configuration Parameters Message

4.1.1.3 Call Flow Diagram







4.1.1.4 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 ß 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 4.1.1.4-2 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 Ec/Io in the *Pilot Strength Measurement Message*.

d. If the RC used on the forward fundamental channel is < 10, instruct the base station to send an *Extended Handoff Direction Message* to the mobile station to allow a soft handoff between Channel 1 and Channel 2. For RC11/RC12 assignment on the forward fundamental channel, instruct the base station to

   1. Send an *Extended Handoff Direction Message* followed by a *Radio Configuration Parameters Message* to the mobile station.

   2. When repeating the test using the *General Extension Message*, send a *General Extension Message* containing *Extended Handoff Direction Message* and Radio Configuration Parameters record.

e. Verify the following:

   1. The mobile station sends the *Pilot Strength Measurement Message* when the pilot level of channel 2 is at a level between –10dB and –13dB.

   2. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to handoff message sent in step d.

   3. Channel 1 and Channel 2 are in the Active Set.

   4. For RC11/RC12 assignment on the forward fundamental channel, the mobile station starts using the parameters assigned in the *Radio Configuration Parameters Message* / Radio Configuration Parameters Record.

f. Repeat steps c to e with the change that the base station is instructed to send the *General Handoff Direction Message* in step d. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

g. Repeat steps c to e with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step d. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

h. Set test parameters for Test 2 as specified in Table 4.1.1.4-3 while Channel 1 and Channel 2 are in soft handoff. Raise the level of Channel 3 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 Ec/Io in the *Pilot Strength Measurement Message*.

i. If the RC used on the forward fundamental channel is < 10,instruct the base station to send an *Extended Handoff Direction Message* to the mobile station to allow a soft handoff between Channel 1, Channel 2 and Channel 3. For RC11/RC12 assignment on the forward fundamental channel, instruct the base station to

   1. Send an *Extended Handoff Direction Message* followed by a *Radio Configuration Parameters Message* to the mobile station.

   2. When repeating the test using the *General Extension Message*, send a *General Extension Message* containing *Extended Handoff Direction Message* and Radio Configuration Parameters record.

Table 4.1.1.4-1 Soft Handoff with Dynamic Threshold Test Parameters - T_ADD, T_DROP, T_TDROP, ADD_INTERCEPTs, DROP_INTERCEPTs, SOFT_SLOPEs

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_TDROP	‘0011’ (4s)

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

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

j. Verify the following:

1. The mobile station sends the *Pilot Strength Measurement Message* when the pilot level of channel 3 is at a level between –10dB and –13dB.

2. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step k.

3. Channel 1, Channel 2 and Channel 3 are in the Active Set.

4. For RC11/RC12 assignment on the forward fundamental channel, the mobile station starts using the parameters assigned in the *Radio Configuration Parameters Message* / Radio Configuration Parameters Record.

k. Repeat steps h to j with the change that the base station is instructed to send the *General Handoff Direction Message* in step i. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

l. Repeat steps h to j with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step i. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

m. Set the test parameters for Test 3 in Table 4.1.1.4-4 while Channel 1, Channel 2, and Channel 3 are in soft handoff. Lower the level of Channel 3 in steps of 1 dB with a dwell time of 30 seconds until the mobile station has generated the *Pilot Strength Measurement Message*. Record the level of Pilot Ec/Io in the *Pilot Strength Measurement Message*.

n. If the RC used on the forward fundamental channel is < 10, instruct the base station to send an *Extended Handoff Direction Message* to the mobile station to allow a soft handoff between Channel 1 and Channel 2. For RC11/RC12 assignment on the forward fundamental channel, instruct the base station to

1. Send an *Extended Handoff Direction Message* followed by a *Radio Configuration Parameters Message* to the mobile station.

2. When repeating the test using the *General Extension Message*, send a *General Extension Message* containing *Extended Handoff Direction Message* and Radio Configuration Parameters record.

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/Io	dB	-10.1	-10.1	-10.1

o. Verify the following:

1. The mobile station sends the *Pilot Strength Measurement Message* when the pilot level of channel 3 is at a level between –12dB and –16dB.

2. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step n.

3. Channel 1 and Channel 2 are in the Active Set.

4. For RC11/RC12 assignment on the forward fundamental channel, the mobile station starts using the parameters assigned in the *Radio Configuration Parameters Message* / Radio Configuration Parameters Record.

p. Repeat steps m to o with the change that the base station is instructed to send the *General Handoff Direction Message* in step n. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

q. Repeat steps m to o with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step n. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

r. Set test parameters for Test 4 as specified in Table 4.1.1.4-5. Lower level of Channel 2 in steps of 1 dB with a dwell time of 30 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message*. Record the level of Pilot Ec/Io in the *Pilot Strength Measurement Message*.

s. If the RC used on the forward fundamental channel is < 10, instruct the base station to send an *Extended Handoff Direction Message* to the mobile station with only Channel 1 listed in the Active Set. For RC11/RC12 assignment on the forward fundamental channel, instruct the base station to

   1. Send an *Extended Handoff Direction Message* followed by a *Radio Configuration Parameters Message* to the mobile station.

   2. When repeating the test using the *General Extension Message*, send a *General Extension Message* containing *Extended Handoff Direction Message* and Radio Configuration Parameters record.

t. Verify the following:

   1. The mobile station sends the *Pilot Strength Measurement Message* when the pilot level of channel 2 is at a level between –11dB and –14dB.

   2. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step s.

   3. Only Channel 1 is in the Active Set.

   4. For RC11/RC12 assignment on the forward fundamental channel, the mobile station starts using the parameters assigned in the *Radio Configuration Parameters Message* / Radio Configuration Parameters Record.

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/Io	dB	-8.4	-8.4	-35

u. Repeat steps r to t with the change that the base station is instructed to send the *General Handoff Direction Message* in step s. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

v. Repeat steps r to t with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step s. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

4.1.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps e, j, o, and t for the *General Extension Message*, *Radio Configuration Parameters Message*, *Extended Handoff Direction Message*, the *General Handoff Direction Message* and the *Universal Handoff Direction Message*.

4.1.2 Base Station Test

4.1.2.1 Definition

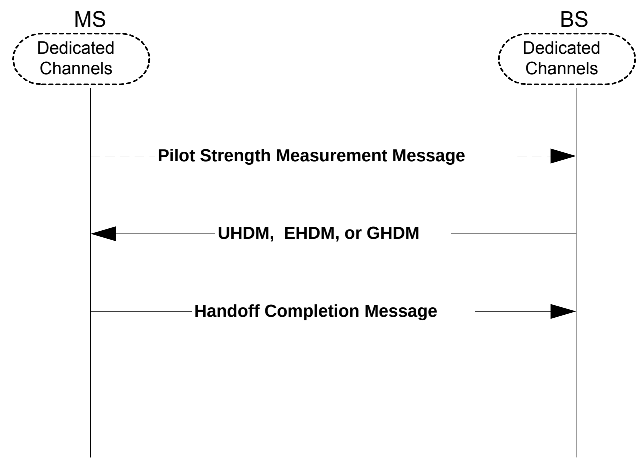
This test verifies the proper operation of base station soft handoff. A soft handoff with dynamic thresholds is verified. This test verifies both adding pilot to and dropping pilot from the a soft handoff Active Set. Tests 1 through 4 apply to cases when SOFT_SLOPE is not equal to ‘000000’ (dynamic threshold enabled).

4.1.2.2 Traceability (See [4]):

2.6.2.2.5: Extended System Parameters Message
2.6.4.1.4: Processing the In-Traffic System Parameters Message
2.6.6.2.3: Handoff Drop Timer
2.6.6.2.5.1: Processing of Forward Traffic Channel Handoff Messages
2.6.6.2.5.2: Processing of Reverse Traffic Channel Handoff Messages
2.6.6.2.6.2: Maintenance of the Candidate Set
2.6.6.2.6.3: Maintenance of the Neighbor Set
2.6.6.2.8.2.1: Restoring the Configuration
2.6.6.3: Examples
2.7.2.3.2.5: Pilot Strength Measurement Message
3.6.6.2.1.1: System Parameters

3.7.2.3.2.13: Extended System Parameters Message
3.7.3.3.2.7: In-Traffic System Parameters Message
3.7.3.3.2.17: Extended Handoff Direction Message
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message

4.1.2.3 Call Flow Diagram



4.1.2.4 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 ß 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. Set the test parameters for Test 1 as specified in Table 4.1.2.4-1 and Table 4.1.2.4-2.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station terminated call and verify user data in both directions

e. Verify that the base station is not in soft handoff.

f. Raise the level of Channel 2 until the mobile station generates the *Pilot Strength Measurement Message*.

g. Verify that the the base station sends an *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* to the mobile station with Channel 1 and Channel 2 listed as the Active Set.

h. Set test parameters for Test 2 as specified in Table 4.1.2.4-3 while Channel 1 and Channel 2 are in soft handoff. Raise the level of Channel 3 until the mobile station generates the *Pilot Strength Measurement Message*.

Table 4.1.2.4-1 A soft handoff with Dynamic Threshold Test Parameters - T_ADD, T_DROP, 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)

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

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

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] DROP_INTERCEPT=2/2=1dB

j. Set the test parameters for Test 3 in Table 4.1.2.4-4 while Channel 1, Channel 2, and Channel 3 are in soft handoff. Lower the level of Channel 3 until the mobile station has generated the *Pilot Strength Measurement Message*.

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/Io	dB	-10.1	-10.1	-10.1

k. Verify that the base station sends an *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* with Channel 1 and Channel 2 listed as the Active Set.

l. Set test parameters for Test 4 as specified in Table 4.1.2.4-5. Lower level of Channel 2 in steps of 1 dB until the mobile station has generated the *Pilot Strength Measurement Message*.

m. Verify that the base station sends an *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* with Channel 1 only listed as the Active Set.

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/Io	dB	-8.4	-8.4	-35

n. End call.

4.1.2.5 Minimum Standard

The base station shall comply with the requirements in steps e, g, i, k, and m.

4.2 Soft Handoff Without Dynamic Threshold

4.2.1 Mobile Station Test

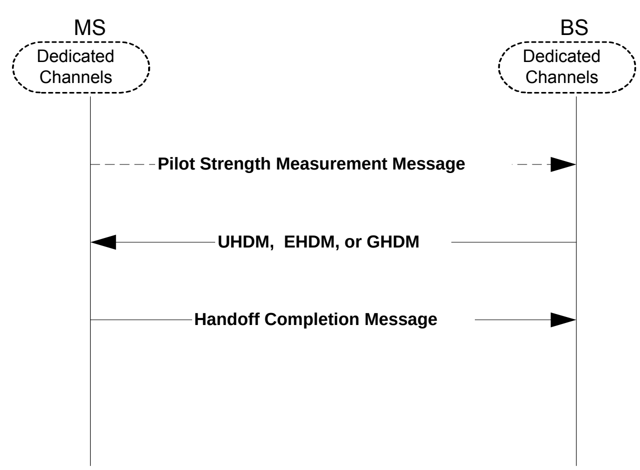
4.2.1.1 Definition

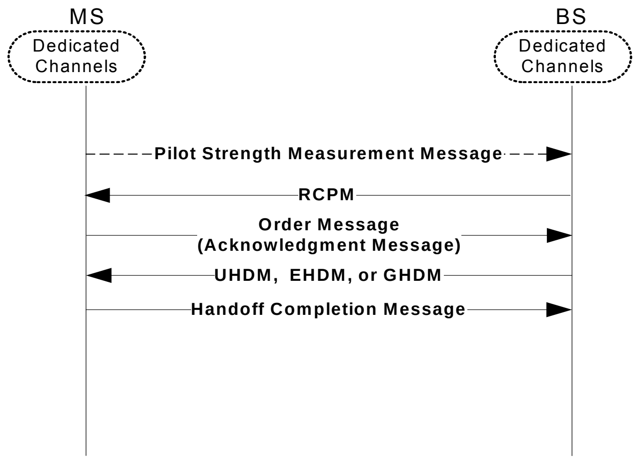
This test verifies the proper operation of mobile station soft handoff. Soft handoff without dynamic thresholds is verified. This test verifies both adding pilot to and dropping pilot from the soft handoff Active Set. Tests 1 through 4 apply to cases when SOFT_SLOPE is equal to '000000' (dynamic threshold disabled).

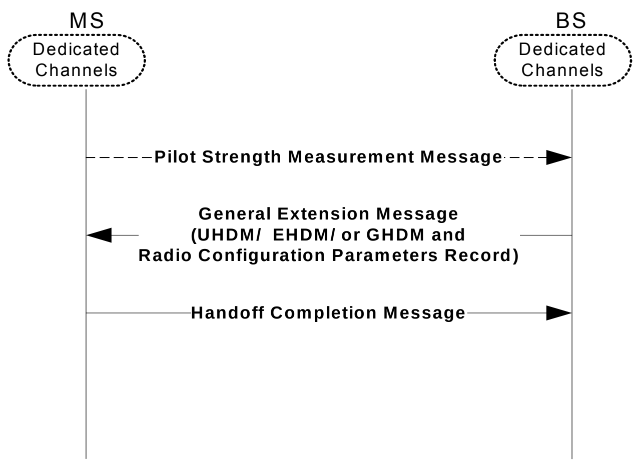
4.2.1.2 Traceability (See [4]):

2.6.2.2.5: Extended System Parameters Message
2.6.4.1.4: Processing the In-Traffic System Parameters Message
2.6.6.2.3: Handoff Drop Timer
2.6.6.2.5.1: Processing of Forward Traffic Channel Handoff Messages
2.6.6.2.5.2: Processing of Reverse Traffic Channel Handoff Messages
2.6.6.2.6.2: Maintenance of the Candidate Set
2.6.6.2.6.3: Maintenance of the Neighbor Set
2.6.6.2.8.2.1: Restoring the Configuration
2.6.6.3: Examples
2.7.2.3.2.5: Pilot Strength Measurement Message
3.6.6.2.1.1: System Parameters
3.7.2.3.2.13: Extended System Parameters Message
3.7.3.3.2.7: In-Traffic System Parameters Message
3.7.3.3.2.17: Extended Handoff Direction Message
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message
3.7.2.3.2.44 General Extension Message
3.7.3.3.2.51 Radio Configuration Parameters Message

4.2.1.3 Call Flow Diagram







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 ß 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 Ec/Io in the *Pilot Strength Measurement Message*.

d. If the RC used on the forward fundamental channel is < 10, instruct the base station to send an *Extended Handoff Direction Message* to the mobile station to allow a soft handoff between Channel 1 and Channel 2. For RC11/RC12 assignment on the forward fundamental channel, instruct the base station to

   1. Send an *Extended Handoff Direction Message* followed by a *Radio Configuration Parameters Message* to the mobile station.

   2. When repeating the test using the *General Extension Message*, send a *General Extension Message* containing *Extended Handoff Direction Message* and Radio Configuration Parameters record.

e. Verify the following:

   1. The mobile station sends the *Pilot Strength Measurement Message* when the pilot level of Channel 2 is at a level between T_ADD and T_ADD +2dB.

   2. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step d.

   3. Channel 1 and Channel 2 are in the Active Set.

   4. For RC11/RC12 assignment on the forward fundamental channel, the mobile station starts using the parameters assigned in the *Radio Configuration Parameters Message* / Radio Configuration Parameters Record.

f. Repeat steps c to e with the change that the base station is instructed to send the *General Handoff Direction Message* in step d. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

g. Repeat steps c to e with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step d. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

h. Set test parameters for Test 2 as specified in Table 4.2.1.4-3 while Channel 1 and Channel 2 are in soft handoff. Raise the level of Channel 3 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 Ec/Io in the *Pilot Strength Measurement Message*.

i. If the RC used on the forward fundamental channel is < 10,instruct the base station to send an *Extended Handoff Direction Message* to the mobile station to allow soft handoff between Channel 1, Channel 2 and Channel 3. For RC11/RC12 assignment on the forward fundamental channel, instruct the base station to

   1. Send an *Extended Handoff Direction Message* followed by a *Radio Configuration Parameters Message* to the mobile station.

   2. When repeating the test using the *General Extension Message*, send a *General Extension Message* containing *Extended Handoff Direction*

Message and Radio Configuration Parameters record.

Table 4.2.1.4-1 Soft handoff Without Dynamic Threshold Test Parameters - T_ADD, T_DROP, T_TDROP, ADD_INTERCEPTs, DROP_INTERCEPTs, SOFT_SLOPEs

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_TDROP	‘0011’ (4s)

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

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

j. Verify the following:

1. The mobile station sends the *Pilot Strength Measurement Message* when the pilot level of Channel 3 is at a level between T_ADD and T_ADD +2dB.

2. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step i.

3. Channel 1, Channel 2 and Channel 3 are in the Active Set.
4. For RC11/RC12 assignment on the forward fundamental channel, the mobile station starts using the parameters assigned in the *Radio Configuration Parameters Message* / Radio Configuration Parameters Record

k. Repeat steps h to j with the change that the base station is instructed to send the *General Handoff Direction Message* in step i. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

l. Repeat steps h to j with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step i. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

m. Set the test parameters for Test 3 in Table 4.2.1.4-4 while Channel 1, Channel 2, and Channel 3 are in soft handoff. Lower the level of Channel 3 in steps of 1 dB with a dwell time of 30 seconds until the mobile station has generated the *Pilot Strength Measurement Message*. Record the level of Pilot Ec/Io in the *Pilot Strength Measurement Message*.

n. If the RC used on the forward fundamental channel is < 10, instruct the base station to send an *Extended Handoff Direction Message* to the mobile station to allow a soft handoff between Channel 1 and Channel 2. For RC11/RC12 assignment on the forward fundamental channel, instruct the base station to

1. Send an *Extended Handoff Direction Message* followed by a *Radio Configuration Parameters Message* to the mobile station.
2. When repeating the test using the *General Extension Message*, send a *General Extension Message* containing *Extended Handoff Direction 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/Io	dB	-10.1	-10.1	-10.1

o. Verify the following:

1. The mobile station sends the *Pilot Strength Measurement Message* when the pilot level of Channel 3 is at a level between T_DROP and T_DROP –3 dB for a period of T_TDROP.

2. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step n.

3. Channel 1 and Channel 2 are in the Active Set at the action time of the message.

4. For RC11/RC12 assignment on the forward fundamental channel, the mobile station starts using the parameters assigned in the *Radio Configuration Parameters Message* / Radio Configuration Parameters Record.

p. Repeat steps m to o with the change that the base station is instructed to send the *General Handoff Direction Message* in step n. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

q. Repeat steps m to o with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step n. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

r. Set test parameters for Test 4 as specified in Table 4.2.1.4-5. Lower level of Channel 2 in steps of 1 dB with a dwell time of 30 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message*. Record the level of Pilot Ec/Io in the *Pilot Strength Measurement Message*.

s. If the RC used on the forward fundamental channel is < 10, instruct the base station to send an *Extended Handoff Direction Message* to the mobile station with only Channel 1 listed in the Active Set. For RC11/RC12 assignment on the forward fundamental channel, instruct the base station to

5. Send an *Extended Handoff Direction Message followed* by a *Radio Configuration Parameters Message* to the mobile station.

6. When repeating the test using the *General Extension Message*, send a *General Extension Message* containing *Extended Handoff Direction Message* and Radio Configuration Parameters record.

t. Verify the following:

1. The mobile station sends the *Pilot Strength Measurement Message* when the pilot level of Channel 2 is at a level between T_DROP and T_DROP –3 dB for a period of T_TDROP.

2. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step s.

3. Only Channel 1 is in the Active Set.

4. For RC11/RC12 assignment on the forward fundamental channel, the mobile station starts using the parameters assigned in the *Radio Configuration Parameters Message* / Radio Configuration Parameters Record.

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/Io	dB	-8.4	-8.4	-35

u. Repeat steps r to t with the change that the base station is instructed to send the *General Handoff Direction Message* in step s. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

v. Repeat steps r to t with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step s. If RC11/RC12 is assigned on the forward fundamental channel, repeat the test using the *General Extension Message*.

4.2.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps e, j, o, and t for the *General Extension Message*, *Radio Configuration Parameters Message*, *Extended Handoff Direction Message*, the *General Handoff Direction Message* and the *Universal Handoff Direction Message*.

4.2.2 Base Station Test

4.2.2.1 Definition

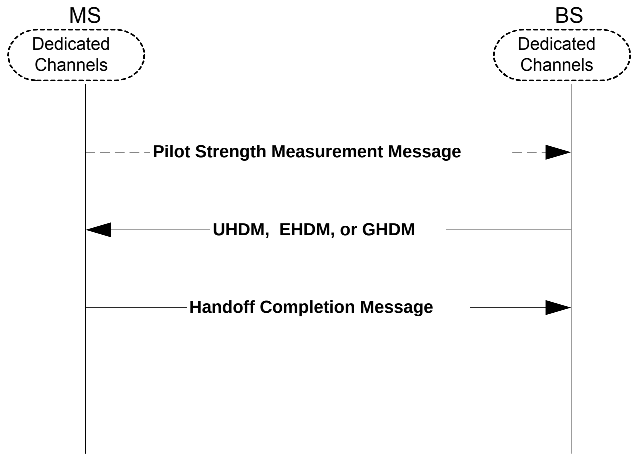
This test verifies the proper operation of base station soft handoff. Soft handoff without dynamic thresholds is verified. This test verifies both adding pilot to and dropping pilot from the soft handoff Active Set. Test 1-4 applies to cases when SOFT_SLOPE is equal to ‘000000’ (dynamic threshold disabled).

4.2.2.2 Traceability (See [4]):

2.6.2.2.5: Extended System Parameters Message
2.6.4.1.4: Processing the In-Traffic System Parameters Message
2.6.6.2.3: Handoff Drop Timer
2.6.6.2.5.1: Processing of Forward Traffic Channel Handoff Messages
2.6.6.2.5.2: Processing of Reverse Traffic Channel Handoff Messages
2.6.6.2.6.2: Maintenance of the Candidate Set
2.6.6.2.6.3: Maintenance of the Neighbor Set
2.6.6.2.8.2.1: Restoring the Configuration
2.6.6.3: Examples
2.7.2.3.2.5: Pilot Strength Measurement Message
3.6.6.2.1.1: System Parameters
3.7.2.3.2.13: Extended System Parameters Message

3.7.3.3.2.7: In-Traffic System Parameters Message
3.7.3.3.2.17: Extended Handoff Direction Message
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message

4.2.2.3 Call Flow Diagram



4.2.2.4 Method of Measurement

a. Set up test as shown in Figure Annex A Figure 3.
   1. The Forward Channel from sector a of base station #1 has an arbitrary pilot PN offset index P1 and is called Channel 1.
   2. The Forward Channel from sector ß 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. Set the test parameters for Test 1 as specified in Table 4.2.2.4-1 and Table 4.2.2.4-2.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station terminated call.

e. Verify user data in both directions. Verify that the base station is not in soft handoff.

f. Raise the level of Channel 2 until the mobile station has generated the *Pilot Strength Measurement Message*.

g. Verify that the base station sends an *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* to the mobile station with Channel 1 and Channel 2 listed as the Active Set.

h. Set test parameters for Test 2 as specified in Table 4.2.2.4-3 while Channel 1 and Channel 2 are in soft handoff. Raise the level of Channel 3 until the mobile station has generated the *Pilot Strength Measurement Message*.

Table 4.2.2.4-1 Soft handoff Without Dynamic Threshold Test Parameters - T_ADD, T_DROP, T_TDROP, ADD_INTERCEPTs, DROP_INTERCEPTs, SOFT_SLOPEs

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_TDROP	‘0011’ (4s)

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

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

i. Verify that the base station sends an *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* with Channel 1, Channel 2 and Channel 3 listed as the Active Set.

j. Set the test parameters for Test 3 in Table 4.2.2.4-4 while Channel 1, Channel 2, and Channel 3 are in soft handoff. Lower the level of Channel 3 until the mobile station has generated the *Pilot Strength Measurement Message*.

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/Io	dB	-10.1	-10.1	-10.1

k. Verify that the base station sends an *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* with Channel 1 and Channel 2 listed as the Active Set.

l. Set test parameters for Test 4 as specified in Table 4.2.2.4-5. Lower level of Channel until the mobile station has generated the *Pilot Strength Measurement Message*.

m. Verify that the base station sends an *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* with only Channel 1 listed as the Active Set.

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/Io	dB	-8.4	-8.4	-35

n. End call.

4.2.2.5 Minimum Standard

The base station shall comply with the requirements in steps e, g, i, k, and m.

4.3 Soft Handoff Tests During Link Failure

4.3.1 Mobile Station Test

4.3.1.1 Definition

This test verifies a soft handoff during failure of the forward link and/or the reverse link. It verifies the proper functionality of N1m for Layer 3 message transmissions in assured mode requiring confirmation of delivery. Note that N1m equals 13 for P_REV > 5, N1m equals 9 for P_REV=4 or 5, and N1m equals 3 for P_REV < 4. The link failure is simulated by instructing the base station not to acknowledge the *Pilot Strength Measurement Message* sent by the mobile station.

4.3.1.2 Traceability (See [3]):

2.2.1.1.2.2: Requirements for Transmission and Retransmission Procedures
3.1.2.1.2.2 Requirements for Transmission and Retransmission Procedures
ANNEX A TIMERS AND CONSTANTS
2.6.1.1 System Determination Substate
2.6.4.3 Traffic Channel Substate
2.6.6.1.1: Types of Handoff2.6.6.2.5: Handoff Messages
2.6.6.2.7: Soft Handoff
3.6.4.1.3 Ordering of Messages
3.6.6.1.1: Types of Handoff
3.6.6.2.2: Call Processing During Handoff
3.6.6.2.4: Soft Handoff
3.7.2.3.2.44 General Extension Message
3.7.3.3.2.51 Radio Configuration Parameters Message

4.3.1.3 Call Flow Diagram

None

4.3.1.4 Method of Measurement

4.3.1.4.1 Tests with successful soft handoff completion

a. Set up test as shown in Annex A Figure 2.

   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.

b. Set the test parameters as specified in Table 4.3.1.4.1-1.

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/Io	dB	-10.2	-20.2

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated call on Channel 1.

e. Raise the level of Channel 2 in steps of 1 dB with a dwell time of 5 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message.*

f. Instruct the base station not to acknowledge the *Pilot Strength Measurement Message* sent by the mobile station for the first (N1m-1) retransmissions.

g. For Test 1, instruct the base station to acknowledge only the N1mth *Pilot Strength Measurement Message* sent by the mobile station by sending an *Extended Handoff Direction Message* to allow a soft handoff with Channel 2.

h. Verify the following:

   1. *Pilot Strength Measurement Message* is generated when the channel 2 Pilot E_c/I_o is at a level above T_ADD.

   2. The mobile station sends N1m *Pilot Strength Measurement Message*.

   3. Channel 1 and Channel 2 are in the active set at the action time of the received handoff message from the base station.

   4. Mobile station sends a *Handoff Completion Message* or *Extended Handoff Direction Message*.

i. For Test 2, repeat steps b to h and instruct the base station to send the *General Handoff Direction Message* in step g.

j. For Test 3, repeat steps b to h and instruct the base station to send the *Universal Handoff Direction Message* in step g.

k. For Test 4, repeat steps b to h and instruct the base station to send an *Extended Handoff Direction Message* in step g followed by a *Radio Configuration Parameters Message* to the mobile station.

l. For Test 4, repeat steps b to h and instruct the base the *General Extension Message*, containing *Extended Handoff Direction Message* and Radio Configuration Parameters record in step g.

4.3.1.4.2 Tests with unsuccessful Soft Handoff completion

a. Set up test as shown in Annex A Figure 2.

   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.

b. Set the test parameters as specified in Table 4.3.1.4.1-1.

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated call on Channel 1.

e. Raise the level of Channel 2 in steps of 1 dB with a dwell time of 5 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message.*

f. Instruct the base station not to acknowledge any *Pilot Strength Measurement Message* sent by the mobile station.

g. Verify the following:

1. *Pilot Strength Measurement Message* is generated when the channel 2 Pilot E_c/I_o is at a level above T_ADD.

2. The mobile station sends only N1m *Pilot Strength Measurement Message*.

3. The soft handoff is unsuccessful.

4. The mobile station enters the System Determination Substate.

4.3.1.5 Minimum Standard

The mobile station shall comply with the requirement in step h for Test 1, 2 and 3 in sections 4.3.1.4.1 and step g in section 4.3.1.4.2.

4.3.2 Base Station Test

None

4.4 Search Window Size and Offset (Traffic State)

4.4.1 Mobile Station Tests

4.4.1.1 Definition

A CDMA call is established on sector α of sectored base station #1. Delay is applied to sector ß and base station #2. The level of sector ß is raised sufficiently high to ensure intersector handoff is possible. The level of base station #2 is raised sufficiently high to ensure a soft handoff is possible

In section 4.4.1.4.1, the pilot strength measurements of base station #2 and sector ß are checked against the search window size and search window offset settings for each of the neighbor pilots. If the delay is greater than the search window size for the neighbor pilot then the mobile station shall not send a *Pilot Strength Measurement Message*.

In section 4.4.1.4.2, the pilot strength measurements of base station #2 and sector ß are checked against a common search window size (i.e. SRCH_WIN_N). If the delay is greater than the search window size for the neighbor pilot then the mobile station shall not send a *Pilot Strength Measurement Message*.

Formulas

Pilot_PN_sel = nearest Pilot PN in the neighbor set not to exceed the integer of PILOT_PN_PHASE/64.

Neighbor_Chip_Offset = PILOT_PN_PHASE-(Pilot_PN_sel*64)

Num_Chips = Set_Chip_Offset - Sim_Chip_Offset

$$\text{Chip\_Delay } (\mu s) = \frac{\text{Num\_chip x 244m}}{300\text{m}/\mu s}$$

PILOT_PN_PHASE is the pilot PN phase obtained from the mobile station log file in units of chips. PILOT_PN_PHASE is referenced to the zero offset Pilot PN sequence. Pilot_PN_sel selects the closest neighbor's Pilot PN and the value is subtracted from the PILOT_PN_PHASE to determine the residual chip delay (i.e. Neighbor_Chip_Offset). Set_Chip_Offset is the desired number of chip offsets for a particular test case. Sim_Chip_Offset is the inherent delay for a pilot due to the time alignment/calibration of the equipment. Chip_Delay is the actual delay in usec the tester should vary with the test equipment (e.g. fader) to achieve the proper Set_Chip_Offset (this includes the inherent delay measured for Sim_Chip_Offset. When properly adjusted, the Set_Chip_Offset should equal to the Neighbor_Chip_Offset.

4.4.1.2 Traceability (See [4]):

2.6.6: Handoff Procedures
2.6.6.2.1: Pilot Search
Table 2.6.6.2.1: Search Window Sizes
Table 2.6.6.2.1-2: Search Window Offset
2.6.6.2.5.2: Processing of Reverse Traffic Channel Handoff Messages
2.7.2.3.2.5: Pilot Strength Measurement Message
2.7.2.3.2.34: Extended Pilot Strength Measurement Message
3.6.6: Handoff Procedures
3.7.2.3.2.1: System Parameters Message
3.7.2.3.2.22: General Neighbor List Message
3.7.2.3.2.34: Universal Neighbor List Message

4.4.1.3 Call Flow Example(s)

4.4.1.4 Method of Measurement

4.4.1.4.1 Method of Measurement with NGHBR_SRCH_MODE = '10' (search window size per neighbor)

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

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 ß 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. Set the test parameters as specified in Table 4.4.1.4.1-2.

c. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

Table 4.4.1.4.1-2 Test Parameters for Search Window per Neighbor (Traffic State)

Parameter	Unit	Channel 1	Channel 2	Channel 3
Îor/Ioc	dB	1	-20	-20
Pilot Ec/Ior	dB	-7	-7	-7
Traffic Ec/Ior	dB	-7	-7	-7
Ioc	dBm/1.23 MHz	-75	-75	-75
Pilot Ec/Io	dB	–9.6	-30.6	-30.6

Note: The Pilot Ec/I0 value is calculated from the parameters set in the table. It is not a settable parameter itself.

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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	9 (80 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

e. Determine the inherent delay of the channel simulator (i.e. Sim_Chip_Offset).

f. For Tests 1, 6, 9, 12, 15, 18, 23, 26, 29 and 32, set the delay on both Channel 2 and on Channel 3 to a Chip_Delay such that Set_Chip_Offset =(SRCH_WIN_NGHBR of P3)/4 + SRCH_OFFSET_NGHBR of P3 (i.e Set_Chip_Offset of P2 is equal to Set_Chip_Offset of P3).

g. Set up a mobile station originated call.

h. Raise the level of Channel 2 to Îor/Ioc = +1 dB without dropping the call.

i. Raise the level of Channel 3 to Îor/Ioc = +1 dB without dropping the call.

j. End the call.

k. Reset the test parameters as specified in Table 4.4.1.4.1-2.

l. Verify the following:

   1. The mobile station shall generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 2 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1dB).

   2. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of the *Pilot Strength Measurement Message* or the Extended *Pilot Strength Measurement Message* generated in step h shall equal the Set_Chip_Offset of P2.

   3. The mobile station shall also generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 3 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1 dB).

   4. The neighbor_Chip_Offset of P3 calculated from PILOT_PN_PHASE of the *Pilot Strength Measurement Message* or the Extended *Pilot Strength Measurement Message* generated in step i shall equal the Set_Chip_Offset of P3.

m. For Tests 2, 7 10, 13, 16, 19, 24, 27, 30 and 33, set the delay on both Channel 2 and Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR of P3)/2 + SRCH_OFFSET_NGHBR of P3.

n. Repeat steps g to k.

o. Verify the following:

   1. The mobile station shall not generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 2 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1dB).

   2. The mobile station shall generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 3 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1 dB).

   3. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of the *Pilot Strength Measurement Message* or the Extended *Pilot Strength Measurement Message* generated in step i shall equal the Set_Chip_Offset of P3.

p. For Tests 3, 8, 11, 14, 17, 20, 25, 28, 31 and 34, set the delay on both Channel 2 and Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR of P3)/2 + SRCH_OFFSET_NGHBR of P3 + 10 chips.

q. Repeat steps g to k.

r. Verify that the mobile station does not generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when either the

Channel 2 or Channel 3 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1 dB).

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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	1 (window_size/2)

t. For Tests 4 and 21, set the delay on both Channel 2 and Channel 3 to a Chip_Delay such that Set_Chip_Offset = (SRCH_WIN_NGHBR of P3)/2 + SRCH_OFFSET_NGHBR of P3.

u. Repeat steps g to k.

v. Verify the following:

1. The mobile station shall not generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 2 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1dB).

2. The mobile station shall generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 3 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1 dB).

3. The neighbor_Chip_Offset of P3 calculated from PILOT_PN_PHASE of the *Pilot Strength Measurement Message* or the Extended *Pilot Strength Measurement Message* generated in step i shall equal the Set_Chip_Offset of P3.

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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	7 (40 chips)
SRCH_OFFSET_NGHBR	4 (-window_size/2)

x. For Tests 5 and 22, set the delay on both Channel 2 and Channel 3 to a Chip_Delay such that Set_Chip_Offset =(SRCH_WIN_NGHBR of P3)/2.

y. Repeat steps g to k.

z. Verify the following:

1. The mobile station shall generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 2 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1dB).
2. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of the *Pilot Strength Measurement Message* or the Extended *Pilot Strength Measurement Message* generated in step h shall equal the Set_Chip_Offset of P2.
3. The mobile station shall not generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 3 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1 dB).

aa. For Tests 6, 7 and 8 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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	8 (60 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	10 (100 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

bb. 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

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)

cc. 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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	12 (160 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	14 (320 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

dd. For Tests 15, 16 and 17 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

Neighbor Setting for P2	
NGHBR_PN	P2
SRCH_WIN_NGHBR	13 (226 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

Neighbor Setting for P3	
NGHBR_PN	P3
SRCH_WIN_NGHBR	15 (452 chips)
SRCH_OFFSET_NGHBR	0 (no offset)

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*.

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*.

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*.

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*.

ii. For Tests 32, 33 and 34 repeat Tests 15, 16 and 17, correspondingly with the exception that *Universal Neighbor List Message* is used instead of the *General Neighbor List Message*.

4.4.1.4.2 Method of Measurement with NGHBR_SRCH_MODE = '00' (same search window size for all neighbor)

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

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 ß 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. Set the test parameters as specified in Table 4.4.1.4.1-2.

c. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set the following value in the *System Parameters Message*:

Field	Value
SRCH_WIN_N	7 (40 chips)

e. Set the following values in the *General Neighbor List Message*:

Field	Value
NGHBR_SRCH_MODE	‘00’

f. 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.

g. Set up a mobile station originated call.

h. Raise the level of Channel 2 to Îor/Ioc = +1 dB without dropping the call.

i. Raise the level of Channel 3 to Îor/Ioc = +1 dB without dropping the call.

j. End the call.

k. Reset the test parameters as specified in Table 4.4.1.4.1-2.

l. Verify the following:

   1. The mobile station shall generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 2 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1dB).

   2. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of the *Pilot Strength Measurement Message* or the Extended *Pilot Strength Measurement Message* generated in step h shall equal the Set_Chip_Offset of P2.

   3. The mobile station shall also generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 3 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1 dB).

   4. The neighbor_Chip_Offset of P3 calculated from PILOT_PN_PHASE of the *Pilot Strength Measurement Message* or the Extended *Pilot Strength Measurement Message* generated in step i shall equal the Set_Chip_Offset of P3.

m. For Tests 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20, set the delay on Channel 2 to a Chip_Delay such that Set_Chip_Offset of P2 =(SRCH_WIN_N/2)+10 chips, and set the delay on Channel 3 to a Chip_Delay such that Set_Chip_Offset=(SRCH_WIN_N/4)+10 chips.

n. Repeat steps g to k.

o. Verify the following:

   1. The mobile station shall not generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 2 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1dB).

   2. The mobile station shall generate a *Pilot Strength Measurement Message* or an Extended *Pilot Strength Measurement Message* when the Channel 3 pilot strength is raised up to the same pilot strength as Channel 1 (Îor/Ioc=1 dB).

3. The neighbor_Chip_Offset of P2 calculated from PILOT_PN_PHASE of the *Pilot Strength Measurement Message* or the Extended *Pilot Strength Measurement Message* generated in step i shall equal the Set_Chip_Offset of P3.

p. For Tests 3 and 4 repeat steps b to o with SRCH_WIN_N set to 10 (100 chips).

q. For Tests 5 and 6 repeat steps b to o with SRCH_WIN_N set to 13 (226 chips).

r. For Tests 7 and 8 repeat steps b to o with SRCH_WIN_N set to 14 (320 chips).

s. For Tests 9 and 10 repeat steps b to o with SRCH_WIN_N set to 15 (452 chips).

t. Set the following values in the *Universal Neighbor List Message*:

Field	Value
NGHBR_SRCH_MODE	‘00’
SRCH_WIN_N	7 (40 Chips)

u. For Tests 11 and 12 repeat steps b to o using parameter values in step t sent over the *Universal Neighbor List Message* instead of the *General Neighbor List Message*.

v. For Tests 13 and 14 repeat steps b to o with SRCH_WIN_N set to 10 (100 chips) in the *Universal Neighbor List Message* in step t.

w. For Tests 15 and 16 repeat steps b to o with SRCH_WIN_N set to 13 (226 chips) in the *Universal Neighbor List Message* in step t.

x. For Tests 17 and 18 repeat steps b to o with SRCH_WIN_N set to 14 (320 chips) in the *Universal Neighbor List Message* in step t.

y. For Tests 19 and 20 repeat steps b to o with SRCH_WIN_N set to 15 (452 chips) in the *Universal Neighbor List Message* in step t.

4.4.1.5 Minimum Standard

4.4.1.5.1 NGHBR_SRCH_MODE = ‘10’ (search window size per neighbor):

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 Tests 4 to 5 and Tests 21 to 22.

4.4.1.5.2 NGHBR_SRCH_MODE = ‘00’ (same search window size for all neighbor):

Verify step l for Tests 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19.
Verify step o for Tests 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20.

4.4.2 Base Station Test

None

4.5 Hard Handoff Between Frequencies in the Same Band Class

4.5.1 Mobile Station Test

4.5.1.1 Definition

This test verifies the mobile station and base station perform a hard handoff between different CDMA channels in the same band class.

4.5.1.2 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
3.7.3.3.2.17: Extended Handoff Direction Message
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message

4.5.1.3 Call Flow Diagram

None

4.5.1.4 Method of Measurement

a. For Test 1, Set up the test as shown in Annex A Figure 2.

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

    2. Set up base station #2 to be on a different CDMA channel than base station #1, but within the same band class. The Forward Channel from base station #2 has an arbitrary pilot PN offset index P2 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 4.5.1.4-1.

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/Io	dB	-7	-13.2

c. Set reverse link attenuation to balance forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated call on Channel 1.

e. Verify user data in both directions.

f. Instruct base station #1 to send an *Extended Handoff Direction Message* to initiate handoff from Channel 1 to Channel 2.

g. Verify the following:

   1. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step f.

   2. Only Channel 2 is in the Active Set.

h. End the call

i. Repeat steps d to h with the change that the base station is instructed to send the *General Handoff Direction Message* in step f.

j. Repeat steps d to h with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step f.

k. For Test 2, repeat steps b through i for the case where it is a hard handoff to a soft handoff on the same frequency with the following setup (see Figure 3.1.2-1: one base station configured with two sectors active):

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

   2. The Forward Channel from sector of base station #2 has an arbitrary pilot PN offset index P2 and is called Channel 2.

   3. The Forward Channel from sector ß of base station #2 has an arbitrary pilot PN offset index P3 and is called Channel 3.

4.5.1.5 Minimum Standard

For both Test 1 and Test 2, verify step g.

4.5.2 Base Station Test

None

4.6 Reserved

4.7 Hard handoff between Different Band Classes

4.7.1 None

4.7.1.1 Definition

This test verifies a hard handoff between two different band classes. Both band classes are supported by the mobile station and the base station.

4.7.1.2 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
3.7.3.3.2.17: Extended Handoff Direction Message
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message
(See [1]):
2.1.1.1: Channel Spacing and Designation

4.7.1.3 Call Flow Diagram

None

4.7.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.
    1. The Forward Channel from the base station 1 has an arbitrary pilot PN offset index P1 and is called Channel 1 and operates in a different band class than base station 2.
    2. The Forward Channel from the base station 2 has an arbitrary pilot PN offset index P2 and is called Channel 2 and operates in a different band class than base station 1.
b. Set the test parameters as shown in Table 4.7.1.4-1

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

c. Set reverse link attenuation to balance forward and reverse links (approx. 90 dB).

d. Set up a call in Channel 1.

e. Verify user data in both directions.

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.

g. Verify that the mobile station's handoff to base station 2 is successful.

h. Instruct base station 2to 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.

i. Verify that the mobile station's handoff to base station 1 is successful.

j. End the call.

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.

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.

4.7.1.5 Minimum Standard

Verify steps g and i.

4.7.2 Base Station Test

4.7.3 None

4.7.3.1 Definition

This test verifies the mobile station behavior when a hard handoff fails and:

1. Return on failure is allowed.
2. Return on failure is disallowed.

4.7.3.2 Traceability (See [4]):

2.6.4.2: Traffic Channel Initialization Substate

2.6.6.1.1: Types of Handoff
2.6.6.2.5: Handoff Messages
2.6.6.2.8.2: Hard handoff With Return On Failure
2.6.6.2.8.2.1: Restoring the Configuration
3.6.6.1: Overview
3.6.6.2.2: Call Processing During Handoff
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message

4.7.3.3 Call Flow Diagram

None

4.7.3.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

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

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

b. Set the test parameters as shown in Table 4.8.1.4-1.

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

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated call on Channel 1.

e. Verify user data in both directions.

f. For Test 1, instruct the base station to initiate a handoff and allow for return on failure by sending a *General Handoff Direction Message* with the following values:

RETURN_IF_HANDOFF_FAIL	‘1’

g. Due to the low traffic gain level on Channel 2 (refer to Table 4.8.1.4-1), the mobile station will attempt the hard handoff as directed by the base station, but not complete it, and declare a hard handoff failure.

h. Verify the following:

   1. The mobile station restores to the previous configuration.
   2. The mobile station returns to Channel 1.
   3. The mobile station sends a *Candidate Frequency Search Report Message* to the base station within T56m seconds.

i. End the call.

j. Repeat steps d to i with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step f.

k. Set up a mobile station originated call on Channel 1.

l. Verify user data in both directions.

m. For Test 2, instruct the base station to initiate a handoff and disallow return on failure by sending a *General Handoff Direction Message* with the following values:

RETURN_IF_HANDOFF_FAIL	‘0’

n. Due to the low traffic gain level on Channel 2 (refer to Table 4.8.1.4-1), the mobile station will attempt a hard handoff as directed by the base station, but not complete it, and declare a hard handoff failure.

o. Verify the following:

   1. The mobile station does not restore to the previous configuration.
   2. The mobile station does not return to Channel 1.

p. After the call has ended repeat steps j to n with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step l.

4.7.3.5 Minimum Standard

Verify steps h and o.

4.7.4 Base Station Test

None

4.8 Hard handoff with and without Return on Failure

4.8.1 Mobile Station Test

4.8.1.1 Definition

This test verifies the mobile station behavior when a hard handoff fails and:

3. Return on failure is allowed.
4. Return on failure is disallowed.

4.8.1.2 Traceability (See [4]):

2.6.4.2: Traffic Channel Initialization Substate
2.6.6.1.1: Types of Handoff
2.6.6.2.5: Handoff Messages
2.6.6.2.8.2: Hard handoff With Return On Failure
2.6.6.2.8.2.1: Restoring the Configuration
3.6.6.1: Overview
3.6.6.2.2: Call Processing During Handoff
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message

4.8.1.3 Call Flow Diagram

None

4.8.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 2.

   1. The Forward Channel from base station 1 has an arbitrary pilot PN offset index P1 and is called Channel 1.
   2. The Forward Channel from base station 2 has an arbitrary pilot PN offset index P2 and is called Channel 2.

b. Set the test parameters as shown in Table 4.8.1.4-1.

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

c. Reverse link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated call on Channel 1.

e. Verify user data in both directions.

f. For Test 1, instruct the base station to initiate a handoff and allow for return on failure by sending a *General Handoff Direction Message* with the following values:

RETURN_IF_HANDOFF_FAIL	‘1’

g. Due to the low traffic gain level on Channel 2 (refer to Table 4.8.1.4-1), the mobile station will attempt the hard handoff as directed by the base station, but not complete it, and declare a hard handoff failure.

h. Verify the following:

1. The mobile station restores to the previous configuration.
2. The mobile station returns to Channel 1.
3. The mobile station sends a *Candidate Frequency Search Report Message* to the base station within T56m seconds.

i. End the call.

j. Repeat steps d to i with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step f.

k. Set up a mobile station originated call on Channel 1.

l. Verify user data in both directions.

m. For Test 2, instruct the base station to initiate a handoff and disallow return on failure by sending a *General Handoff Direction Message* with the following values:

RETURN_IF_HANDOFF_FAIL	‘0’

n. Due to the low traffic gain level on Channel 2 (refer to Table 4.8.1.4-1), the mobile station will attempt a hard handoff as directed by the base station, but not complete it, and declare a hard handoff failure.

o. Verify the following:

1. The mobile station does not restore to the previous configuration.
2. The mobile station does not return to Channel 1.

p. After the call has ended repeat steps j to n with the change that the base station is instructed to send the *Universal Handoff Direction Message* in step l.

4.8.1.5 Minimum Standard

Verify steps h and o.

4.8.2 Base Station Test

None

4.9 Access Entry Handoff

4.9.1 Mobile Station Test

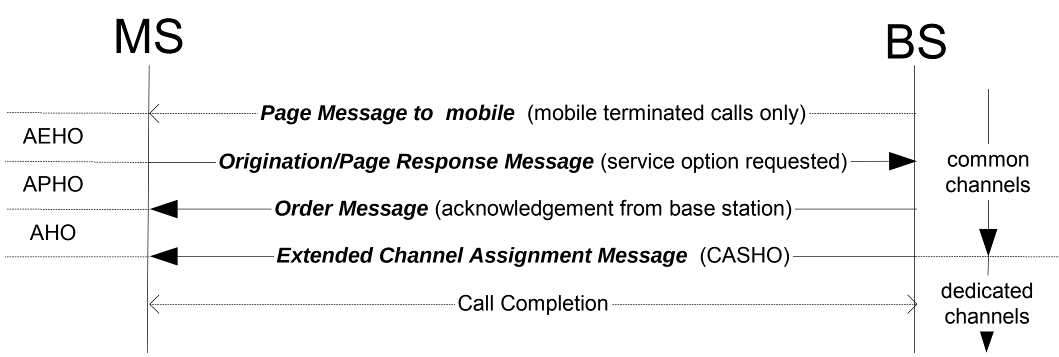
4.9.1.1 Definition

This tests mobile station operation.AEHO is permitted for mobile station terminated calls only. The mobile station may perform an AEHO to a neighboring base station after receiving a *General Page*, but before transmitting any access probes in response. In the short interval between the receiving the *General Page* and sending a *Page Response Message*, the mobile station may handoff to a stronger neighbor base station and transmit its *Page Response Message* to that new base station.

4.9.1.2 Traceability (See [6]):

3.2.3.2 Access Handoff
3.2.3.1 Access Probe Handoff
(See [4]):
2.6.2.1.4 Idle handoff
2.6.3.1.7 Monitoring Pilots
2.6.2.3 Mobile station Station Page Match Operation
2.6.2.4 Mobile Station Order and Message Processing Operation
2.6.3 System Access State
2.6.6 Handoff Procedures2.7.4.25 Capability Information
3.6.6 Handoff Procedures
Table D-1 T33m, T42m, Table D-2 N13m
3.6.2.3 Mobile Station Directed Messages
2.6.3.1.3.2 Access Handoff
2.6.3.3 Page Response Substate
2.6.3.5 Mobile Station Origination Attempt Substate
2.6.3.1.3.3 Access Probe Handoff
2.7.4.25 Capability Information
3.7.2.3.2.13 *Extended System Parameters Message*

4.9.1.3 Call Flow



4.9.1.4 Method of Measurement

a. Set up 2 base stations and test equipment with connections to the mobile station as shown in Annex A Figure 7.

b. Configure the setup to abruptly switch from State 1 to State 2 in Table 4.9.1.3-1. In State 1, base station 1 is the dominant pilot as seen by the mobile station. In State 2, base station 2 is dominant.

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

c. Configure base station 1 to list base station 2 as the first neighbor in its *Neighbor List Message*, *Extended Neighbor List Message*, or *General Neighbor List Message*.

d. Configure both base stations to allow AEHO by including the following fields in their *Extended System Parameters Message*.

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 *neighbor list message*
ACCESS_ ENTRY_HO [0]	'1' (enables the first neighbor in the *neighbor list message* for AEHO)

e. Configure the setup for State 1, and allow the mobile station to come to the idle state on base station 1.

f. Attempt a mobile station terminated call.

g. During call setup, after the mobile station receives the *General Page* from base station 1, quickly switch the setup to State 2. The time interval when AEHO may occur after receipt of the *General Page* is equal to T33m (.3 seconds) plus any time required to update overhead information (T41m = 3 seconds max), before sending a *Page Response Message*.

h. Verify that the call is successful.

i. Verify that the mobile received a *General Page* from base station 1 and transmitted its *Page Response Message* to base station 2.

4.9.1.5 Minimum Standard

The mobile station shall comply with requirements in step h and i.

4.9.2 Base Station Test

None

4.10 Access Probe Handoff

4.10.1 Mobile Station Test

4.10.1.1 Definition

This tests mobile station operation. APHO allows the mobile station to handoff to another stronger base station after unacknowledged access probes, on mobile station originated or mobile station terminated calls. In APHO, the mobile station suspends the access attempt on the first base station and restarts the access attempt on the new base station, starting with the first probe of the first probe sequence of new access sub-attempt.

4.10.1.2 Traceability (See [6]):

3.2.3.2 Access Handoff
3.2.3.1 Access Probe Handoff
(See [4]):
2.6.2.1.4 Idle handoff
2.6.3.1.7 Monitoring Pilots
2.6.2.3 Mobile Station Page Match Operation
2.6.2.4 Mobile Station Order and Message Processing Operation
2.6.3 System Access State
2.6.6 Handoff Procedures
2.7.4.25 Capability Information
3.6.6 Handoff Procedures
Table D-1 T33m, T42m, Table D-2 N13m
3.6.2.3 Mobile Station Directed Messages
2.6.3.1.3.2 Access Handoff
2.6.3.3 Page Response Substate
2.6.3.5 Mobile Station Origination Attempt Substate
2.6.3.1.3.3 Access Probe Handoff
2.7.4.25 Capability Information
3.7.2.3.2.13 Extended System Parameters Message

4.10.1.3 Call Flow Example(s)

See 4.10

4.10.1.4 Method of Measurement

a. Set up 2 base stations and test equipment with connections to the mobile station as shown in Annex A Figure 7.

b. Configure the setup to abruptly switch from State 1 to State 2 in Table 4.9.1.4-1. In State 1, base station 1 is the dominant pilot as seen by the mobile station. In State 2, base station 2 is dominant.

c. Configure base station 1 to list base station 2 as the first neighbor in its *Neighbor List Message*, *Extended Neighbor List Message*, or *General Neighbor List Message*.

d. Configure both base stations to allow APHO using the following fields in the *Extended System Parameters Message*:

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 *neighbor list message*
ACCESS_ HO_ALLOWED [0]	‘1’ (enables the first neighbor in the *neighbor list message* for AHO or APHO)

e. Configure the setup for State 1, and allow the mobile station to come to the idle state on base station 1.

f. Disable the reverse link of base station 1.

g. Attempt a mobile station originated call.

h. During call setup, after the mobile station has sent at least one full access probe to base station 1, quickly switch to State 2 to cause the mobile station to perform APHO to base station 2.

i. Verify that the call is successful.

j. Verify that the mobile station sent at least one unacknowledged *Origination Message* to base station 1, then sent an *Origination Message* and completed the call to base station 2.

4.10.1.5 Minimum Standard

The mobile station shall comply with the requirements in step i and j.

4.10.2 Base Station Test

None

4.11 Access Handoff

4.11.1 Mobile Station Test

4.11.1.1 Definition

This tests for mobile station operation. AHO is permitted on mobile station originated or mobile station terminated calls, after an acknowledged access probe. In a call origination AHO, neighbor base stations asynchronously send *channel assignment message*s to the mobile station.

4.11.1.2 Traceability (See [6]):

3.2.3.2 Access Handoff
3.2.3.1 Access Probe Handoff
(See [4]):
2.6.2.1.4 Idle handoff
2.6.3.1.7 Monitoring Pilots2.6.2.3 Mobile Station Page Match Operation
2.6.2.4 Mobile Station Order and Message Processing Operation
2.6.3 System Access State
2.6.6 Handoff Procedures
2.7.4.25 Capability Information
3.6.6 Handoff Procedures
Table D-1 T33m, T42m, Table D-2 N13m
3.6.2.3 Mobile Station Directed Messages
2.6.3.1.3.2 Access Handoff
2.6.3.3 Page Response Substate
2.6.3.5 Mobile Station Origination Attempt Substate
2.6.3.1.3.3 Access Probe Handoff
2.7.4.25 Capability Information
3.7.2.3.2.13 Extended System Parameters Message

4.11.1.3 Call Flow Example(s)

See 4.10

4.11.1.4 Method of Measurement

a. Set up 2 base stations and test equipment with connections to the mobile station as shown in Annex A Figure 7.

b. Configure the setup to abruptly switch from State 1 to State 2 in Table 4.9.1.4-1 In State 1, base station 1 is the dominant pilot as seen by the mobile station. In State 2, base station 2 is dominant.

c. Configure base station 1 to list base station 2 as the first neighbor in its *Neighbor List Message*, *Extended Neighbor List Message*, or *General Neighbor List Message*.

d. Configure both base stations to allow AHO using the following fields in the *Extended System Parameters Message*.

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 *neighbor list message*
ACCESS_ HO_ALLOWED [0]	‘1’ (enables the first neighbor in the *neighbor list message* for AHO or APHO)

e. Configure the setup for State 1, and allow the mobile station to come to the idle state on base station 1.

f. Attempt a mobile station originated call.

g. During call setup, after the mobile station has received acknowledgement of its *Origination Message* from base station 1, quickly switch to state 2 to cause the mobile station to perform an AHO to base station 2. The time interval when AHO is possible, between receipt of acknowledgement *Order* and receipt of *Extended Channel Assignment Message*, can be as short as .2 -.3 seconds or as long as T42m = 12 seconds.

h. Verify that the call is successful.

i. Verify that the mobile station receives a base station acknowledgement *Order* from base station 1, and receives the *Extended Channel Assignment Message* from base station 2.

4.11.1.5 Minimum Standard

The mobile station shall comply with the requirements in step h and i.

4.11.2 Base Station Test

None

4.12 Channel Assignment into A Soft HandOff

4.12.1 Mobile Station Test

4.12.1.1 Definition

This test for mobile station operation. CASHO allows multiple pilots to be assigned in the *Extended Channel Assignment Message* from the pilots reported in the *Origination Message* or *Page Response Message*.

4.12.1.2 Traceability (See [4]):

3.7.2.3.2.13 Extended System Parameters Message
2.6.3.1.7 Monitoring Pilots
2.6.3.3 Page Response Substate

4.12.1.3 Call Flow Example(s)

None

4.12.1.4 Method of Measurement

a. Connect the mobile station to 2 base stations as shown in Annex A Figure 7 whose pilot Ec/Io are above T_ADD in their *System Parameters Message*.

b. Allow the mobile station to come to the idle state on one of the base stations.

c. Make a mobile station originated call and a mobile station terminated call.

d. Verify that both base station pilots are reported in the *Origination Message* and *Page Response Message*.

e. For both calls, verify that the mobile station receives an *Extended Channel Assignment Message* assigning both pilots and calls complete normally.

f. Repeat the test for FL RC 11 and RL RC 8 channel assignment through *General Extension Message* with REV_ACKCH_GAIN_ADJ_ACS2PLUS included in the Radio Configuration Parameters record.

g. Repeat the test for FL RC 11 and RL RC 8 channel assignment through Extended Channel Assignment Message and a *Radio Configuration Parameters Message* carrying the REV_ACKCH_GAIN_ADJ_ACS2PLUS field.

4.12.1.5 Minimum Standard

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

4.12.2 Base Station Test

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
$\hat{I}_{or}/I_{oc}$	dBm	N/A	-5
Pilot E_c/I_{or}	dB	-7	-7
Traffic E_c/I_{or}	dB	-7	-7

c. Configure both base stations for the first test from table 4.13.1.4-2 that the mobile station supports. Set both base stations to the same band class.

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

d. Set up a mobile station originated call on Channel 1.

e. Verify user data in both directions.

f. Instruct base station 1 to send a *General Handoff Direction Message* with NUM_PREAMBLE = 0 and 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.

g. Verify that the Reverse Traffic Channel preamble length is correct for the value of NUM_PREAMBLE in the *General Handoff Direction Message,* as defined in table 4.14.1.5-1.

h. Wait 20 seconds then send from base station 2 a *General Handoff Direction Message* with NUM_PREAMBLE = 4 and 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.

i. Verify that the Reverse Traffic Channel preamble length is correct for the value of NUM_PREAMBLE in the *General Handoff Direction Message*, as defined in table 4.14.1.5-1.

j. Repeat steps f through i, 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*.

k. Repeat steps f through i, but with following changes: In steps where base station is instructed to send a *General Handoff Direction Message*, instruct the base station to send an *Extended Handoff Direction Message*.

l. End the call.

m. Repeat steps c through l for each test case that the mobile station supports.

n. Repeat steps c through m for each supported band class.

4.13.1.5 Minimum Standard

•The mobile station shall comply with the requirements in steps e, g and i.
•Verify that the Reverse Traffic Channel preamble length as defined in table 4.13.1.5-1.

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)

4.13.2 Base Station Test

None

4.14 Hopping Pilot Beacon

4.14.1 Mobile Station Test

4.14.1.1 Definition

The mobile station transitions between base stations with different CDMA frequency (channel) assignments in the same band.

The Hopping Pilot Beacon is 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. This test verifies that the mobile station can successfully complete handoffs to different channels while the base station is in hopping pilot beacon mode.

4.14.1.2 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
2.7.4.25: Capability Information
3.6.1.2: Pilot Channel Operation
3.6.6.1.1: Types of Handoff
3.6.6.2.2: Call Processing During Handoff
3.7.2.3.2.22: General Neighbor List Message
3.7.2.3.2.26: Sync Channel Message

(See [1]):

3.1.3.2.5: Hopping Pilot Beacon

4.14.1.3 Call Flow Example(s)

None

4.14.1.4 Method of Measurement

a. Configure base station for hopping pilot beacon.

b. 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)

c. Set the test parameters as shown in table 4.13.1.4-1.

d. Configure both base stations for the first test from table 4.13.1.4-2 that the mobile station supports. Set both base stations to the same band class.

e. Set up a mobile station originated call on Channel 1.

f. Verify user data in both directions.

g. Configure the *General Neighbor List Message* or *Extended Neighbor List Message* for hopping pilot beacon. 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.

h. Configure the *General Neighbor List Message* or *Extended Neighbor List Message* for hopping pilot beacon. 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.

i. Repeat steps g through h, 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*.

j. Repeat steps g through h, but with following changes: In steps where base station is instructed to send *a General Handoff Direction Message*, instruct the base station to send an *Extended Handoff Direction Message*.

k. End the call.

l. Repeat steps d through k for each test case that the mobile station supports.

m. Repeat steps d through l for each supported band class.

4.14.1.5 Minimum Standard

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

4.14.2 Base Station Test

None

4.15 Hard Handoff Between Frequencies with Different Radio Configurations and different service options

4.15.1 Mobile Station Test

4.15.1.1 Definition

This test verifies that the mobile station can transition between base stations with different CDMA frequency (channel) assignments in the same band, different radio configurations and different service options.

4.15.1.2 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 [1]):

2.1.3.1: Reverse CDMA Channel Signals

3.1.3.1: Forward CDMA Channel Signals

(See [6]):

1.3 Test Modes

4.15.1.3 Call Flow Example(s)

None

4.15.1.4 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. Base station 1 and base station 2 are on different frequency.

    2. The Forward Channel from base station 2 has an arbitrary pilot PN offset index P_2 and is called Channel 2. Base station 1 and base station 2 are on different frequency.

    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.

c. Configure both base stations for the first test from table 4.15.1.4-1that the mobile station supports. Set both base stations to the same band class.

Table 4.15.1.4-1Test 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

d. Set up a mobile station originated call on Channel 1.

e. Verify user data in both directions.

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.

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.

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*.

i. End the call.

j. Repeat steps c through i for each test case that the mobile station supports.

k. Repeat steps c through j for each supported band class.

4.15.1.5 Minimum Standard

The mobile station and base stations shall successfully execute the handoffs.
The mobile station shall comply with the requirements in the following steps: e, f,and g..

4.15.2 Base Station Test

None

4.16 Handoff on Same Frequency with Different Radio Configurations

4.16.1 Mobile Station Test

4.16.1.1 Definition

This test verifies that the mobile station can transition between base stations with the same CDMA frequency (channel) assignments in the same band and different radio configurations. When the active set membership before and after the handoff are disjoint, the handoff is performed as a hard handoff; when the active set membership before and after handoff is not disjoint, except for the value of the radio configuration, the handoff is performed as a soft handoff.

4.16.1.2 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 [1]):
2.1.3.1: Reverse CDMA Channel Signals
3.1.3.1: Forward CDMA Channel Signals

4.16.1.3 Call Flow Example(s)

None

4.16.1.4 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 added to both Channels.
b. Set the test parameters as shown in Table 4.16.1.4-1.

Table 4.16.1.4-1Test Parameters

Parameter	Unit	Channel 1	Channel 2
$\hat{I}_{or}$	dBm/1.23 MHz	-70	-70
$\hat{I}_{or}$/Ioc	dBm	-5	-5
Pilot Ec/I_{or}	dB	-7	-7
Traffic Ec/I_{or}	dB	-7	-7

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.

d. Set up a mobile station originated call on Channel 1.

e. Verify user data in both directions.

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

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.

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*.

i. End the call.

j. Repeat steps c through i for each test case that the mobile station supports.

k. Repeat steps c through j for each supported band class.

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.

m. Configure base station 1 for the first test from table 4.15.1.4-1that the mobile station supports. Use base station 2's settings from the table for the second sector of base station 1.

n. Set up a mobile station originated call on Channel 1.

o. Verify user data in both directions.

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.

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*.

r. End the call.

s. Repeat steps l through r for each test case that the mobile station supports.

t. Repeat steps l through s for each supported band class.

4.16.1.5 Minimum Standard

The mobile station and base stations shall successfully execute the handoffs.
The mobile station shall comply with the requirements in the following steps: f, g, n, and o.

4.16.2 Base Station Test

None

4.17 Hard handoff While in the Waiting for Mobile Station Answer Substate

4.17.1 Mobile Station Test

4.17.1.1 Definition

This test verifies that if a hard handoff occurs while the mobile station is in the Waiting for Mobile Station Answer Substate, the hard handoff will be completed successfully and the mobile station enters the Conversation Substate on the new channel.

4.17.1.2 Traceability (See [4]):

2.6.4	*Mobile Station Control on the Traffic Channel State*
2.6.4.3.2	*Waiting for Mobile Station Answer Substate*
2.6.4.4	*Conversation Substate*
2.6.6.2.5.1	*Processing of the Forward Traffic Channel Handoff Messages*
2.6.6.2.8	*CDMA to CDMA Hard Handoff*
3.6.4.3.1	*Waiting for Order Substate*
3.6.6.2.2	*Call Processing during Handoff*
3.7.3.3.2.17	*Extended Handoff Direction Message*
3.7.3.3.2.31	*General Handoff Direction Message*
3.7.3.3.2.36	*Universal Handoff Direction Message*
Table D-1	*Time Constants*

(See [IR 1]):

3.1	*Standard Service Option Number Assignments*
3.2	*Proprietary Service Option Number Assignments*

4.17.1.3 Call Flow Example(s)

None

4.17.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A figure 2 and set the test parameters as specified in table 4.13.1.4-1. Set both base stations to the same band class.

   1. Base station #1 is a CDMA base station with frequency f_1, PN offset P_1 and is referred to as Channel 1.

   2. Base station #2 is a CDMA base station with frequency f_2, PN offset P_2 and is referred to as Channel 2.

b. Ensure the mobile station is operating in the Idle State on Channel 1.

c. Page the mobile station with a supported service option. A voice service option may be used for this test.

d. After receiving the *Page Response Message,* instruct the base station to send an *Extended Channel Assignment Message* with the following parameters for traffic channel, or enhanced traffic channel assignment:

Field	Value
ASSIGN_MODE	'000' or '100'
BYPASS_ALERT_ANSWER	'0'

e. While the mobile station is in the Waiting for Mobile Station Answer Substate (i.e. ringing), instruct the base station to send an *General Handoff Direction Message* directing the mobile station to Channel 2.

f. After the hard handoff has been completed and before T_{53m} (65 seconds), has expired direct the user to answer the call.

g. Verify that the mobile station enters the Conversation Substate and user traffic is present in both directions.

h. End the call.

i. Repeat steps b through h, 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*.

j. Repeat steps b through h, but with following changes: In steps where base station is instructed to send *a General Handoff Direction Message*, instruct the base station to send an *Extended Handoff Direction Message*.

k. Repeat steps b through j using different service options and all radio configurations supported by the mobile station. For RC11/RC12 assignment on the forward fundamental channel, repeat the test with *General Extension Message* in step d.

l. Repeat steps b through k, changing Channel 2 to a band class that is different from Channel 1 but is supported by the mobile station.

4.17.1.5 Minimum Standard

The hard handoff shall be completed while the mobile station is in the Waiting for Mobile Station Answer Substate. After the handoff is completed, the mobile station shall enter the Conversation Substate on the new channel and user traffic in both directions shall be present. The mobile station shall comply with the requirement in step g.

4.17.2 Base Station Test

None

4.18 Inter-Frequency Hard Handoff (CDMA to CDMA)

4.18.1 Mobile Station Test

4.18.1.1 Definition

This test verifies that the mobile station can perform an Inter-Frequency handoff to a CDMA channel. In an Inter-Frequency Hard Handoff test (also known as the Mobile Assisted Hard Handoff test), when the mobile station is directed by the base station to perform a search on a Candidate Frequency, the mobile station will search for a pilot in the Candidate Frequency Neighbor Set. The mobile station will report back to the base station any pilot detected in the Candidate Frequency Neighbor Set with a pilot Ec/Io above the value defined by CF_T_ADD. The base station should then direct the mobile station to the Candidate Frequency and complete the hard handoff.

4.18.1.2 Traceability [4]

2.6.6.2.5	*Handoff Messages*
2.6.6.2.8	*CDMA-to-CDMA Hard Handoff*
2.7.2.3.2.20	*Candidate Frequency Search Report Message*
3.6.6.2.2	*Call Processing During Handoff*
3.7.7.3.3.2.27	*Candidate Frequency Search Request Message*
3.7.2.3.2.44	*General Extension Message*
3.7.3.3.2.51	*Radio Configuration Parameters Message*

4.18.1.3 Call Flow Example(s)

None

4.18.1.4 Method of Measurement

a. Set up test as shown in Annex A figure 2.

    1. The Forward Channel from base station 1 has a CDMA frequency assignment F1 (any valid value), an arbitrary pilot PN offset index P_1 and is called Channel 1.

    2. The Forward Channel from base station 2 has a CDMA frequency assignment F2 (any valid value other than f_1 in the same band class), an

arbitrary pilot PN offset index P_2 and is called Channel 2.

b. Set the test parameters as specified in Table 4.18.1.4-1.

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
$\hat{I}_{or}/Ioc$	dBm	2.9	2.9
Pilot Ec/I_{or}	dB	-7	-7
Traffic Ec/I_{or}	dB	-7	N/A

c. Set up a mobile station originated call on Channel 1. If RC11/RC12 is assigned on the forward fundamental channel, instruct the base station to send a *Radio Configuration Parameters Message* or a *General Extension Message* carrying a Radio Configuration Parameters Record setting the configuration parameters for the RC11/RC12 and RC8 to non-default values.

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	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_NGHBR_SRCH_MODE	0 (no search priorities or search windows specified)
NGHBR_PN	P_2

e. Verify that the mobile station responds with a *Candidate Frequency Search Report Message*.

f. Instruct base station 1 to send a *General Handoff Direction Message* to initiate handoff from base station 1 to base station 2.

g. Verify user data in both directions. If RC11/RC12 is assigned on the forward fundamental channel, verify that the mobile station initialization the configuration parameters for the RC11/RC12 and RC 8 to the default values.

h. End the call.

i. Repeat steps c through h, 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*.

j. Repeat steps b through h, but with following changes: In steps where base station is instructed to send *a General Handoff Direction Message*, instruct the base station to send an *Extended Handoff Direction Message*.

k. Repeat steps c through j using all radio configurations and band classes supported by the mobile station.

4.18.1.5 Minimum Standard

The mobile station and the base station shall successfully execute the handoff transitions. The mobile station shall comply with the requirement in step g.

4.18.2 Base Station Test

None

4.19 Inter-Frequency Hard Handoff (CDMA to Analog)

4.19.1 Mobile Station Test

4.19.1.1 Definition

This test verifies that the mobile station can perform an Inter-Frequency handoff to analog (e.g. AMPS). In an Inter-Frequency Hard Handoff test (also known as the Mobile Assisted Hard Handoff test), when the mobile station is directed by the base station to perform a search on a Candidate Frequency, the mobile station will search for an analog channel in the Candidate Frequency Analog Search Set and shall measure the mean input power on the analog frequency. The mobile station will report back to the base station the signal strength of the analog channel searched. The base station should then direct the mobile station to the Analog Channel and complete the hard handoff.

4.19.1.2 Traceability [4]

2.6.6.2.5	*Handoff Messages*
2.6.6.2.8	*CDMA-to-CDMA Hard Handoff*
2.6.6.10.2	*Candidate Frequency Analog Search Set*
2.7.2.3.2.21	*Candidate Frequency Search Report Message*
3.6.6.2.2	*Call Processing During Handoff*
3.7.7.3.3.2.27	*Candidate Frequency Search Request Message*

4.19.1.3 Call Flow Example(s)

None

4.19.1.4 Method of Measurement

a. Set up test as shown in Figure Annex A figure 2.

   1. The Forward Channel from base station 1 has a CDMA frequency assignment F1, an arbitrary pilot PN offset index P_1 and is called Channel 1.

   2. The Forward Channel from base station 2 uses an analog frequency called Channel 2.

b. Set the test parameters as specified in Tables 4.19.1.4-1and 4.19.1.4-2

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
$\hat{I}_{or}$/Ioc	dBm	0
Pilot Ec/I_{or}	dB	-7
Traffic Ec/I_{or}	dB	-7

Table 4.19.1.4-2Test Parameter for Inter-Frequency Handoff (Channel 2)

Analog Parameter	Unit	Channel 2
Voice Channel	dBm	-73
Co-Channel Interference	dB	-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

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.

g. Verify audio in both directions.

h. End the call.

i. Repeat steps c through h using all radio configurations and band classes on base station 1 that are supported by the mobile station.

4.19.1.5 Minimum Standard

The mobile station and the base station shall successfully execute the handoff transitions. The mobile station shall comply with the requirement in step g.

4.19.2 Base Station Test

None

4.20 Hard Handoff Between Frequencies with Different Protocol Revisions

4.20.1 Mobile Station Test

4.20.1.1 Definition

This test verifies the mobile station is able perform a hard handoff between base stations supporting using different protocol revisions (P_REV).

4.20.1.2 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*
3.7.3.3.2.17	*Extended Handoff Direction Message*
3.7.3.3.2.31	*General Handoff Direction Message*
3.7.3.3.2.36	*Universal Handoff Direction Message*

4.20.1.3 Call Flow Example(s)

None

4.20.1.4 Method of Measurement

a. Configure base station 1 and base station 2 with different protocol revisions that the mobile station supports.

b. Set up test as shown in Annex A Figure 5.

   1. The Forward Channel from base station one has an arbitrary pilot PN offset index P_1 and is called Channel 1.

   2. The Forward Channel from base station two 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)

c. Set the test parameters as shown in Table 4.13.1.4-1.

d. Set up a mobile station originated call on Channel 1.

e. Verify user traffic in both directions.

f. Send a *General Handoff Direction Message* with proper parameters (refer to tables in Foreword) to initiate handoff from Channel 1 to Channel 2. Setting the P_REV field to that equal to the P_REV of base station 2.

g. Verify that the handoff is successful and user traffic is present in both directions.

h. Repeat steps a through g for all protocol revisions that the mobile station supports.

i. Repeat steps a through h, 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*.

j. Repeat steps a through h, but with following changes: In steps where base station is instructed to send *a General Handoff Direction Message*, instruct the base station to send an *Extended Handoff Direction Message*.

4.20.1.5 Minimum Standard

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

4.20.2 Base Station Test

None

4.21 Soft Handoff With RCPM

4.21.1 Mobile Station Test

4.21.1.1 Definition

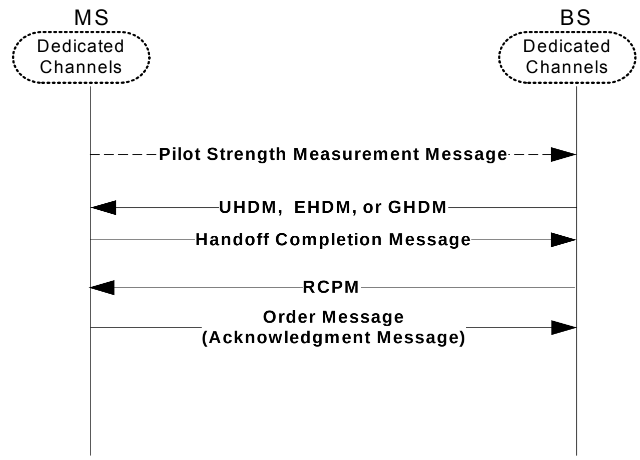
This test verifies the proper operation of mobile station soft handoff with Radio Configuration Parameters Message. The setting of parameters after soft handoff is verified.

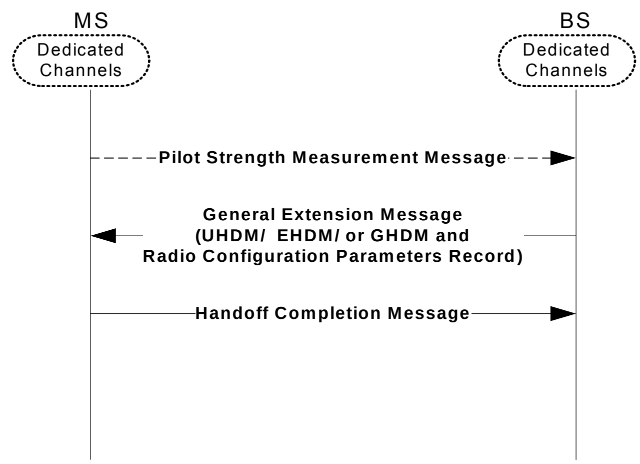
4.21.1.2 Traceability (See [4]):

2.6.2.2.5: Extended System Parameters Message
2.6.6.2.5.1: Processing of Forward Traffic Channel Handoff Messages
2.6.6.2.5.2: Processing of Reverse Traffic Channel Handoff Messages
2.6.6.2.6.2: Maintenance of the Candidate Set
2.6.6.2.6.3: Maintenance of the Neighbor Set
2.6.6.2.8.2.1: Restoring the Configuration
2.7.2.3.2.5: Pilot Strength Measurement Message
3.6.6.2.1.1: System Parameters

3.7.2.3.2.13: Extended System Parameters Message
3.7.3.3.2.17: Extended Handoff Direction Message
3.7.3.3.2.31: General Handoff Direction Message
3.7.3.3.2.36: Universal Handoff Direction Message
3.7.2.3.2.44 General Extension Message
3.7.3.3.2.51 Radio Configuration Parameters Message

4.21.1.3 Call Flow Diagram





4.21.1.4 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 ß 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. Send a Page message to the mobile station.

d. Ensure that the mobile station includes support for RC 11 in FOR_FCH_RC_MAP and RC 8 in REV_FCH_RC_MAP in the *Page Response Message*.

e. Ensure that the mobile station includes SO 74 in the SO or ALT_SO or SO_BITMAP field in the origination message.

f. Instruct the base station to send an *Extended Channel Assignment Message* with FOR_FCH_RC / FOR_RC set to 11 and REV_FCH_RC / FOR_RC set to 8.

g. Ensure that the mobile station initializes the traffic channel.

h. Instruct the base station to transmit *Service Connect Message* specifying the SO 74 in the SERVICE_OPTION field.

i. Ensure that the mobile station transmits *Service Connect Completion Message* to the base station.

j. Ensure that the mobile station starts transmitting and receiving frames for voice traffic.

k. Mute the mobile station such that the vocoder generates only one-eighth rate non-critical frames or instruct the base station to transmit a Service Option Control Mesasge with CTL_REC_TYPE set to 0 and RTC_MODE set to '101' (fixed Rate 1/8th non-critical).

l. Instruct the base station to send a *Radio Configuration Parameters Message* to the mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of '010'. Ensure that the base station transmits the *Radio Configuration Parameters Message* using assured L2 delivery.

m. Ensure that the access terminal transmits an *Order Message* acknowledging the receipt of *Radio Configuration Parameters Message*.

n. Ensure that the mobile station starts using the parameters received in the *Radio Configuration Parameters Message.* Note, this can be verified by the use of REV_FCH_BLANKING_DUTYCYCLE value carried in the *Radio Configuration Parameters Message* as out of every eight consecutive R-FCH frames the mobile station sends only one 1/8th rate frame and blanks other seven frames.

o. Set test parameters for Test 1 as specified in Table 4.1.1.4-2 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*.

p. Instruct the base station to send an *Extended Handoff Direction Message* to the mobile station to allow a soft handoff between Channel 1 and Channel 2.

q. Verify the following:

   1. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to handoff message sent in step d.

   2. Channel 1 and Channel 2 are in the Active Set.

   3. For RC11/RC12 assignment on the forward fundamental channel, the mobile station continues to use the parameters assigned in the *Radio Configuration Parameters Message* that was sent in step l.

r. Instruct the base station to send a *Radio Configuration Parameters Message* to the mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of ‘000’ and include the REV_ACKCH_GAIN_ADJ_ACS2PLUS. Ensure that the base station transmits the *Radio Configuration Parameters Message* using assured L2 delivery.

s. Verify that the mobile station sends an *Order* Acknowledgement message to the base station and starts using the parameters assigned in the *Radio Configuration Parameters Message* in step r.

t. Set test parameters for Test 4 as specified in Table 4.1.1.4-5. Lower level of Channel 2 in steps of 1 dB with a dwell time of 30 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message*. Record the level of Pilot Ec/Io in the *Pilot Strength Measurement Message*.

u. Instruct the base station to send an *Extended Handoff Direction Message* to the mobile station with only Channel 1 listed in the Active Set.

v. Verify the following:

   1. The mobile station sends a *Handoff Completion Message* or an *Extended Handoff Completion Message* as a response to the handoff message sent in step s.

   2. Only Channel 1 is in the Active Set.

   3. For RC11/RC12 assignment on the forward fundamental channel, the mobile station continues to use the parameters assigned in the *Radio Configuration Parameters Message* that was sent in step r.

w. Instruct the base station to send a *Radio Configuration Parameters Message* to the mobile station with REV_FCH_BLANKING_DUTYCYCLE set to a value of ‘010’ and include the REV_ACKCH_GAIN_ADJ_ACS1. Ensure that the base station transmits the *Radio Configuration Parameters Message* using assured L2 delivery.

x. Verify that the mobile station sends an *Order* Acknowledgement message to the base station and starts using the parameters assigned in the *Radio Configuration Parameters Message* in step w.

4.21.1.5 Minimum Standard

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.

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

Note: All tests for RC other than FL RC 11 or RL RC 8 should be performed at full data rate or at a variable rate. All tests for FL RC 11 and RL RC 8 should use non-critical Rate 1/8th frames 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.

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]):

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: Forward Link: RC 1 through RC 5, RC 11, RC 12; Reverse Link: RC 1 through RC 4, RC 8

5.2.1.3 Call Flow Example(s)

None

5.2.1.4 Method of Measurement

5.2.1.4.1 FPC_MODE ‘000’; F-FCH Only

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 55 (Loopback Service Option) or Service Option 54 (Markov Service Option).

d. Instruct the base station to send the *Extended Channel Assignment 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 = '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)	

e. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to ‘0’.

f. Monitor the forward link FER at the mobile station.

g. Verify that the forward link FER on the FCH remains at approximately the target value.

h. End the call at the mobile station.

i. Repeat steps a through i above except that FOR_RC is set to RC4 and REV_RC is set to RC3 in step d.

j. Repeat steps a through i above except that FOR_RC is set to RC5 and REV_RC is set to RC4 in step d.

5.2.1.4.2 FPC_MODE ‘000’; F-DCCH only

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).

d. Instruct the base station to send the *Extended Channel Assignment 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)	

e. Ensure the base station sends the *Service Connect Message* with FPC_INCL set to ‘0’.

f. Monitor the forward link FER at the mobile station.

g. Verify that the forward link FER on DCCH remains at approximately the target value.

h. End the call at the mobile station.

i. Repeat steps a through i above except for setting FOR_RC to RC4 and REV_RC to RC3 in step d.

j. Repeat steps a through i above except for setting FOR_RC to RC5 and REV_RC to RC4 in step d.

5.2.1.4.3 FPC_MODE ‘001’; F-FCH and F-SCH

Note: Make sure that the base station is not power limited and does not DTX forward channels during these tests.

a. Connect base station and mobile station as shown in Annex A Figure 1.

b. Set power levels as stated in Annex B.1. Set up a mobile station originated call using Service Option 32 (Test Data Service Option).

c. Instruct the base station to send the *Extended Channel Assignment 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 = ‘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)	

d. Instruct the base station to send the *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 = ‘001’	

e. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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%)	

f. Monitor the forward link FER on FCH and SCH (during the burst assignment) at the mobile station.

g. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remains at approximately the target value.

h. End the call at the mobile station.

i. Repeat steps a through j above except that FOR_RC is set to RC4 and REV_RC is set to RC3 in step d.

j. Repeat steps h through j above except that FOR_RC is set to RC5 and REV_RC is set to RC4 in step d.

5.2.1.4.4 FPC_MODE ‘001’ with F-DCCH and F-SCH

Note: Make sure that the base station is not power limited and does not DTX forward channels during these tests.

a. Connect base station and mobile station as shown in Annex A Figure 1.

b. Set power levels as stated in Annex B.1. Set up a mobile station originated call using Service Option 32 (Test Data Service Option).

c. Instruct the base station to send the *Extended Channel Assignment 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)	

d. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to ‘0’.

e. Instruct the base station to download the SCH configuration and assign a Forward Supplemental Channel using the *Extended Supplemental Channel Assignment 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%)	

f. Monitor the forward link FER on both F-DCCH and F-SCH (during SCH assignment) at the mobile station.

g. Verify that the forward link FER on DCCH and SCH (during SCH assignment) remains at approximately the target value.

h. End the call at the mobile station.

i. Repeat steps a through j above except that FOR_RC is set to RC4 and REV_RC is set to RC3 in step d.

j. Repeat steps a through j above except that the FOR_RC is set to RC5 and REV_RC is set to RC4 in step d.

5.2.1.4.5 FPC_MODE ‘010’ with F-FCH and F-SCH

Note: Make sure that the base station is not power limited and does not DTX forward channels during these tests.

a. Connect base station and mobile station as shown in Annex A Figure 1.

b. Set power levels as stated in Annex B.1. Set up a mobile station originated call using Service Option 32 (Test Data Service Option).

c. Instruct the base station to send the *Extended Channel Assignment 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 = ‘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)	

d. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to ‘0’.

e. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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%)	

f. Monitor the forward link FER on both FCH and SCH (during the SCH assignment) at the mobile station.

g. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remains at approximately the target value.

h. End the call at the mobile station.

i. Repeat steps a through j above except for step d to set FOR_RC to RC4 and REV_RC to RC3.

j. Repeat steps a through j above except for step d to set FOR_RC to RC5 and REV_RC to RC4.

5.2.1.4.6 FPC_MODE ‘010’; F-DCCH and F-SCH

Note: Make sure that the base station is not power limited and does not DTX forward channels during these tests.

a. Connect base station and mobile station as shown in Annex A Figure 1.

b. Set power levels as stated in Annex B.1. Set up a mobile station originated call using Service Option 32 (Test Data Service Option).

c. Instruct the base station to send the *Extended Channel Assignment 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)	

d. Instruct the base station to send the *Service Connect Message* with the parameters set as follows:

FPC_INCL = ‘1’	FPC_OLPC_FCH_INCL = ‘0’
FPC_PRI_CHAN = ‘1’	GATING_RATE_INCL = ‘0’
FPC_MODE = ‘010’	

e. Instruct the base station to send SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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%)	

f. Monitor forward link FER on both F-DCCH and F-SCH (during SCH burst assignment) at the mobile station.

g. Verify that the forward link FERs on the DCCH and SCH (during SCH assignment) remains at approximately the target value.

h. End the call at the mobile station.

i. Repeat steps a through j above except for step d to set FOR_RC to RC4 and REV_RC to 3.

j. Repeat steps a through j above except for step d to set FOR_RC to RC5 and REV_RC to 4.

5.2.1.4.7 FPC_MODE ‘000’ or ‘011’; F-FCH Only, RC 8

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 75 (Loopback Service Option) or Service Option 74 (Flexible Markov Service Option).

d. Instruct the base station to send the *Extended Channel Assignment Message* with 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)	

e. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to ‘0’ and to send a *Radio Configuration Parameters Mesasge* with REV_FCH_BLANKING_DUTYCYCLE set to ‘000’. Ensure that the RPC_MODE is set to the default value of ‘00’.

f. Monitor the forward link FER at the mobile station.

g. Verify that the forward link FER on the FCH remains at approximately the target value.

h. End the call at the mobile station.

i. Repeat the steps a-h with the exception that RPC_MODE is set to ‘01’ in the *Radio Configuration Parameters Message* and FPC_INCL set to ‘1’ and FPC_MODE set to ‘011’ in the *Service Connect Message* in step e.

j. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to the default value (or not included), RPC_MODE is set to ’00’ (or not included in the *Radio Configuration Parameters Message* and FPC_INCL set to ‘1’ and FPC_MODE set to ‘011’ in the *Service Connect Message* in step e.

k. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to the default value (or not included), RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message* and FPC_INCL set to ‘1’ and FPC_MODE set to ‘011’ in the *Service Connect Message* in step e.

l. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to ‘000’, FOR_FCH_BLANKING_DUTYCYCLE is set to ‘010’, RPC_MODE is set to ’00’ (or not included) in the *Radio Configuration Parameters Message* and FPC_MODE set to ‘000’ (or not included) in the *Service Connect Message* in step e.

5.2.1.4.8 FPC_MODE ‘010’; F-FCH and F-SCH, RC 8

a. Connect base station and mobile station as shown in Annex A Figure 1.

b. Set power levels as stated in Annex B.1. Set up a mobile station originated call using Service Option 32 (TDSO).

c. Instruct the base station to send the *Extended Channel Assignment Message* with 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)	

d. Instruct the base station to send and to send a *Radio Configuration Parameters Mesasge* with REV_FCH_BLANKING_DUTYCYCLE set to ‘000’ and to send the *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’	

e. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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 = ‘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%)	

f. Monitor the forward link FER on FCH and SCH (during the burst assignment) at the mobile station.

g. Verify that the forward link FERs on FCH and SCH (during SCH assignment and when SCH is directly power controlled) remains at approximately the target value.

h. End the call at the mobile station.

i. Repeat the steps a-h with the exception that FPC_MODE is set to ‘010’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘010’ in the *Extended Supplemental Channel Assignment Message*.

j. Repeat the steps a-h with the exception that RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message* FPC_MODE is set to ‘010’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘010’ in the *Extended Supplemental Channel Assignment Message*.

k. Repeat the steps a-h with the exception that RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message* FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

l. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE set to its default value or not included and RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message*, FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

m. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE set to its default value or not included and RPC_MODE is set to ’00’ or not included in the *Radio Configuration Parameters Message*, FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

n. Repeat the steps a-h with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to ‘000’, FOR_FCH_BLANKING_DUTYCYCLE is set to ‘010’, RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message* and FPC_MODE_SCH set to ‘010’ in the *Extended Supplemental Channel Assignment Message.*

5.2.1.5 Minimum Standard

The mobile station shall comply with the requirement in step g for all cases.

5.2.2 Base Station Test

None

5.3 Outer Loop Report

5.3.1 Mobile Station Test

5.3.1.1 Definition

This test verifies that the mobile station shall send the Outer Loop Report Message if the Outer Loop Report Request Order is received.

5.3.1.2 Traceability (See [1]):

2.1.3.1.11 Reverse Power Control Subchannel
2.7.2.3.2.22 *Outer Loop Report Message*
(See [4]):

Applicability: Forward Link: RC 1 through RC 5, RC 11, RC 12; Reverse Link: RC 1 through RC 4, RC 8

5.3.1.3 Call Flow Example(s)

None

5.3.1.4 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. Set up a mobile station originated call using Service Option 32 (Test Data Service Option).

c. Instruct the base station to send the *Extended Channel Assignment 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 = ‘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)	

d. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to ‘0’. If repeating the test for FL RC 11 and RL RC 8, instruct the base station to send and to send a *Radio Configuration Parameters Mesasge* with REV_FCH_BLANKING_DUTYCYCLE set to ‘000’ and ensure that RPC_MODE is set to ‘00’.

e. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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%)	

f. Monitor the forward link FER on both FCH and SCH (during the SCH assignment) at the mobile station.

g. Instruct the base station to send Outer Loop Report Request Order.

h. Verify that the mobile station sends the Outer Loop Report Message and this message contains FPC_FCH_CURR_SETPT and FPC_SCH_CURR_SETPT and the current setpoints for both FCH and SCH reported by the mobile station shall be in the range of the minimum setpoint and the maximum setpoint.

i. End the call at the mobile station.

j. Repeat steps a through i above except for the following steps:

1. Instruct the base station to send the *Extended Channel Assignment 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)	

2. Monitor the forward link FER on both DCCH and SCH.

3. Verify that the mobile station sends the *Outer Loop Report Message* and this message contains FPC_DCCH_CURR_SETPT and FPC_SCH_CURR_SETPT and the current setpoints for both FCH and SCH reported by the mobile station shall be in the range of the minimum setpoint and the maximum setpoint.

k. Repeat steps a through i with FOR_RC = ‘01011’ (RC 11) and REV_RC = ‘01000’ (RC 8) and the following scenarios:

1. FPC_MODE is set to ‘010’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘010’ in the *Extended Supplemental Channel Assignment Message*.

2. RPC_MODE is set to ’01’ in the Radio Configuration Parameters Message FPC_MODE is set to ‘010’ in the Service Connect Message and FPC_MODE_SCH set to ‘010’ in the Extended Supplemental Channel Assignment Message.

3. RPC_MODE is set to ’01’ in the *Radio Configuration Parameters*

Message FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

4. REV_FCH_BLANKING_DUTYCYCLE set to its default value or not included and RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message*, FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

5. REV_FCH_BLANKING_DUTYCYCLE set to its default value or not included and RPC_MODE is set to ’00’ or not included in the *Radio Configuration Parameters Message*, FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

5.3.1.5 Minimum Requirement

The mobile station shall comply with steps h and j.

5.3.2 Base Station Test

None

5.4 Fast Forward Power Control (FFPC) in Soft Handoff

5.4.1 Mobile Station Test

5.4.1.1 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 send to the base station through inner and outer closed loop estimations. In outer loop estimation, the mobile station adjusts the Eb/Nt setpoints 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. This test verifies that the mobile station can perform FFPC while in soft handoff. This test also verifies that the mobile station can process the various parameters in the *Extended Channel Assignment Message*, the *Extended Supplemental Channel Assignment Message*, the *Universal Handoff Direction Message*, and the *Service Connect Message*.

5.4.1.2 Traceability (See [1]):

2.1.3.1.11 Reverse Power Control Subchannel

(See [4]):

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: Forward Link: RC 1 through RC 5; Reverse Link: RC 1 through RC 4

5.4.1.3 Call Flow Example(s)

5.4.1.4 Method of Measurement

5.4.1.4.1 F-FCH in SHO and F-SCH not in SHO; FPC_MODE = 001, FPC_MODE = 010 for RC 8

a. Set up the test as shown in Annex A Figure 2.

b. Set power levels as stated in Table 5.4.1.4.1-1.

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

c. Set up a mobile station originated call using Service Option 32 (Test Data Service Option) on base station 1.

d. Instruct the base station to send the *Extended Channel Assignment 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 = ‘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)	

e. Instruct the base station to send the *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 = ‘001’	

f. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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%)	

g. Raise the level of base station #2 in steps of 1 dB with a dwell time of 5 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message*.

h. Instruct the base station to send the *Universal Handoff Direction Message* during F-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’

i. Verify that the mobile station is not in a soft handoff with base station 2.

j. Set the test parameters as specified in Table 5.4.1.4.1-2 without dropping the call.

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
Ioc	dBm/1.23 MHz	-75	-75
Pilot Ec/Io	dB	-11.8	-11.8

k. Instruct the BS to send an UHDM to allow for base station 2 to be in SHO for the F-FCH.

l. Monitor the forward link FER on both F-FCH and F-SCH (during F-SCH assignment) at the mobile station.

m. Verify that the forward link FERs on FCH and SCH (during SCH assignment and when SCH is directly power controlled) remains at approximately the target value.

n. End the call at the mobile station.

o. Repeat steps a through n with the following changes:

1. In step d use FOR_RC = ‘01011’ (RC 11) and REV_RC = ‘01000’ in the *ECAM* and instruct the base station to send and to send a *Radio Configuration Parameters Mesasge* with REV_FCH_BLANKING_DUTYCYCLE set to ‘000’ and ensure that RPC_MODE is set to ‘00’.

2. In step e use FPC_INCL to ‘0’.

3. In step f to use FPC_MODE_SCH to ‘000’.

4. In step k the UHDM is sent in a *General Extension Message* along with the Radio Configuration Parameters Record.

p. Repeat step o with the following changes:

1. FPC_MODE is set to ‘010’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘010’ in the *Extended Supplemental Channel Assignment Message*.

2. RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message* FPC_MODE is set to ‘010’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘010’ in the *Extended Supplemental Channel Assignment Message*.

3. RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message* FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

4. REV_FCH_BLANKING_DUTYCYCLE set to its default value or not included and RPC_MODE is set to ’01’ in the *Radio Configuration Parameters Message*, FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

5. REV_FCH_BLANKING_DUTYCYCLE set to its default value or not included and RPC_MODE is set to ’00’ or not included in the *Radio Configuration Parameters Message*, FPC_MODE is set to ‘011’ in the *Service Connect Message* and FPC_MODE_SCH set to ‘011’ in the *Extended Supplemental Channel Assignment Message*.

5.4.1.4.2 F-FCH in SHO and F-SCH not in SHO; FPC_MODE = ‘010’

a. Set up the test as shown in Annex A Figure 2.

b. Set power levels as stated in Table 5.4.1.2.1-1.

c. Set up a mobile station originated call using Service Option 32 (Test Data Service Option) with 100% frame activity on base station 1.

d. Instruct the base station to send the *Extended Channel Assignment 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 = ‘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)	

e. Instruct the base station to send the *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 = ‘010’	

f. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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%)	

g. Raise the level of base station 2 in steps of 1 dB with a dwell time of 5 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message*.

h. Instruct the base station to send the *Universal Handoff Direction Message* during F-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’

i. Verify that there are no forward supplemental channels running on base station 2.

j. Set the test parameters as specified in Table 5.4.1.2.1-2 without dropping the call.

k. Instruct the BS to send an UHDM to allow for base station 2 to be in SHO for the F-FCH.

l. Monitor the forward link FER on both F-FCH and F-SCH (during F-SCH assignment) at the mobile station.

m. Verify that the forward link FERs on FCH and SCH (during SCH assignment and when SCH is directly power controlled) remain at approximately the target value.

n. End the call at the mobile station.

5.4.1.4.3 F-DCCH in SHO and F-SCH not in SHO; FPC_MODE = '001'

a. Set up the test as shown in Annex A Figure 2.

b. Set power levels as stated in Table 5.4.1.2.1-1.

c. Set up a mobile station originated call using Service Option 32 (Test Data Service Option) with 100% frame activity on base station 1.

d. Instruct the base station to send the *Extended Channel Assignment 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)	

e. Instruct the base station to send the *Service Connect Message* with the parameters set as follows:

FPC_INCL = '1'	FPC_OLPC_FCH_INCL = '0'
FPC_PRI_CHAN = '1'	GATING_RATE_INCL = '0'
FPC_MODE = '001'	

f. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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%)	

g. Raise the level of base station #2 in steps of 1 dB with a dwell time of 5 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message*.

h. Instruct the base station to send the *Universal Handoff Direction Message* during F-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'

i. Verify that there are no forward supplemental channels running on base station 2.

j. Set the test parameters as specified in Table 5.4.1.2.1-2 without dropping the call.

k. Instruct the BS to send an UHDM to allow for base station 2 to be in SHO for the F-FCH.

l. Monitor the forward link FER on both F-FCH and F-SCH (during F-SCH assignment) at the mobile station.

m. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remain at approximately the target value.

n. End the call at the mobile station.

5.4.1.4.4 F-DCCH in SHO and F-SCH not in SHO; FPC_MODE = ‘010’

a. Set up the test as shown in Annex A Figure 2.

b. Set power levels as stated in Table 5.4.1.2.1-1.

c. Set up a mobile station originated call using Service Option 32 (Test Data Service Option) with 100% frame activity on base station 1.

d. Instruct the base station to send the *Extended Channel Assignment 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)	

e. Instruct the base station to send the *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 = ‘010’	

f. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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%)	

g. Raise the level of base station #2 in steps of 1 dB with a dwell time of 5 seconds after each step until the mobile station has generated the *Pilot Strength Measurement Message*.

h. Instruct the base station to send the *Universal Handoff Direction Message* during F-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’

i. Verify that there are no forward supplemental channels running on base station #2.

j. Set the test parameters as specified in Table 5.4.1.2.1-2 without dropping the call.

k. Instruct the BS to send an UHDM to allow for base station 2 to be in SHO for the F-FCH.

l. Monitor the forward link FER on both F-DCCH and F-SCH (during F-SCH assignment) at the mobile station.

m. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remain at approximately the target value.

n. End the call at the mobile station.

5.4.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps i and m.

5.4.2 Base Station Test

None

5.5 Change FPC_MODE During a Call

5.5.1 Mobile Station Test

5.5.1.1 Definition

The mobile station accomplishes fast forward power control by transmitting the power control subchannel to the base station on the R-PICH. The mobile station determines the information to send to the base station through inner and outer closed loop estimations. In outer loop estimation, the mobile station adjusts the Eb/Nt setpoints 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. This test verifies that the mobile station can process a change in FPC_MODE delivered by the Power Control Message.

5.5.1.2 Traceability (See [1]):

2.1.3.1.11 Reverse Power Control Subchannel
(See [4]):
2.6.4.1.1.3, 3.7.3.3.2.25 Power Control 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

5.5.1.3 Call Flow Example(s)

5.5.1.4 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 100% frame activity.

d. Instruct the base station to send the *Extended Channel Assignment 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 = ‘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)	

e. Instruct the base station to send the *Service Connect Message* with FPC_INCL set to ‘0’.

f. Monitor forward link FER at the mobile station.

g. Increase Ioc in 1 dBm/1.23 MHz steps every second for a total of 5 dBm/1.23 MHz at the AWGN source.

h. Monitor traffic channel Ec/Ior and ensure power increases corresponding to noise power from the AWGN source.

i. Instruct the base station send the Power Control Message with the parameters set as 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	

j. Monitor forward link FER at the mobile station.

k. Verify that the forward link FERs on FCH and SCH (during SCH assignment) remain at approximately the target value.

l. End the call at the mobile station.

5.5.1.5 Minimum Standard

The mobile station shall comply with the requirement in step k.

5.5.2 Base Station Test

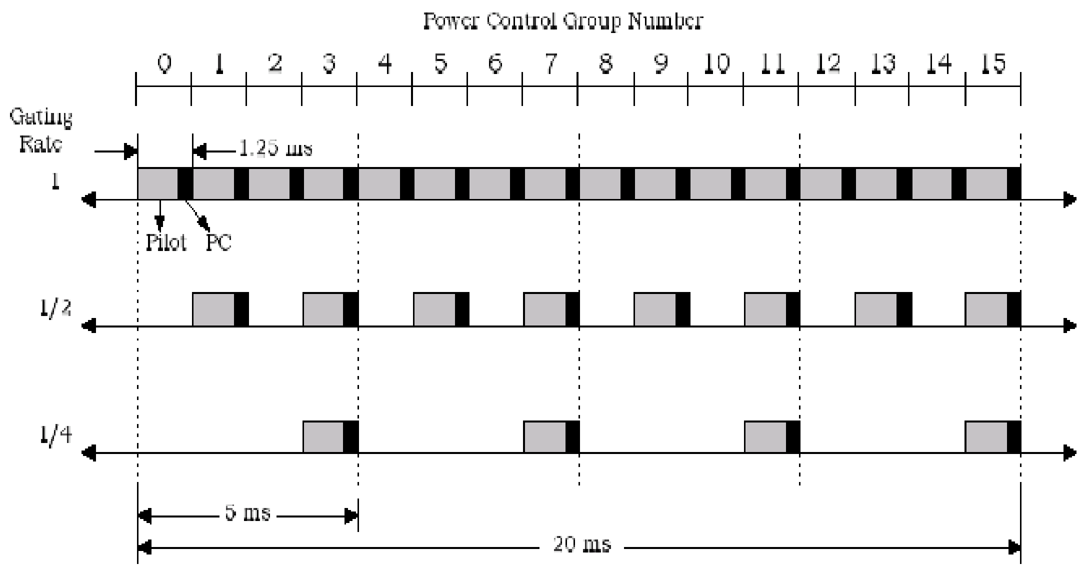
None

5.6 R-PICH in Gated Transmission Mode - Gating with the Reverse Dedicated Control Channel

5.6.1 Mobile Station Test

5.6.1.1 Definition

The mobile station accomplishes fast forward power control by transmitting the power control subchannel to the base station on the R-PICH. The power control subchannel can either be gated (either at a rate of ½ or ¼) or not gated (a bit is transmitted on every PCG). Gating occurs only when the Forward Dedicated Control Channel and the Reverse Dedicated Control Channel are assigned and when there are no transmissions on the Reverse Dedicated Control Channel. This test verifies that the mobile station can operate in the various gating transmission modes specified in the *Service Connect Message*.



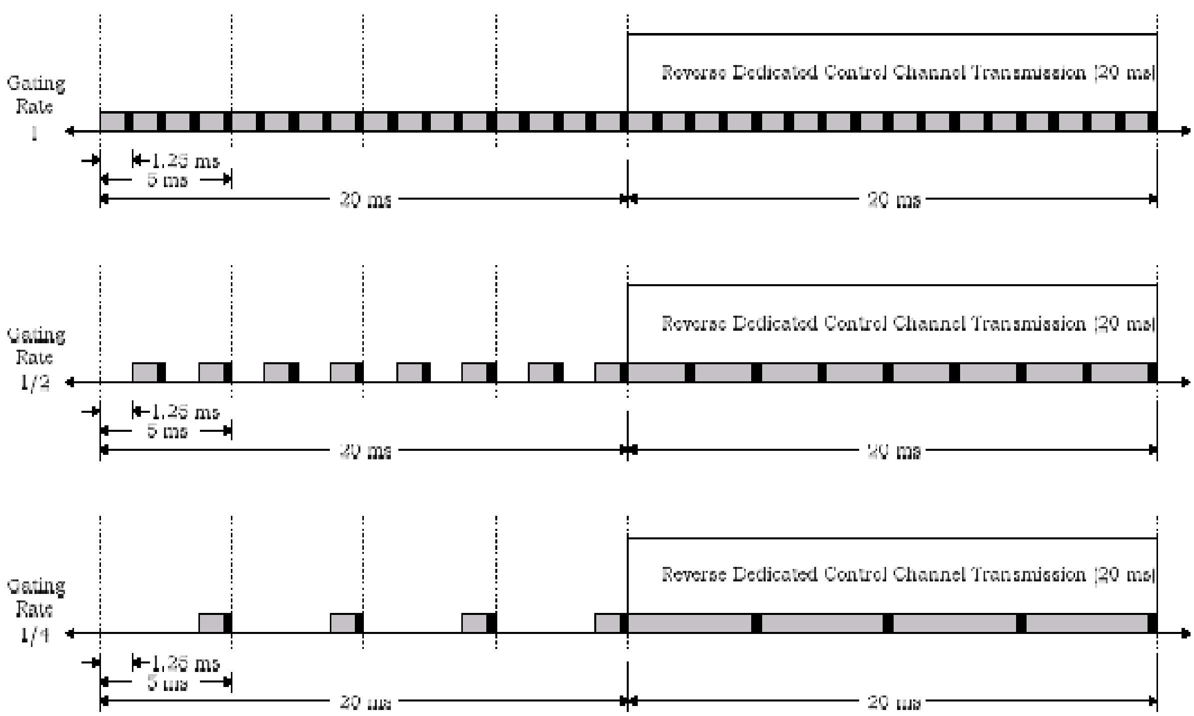


Figure 5.7.1.1-1 Reverse Pilot Gating with no Transmission on the Reverse Dedicated Control Channel [1] 2.1.3.2.3

Figure 5.7.1.1-2 Reverse Pilot Gating during

5.6.1.2 Traceability (See [1]):

2.1.3.1.11 Reverse Power Control Subchannel
2.1.3.2.3 Reverse Dedicated Control Channel Transmission
(See [4]):
2.6.4.1.1.3, 3.7.3.3.2.25 Power Control 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: Forward Link: RC 1 through RC 5; Reverse Link: RC 1 through RC 4

5.6.1.3 Call Flow Example(s)

5.6.1.4 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 data call using Service Option 33.

d. Instruct the base station to send the *Extended Channel Assignment Message* has 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)	

e. Instruct the base station to send the *Service Connect Message* has the parameters 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)

f. Instruct the base station to send the *Extended Release Message* with CH_IND set to ‘100’ (continuous reverse Pilot Channel is released).

g. Instruct the mobile station not to transmit any data on the reverse link.

h. Monitor forward link FER at the mobile station.

i. Verify that the reverse Pilot Channel is gated at the specified rate and the forward link FER on DCCH remains at approximately the target value.

j. Instruct the mobile station to send the *Data Burst Message* on the Reverse Dedicated Control Channel.

k. Monitor the forward link FER at mobile station.

l. Verify that the reverse Pilot Channel is gated at the target rate if no transmissions are on the Reverse Dedicated Control Channel and the reverse Pilot Channel is not gated if there are transmissions on the Reverse Dedicated Control Channel.

m. Verify that the forward link FER on the DCCH is approximately the target value.

n. End the call at the mobile station. Repeat steps a through m above except for step f to set PILOT_GATE_RATE to '10' (gating at ¼).

5.6.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps l, l, and m.

5.6.2 Base Station Test

None

5.7 R-PICH in Gated Transmission Mode - Gating with the Reverse Fundamental Channel

5.7.1 Mobile Station test

5.7.1.1 Definition

The mobile station accomplishes fast forward power control by transmitting the power control subchannel to the base station on the R-PICH. The power control subchannel can either be gated or not gated. The R-FCH may be gated when no other Reverse Traffic Channel is assigned and the data rate is 1500 bps for RC 3 and RC5 or 1800 bps for RC4. When the R-FCH is operated in 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-PICH shall have a transmission duty cycle of 50%. The R-PICH shall be transmitted in power control groups 2, 3, 6, 7, 10, 11, 14, and 15, and shall not be transmitted in power control groups 0, 1, 4, 5, 8, 9, 12, and 13.

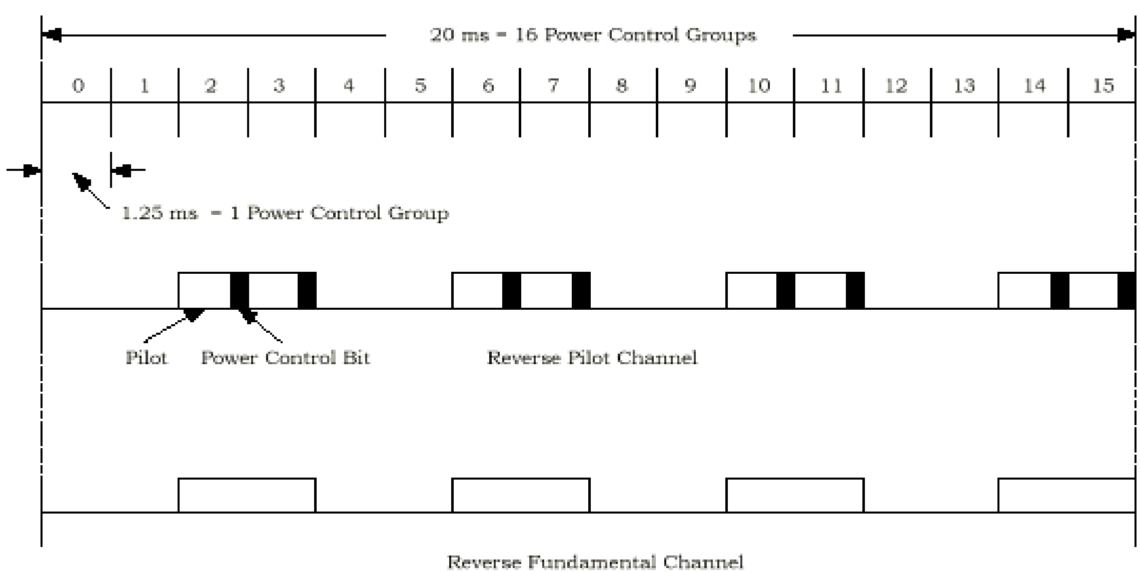


Figure 5.7.1.1-1 Gating with the R-FCH

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.

5.7.2 Base Station Test

None

5.8 Forward Power Control With EIB or QIB While Transmitting Frames on the Forward Fundamental Channel (FPC_MODE = ‘011’ or ‘100’)

5.8.1 Mobile Station Test

5.8.1.1 Definition

This test shall be performed on the Forward Fundamental Channel with FPC_MODE equal to ‘011’ or ‘100’. In this test, QIB is same as EIB. The mobile station shall set the EIB or QIB to ‘0’ on the Reverse Power Control Subchannel in the second transmitted frame following the detection of a good 20ms frame or the detection of at least one good 5ms frame without the detection of any bad 5 ms frames within 20ms (if the mobile station support 5ms frame size) on the Forward Fundamental Channel. Otherwise the mobile station shall set the EIB or QIB to ‘1’ in the second transmitted 20 ms frame.

5.8.1.2 Traceability (See [1]):

2.1.3.1.10.1 Reverse Power Control Subchannel Structure
2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit
(See [4]):
2.6.4.1.1 Forward Traffic Channel Power Control
3.7.2.3.2.21 Extended Channel Assignment Message

5.8.1.3 Call Flow Example(s)

5.8.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 1.

b. Set power ratios and levels as specified in Annex B.1.

c. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated call.

e. Instruct the base station to send an *Extended Channel Assignment Message* with the 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’	

f. Instruct the base station to send a *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 = ‘011’	

g. From the base station, send a sequence of alternating good and bad 20 ms frames (50 frames or more) to the mobile station on the Forward Fundamental Channel.

h. Verify that the mobile station sends all ‘0’s on the Reverse Power Control Subchannel in the second transmitted 20ms frame following the detection of a good 20ms frame and sends all ‘1’s on the Reverse Power Control Subchannel in the second transmitted frame following the detection of a bad 20-ms frame.

i. End the call.

j. Repeat steps a through i except for the step d to set REV_RC to 3 and FOR_RC to 4.

k. Repeat steps a through i except for the step d to set REV_RC to 4 and FOR_RC to 5.

l. Set up a mobile station originated call.

m. Instruct the base station to send an *Extended Channel Assignment Message* with the 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’	

n. Instruct the base station to send a *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 = ‘100’	FCH_FRAME_SIZE = ‘1’

o. From the base station, send a sequence of alternating 4 5ms good and 4 5ms bad frames (50 frames or more), followed by a sequence of alternating 20ms good and bad frames (50 frames or more), to the mobile station on the Forward Fundamental Channel.

p. Verify that the mobile station sends all ‘0’s on the Reverse Power Control Subchannel in the second transmitted frame following the detection of a good 20ms frame or the detection of at least one good 5ms frame without the detection of any bad 5 ms frames within 20ms, and, otherwise, sends all ‘1’s on the Reverse Power Control Subchannel.

q. End the call.

r. Repeat steps l through q except for step m to set REV_RC to 3 and FOR_RC to 4.

s. Repeat steps l through q except for step m to set REV_RC to 4 and FOR_RC to 5.

5.8.1.5 Minimum Standard

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

5.8.2 Base Station Test

None

5.9 Forward Power Control With EIB While Transmitting Frames on the Forward Dedicated Control Channel (FPC_MODE = '011')

5.9.1 Mobile Station Test

5.9.1.1 Definition

This test shall be performed on the Forward Dedicated Control Channel with FPC_MODE equal to '011'. The mobile station shall set the EIB to '0' on the Reverse Power Control Subchannel in the second transmitted 20ms frame following the detection of a good 20ms frame or the detection of at least one good 5ms frame without the detection of any bad 5 ms frames within 20ms on the Forward Dedicated Control Channel. Otherwise, the mobile station shall set the EIB to '1' in the second transmitted 20 ms frame.

5.9.1.2 Traceability (See [1]):

2.1.3.1.10.1 Reverse Power Control Subchannel Structure

2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit

(See [4]):

2.6.4.1.1 Forward Traffic Channel Power Control

3.7.2.3.2.21 Extended Channel Assignment Message

5.9.1.3 Call Flow Example(s)

5.9.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 1.

b. Set power ratios and levels as specified in Annex B.1.

c. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated data call by using SO33.

e. Instruct the base station to send an *Extended Channel Assignment Message* with the 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’	

f. Instruct the base station to send a *Service Connect Message* with the parameters set 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’

g. From the base station, send a sequence of alternating 4 5ms good and 4 5ms bad frames (50 frames or more), followed by a sequence of alternating 20ms good and bad frames (50 frames or more), to the mobile station on the Forward Fundamental Channel.

h. Verify that the mobile station sends all ‘0’s on the Reverse Power Control Subchannel in the second transmitted frame following the detection of a good 20ms frame or the detection of at least one good 5ms frame without the detection of any bad 5 ms frames within 20ms, and, otherwise, sends all ‘1’s on the Reverse Power Control Subchannel.

i. End the call.

j. Repeat steps d through i except for step e to set REV_RC to 3 and FOR_RC to 4.

k. Repeat steps d through i except for step e to set REV_RC to 4 and FOR_RC to 5.

5.9.1.5 Minimum Standard

The mobile station shall comply with the requirement in step h.

5.9.2 Base Station Test

None

5.10 Forward Power Control With QIB on the Forward Dedicated Control Channel (FPC_MODE = ‘100’)

5.10.1 Mobile Station Test

5.10.1.1 Definition

This test shall be performed on the Forward Dedicated Control Channel with FPC_MODE equal to ‘100’. The mobile station shall set the QIB to ‘0’ on the Reverse Power Control Subchannel in the second transmitted frame following the detection of a 20ms period with sufficient signal quality on the Forward Dedicated Control Channel. The mobile station shall set the QIB to ‘1’ on the Reverse Power Control Subchannel in the second transmitted frame following the detection of a 20ms period with insufficient signal quality on the Forward Dedicated Control Channel. When transmitting active frames on the Forward Dedicated Control Channel only, the QIB will be the same as the EIB When the frame is inactive (i.e. only the power control bits are transmitted in a frame), the Quality Indicator Bit indicates the channel quality.

5.10.1.2 Traceability (See [1]):

2.1.3.1.10.1 Reverse Power Control Subchannel Structure
2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit

(See [4]):

2.6.4.1.1 Forward Traffic Channel Power Control
2.6.4.1.1 Forward Traffic Channel Power Control
3.7.2.3.2.21 *Extended Channel Assignment Message*

5.10.1.3 Call Flow Example(s)

5.10.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 1.

b. Set power ratios and levels as specified in Annex B.1.

c. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated data call by using Service Option 33.

e. Instruct the base station to send an *Extended Channel Assignment 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’	

f. Instruct the base station to send a *Service Connect Message* with the parameters set 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’

g. Instruct the base station to send a sequence of alternating good and bad 20ms frames (50 frames or more) to the mobile station on the Forward Dedicated Control Channel.

h. Verify the mobile station set the QIB to ‘0’ in the second transmitted frame following the detection of a good 20ms frame on the Forward Dedicated Control Channel and set the QIB to ‘1’ in the second transmitted frame following the detection of a bad 20ms frame.

i. Instruct the base station to send a sequence of good and inactive 20ms frames (50 frames or more) by enabling and disabling the transmission of 20ms frames. During the period of sending inactive 20ms frames, only the power control bits are transmitted in full power on the Forward Dedicated Control Channel.

j. Verify that the mobile station sets the QIB to ‘0’ in the second transmitted 20ms frame following the detection of a 20ms period with sufficient signal quality on the Forward Dedicated Control Channel and set the QIB to ‘1’ in the second transmitted 20ms frame following the detection of a 20ms period with insufficient quality .

k. End the call.

l. Repeat steps d through k except for step e to set REV_RC to 3 and FOR_RC to 4.

m. Repeat steps d through k except for step e to set REV_RC to 4 and FOR_RC to 5.

5.10.1.5 Minimum Standard

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

5.10.2 Base Station Test

None

5.11 Forward Power Control With QIB derived from the Forward Fundamental Channel or Dedicated Control Channel and EIB derived from Supplemental Channel (FPC_MODE = ‘101’)

5.11.1 Mobile Station Test

5.11.1.1 Definition

This test shall be performed with FPC_MODE equal to ‘101’. The mobile station shall transmit QIB derived from the Forward Fundamental Channel or Forward Dedicated Control Channel on the Primary Reverse Power Control Subchannel and shall transmit EIB derived from Forward Supplemental Channel on the Secondary Reverse Power Control Subchannel. The transmission of the QIB and EIB shall start at the second 20 ms frame of the Reverse Traffic Channel following the corresponding Forward Traffic Channel frame in which QIB or EIB is determined.

5.11.1.2 Traceability (See [1]):

2.1.3.1.10.1 Reverse Power Control Subchannel Structure
2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit
(See [4]):
2.6.4.1.1 Forward Traffic Channel Power Control
2.6.4.1.1 Forward Traffic Channel Power Control
3.7.2.3.2.21 *Extended Channel Assignment Message*

5.11.1.3 Call Flow Example(s)

5.11.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 1.

b. Set power ratios and levels as specified in Annex B.1.

c. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated data call by using Service Option 33.

e. Instruct the base station to send an *Extended Channel Assignment 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 = ‘01’	

f. Instruct the base station to send a *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 = ‘101’	FCH_FRAME_SIZE = ‘1’

g. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel with an infinite duration by using the *Extended Supplemental Channel Assignment Message* with the power control related parameters set as follows:

FPC_INCL = ‘1’	FPC_SEC_CHAN = ‘0’
FPC_MODE_SCH = ‘101’	NUM_SUP = ‘00’

h. Instruct the base station to send a sequence of alternating 4 5ms good and 4 5ms bad frames (50 frames or more), followed by a sequence of alternating 20ms good and bad frames (50 frames or more) to the mobile station on the Forward Fundamental Channel. Instruct the base station to send a sequence of alternating good and bad 20ms frames (50 frames or more) on the Forward Supplemental Channel.

i. Verify that the mobile station sets the QIB to ‘0’ on the Primary Reverse Power Control Subchannel in the second transmitted 20ms frame following the detection of a good 20ms frame or detection of at least one good 5ms frame without detection of any bad 5 ms frames within 20ms on the Forward Fundamental Channel; otherwise, the mobile station sets the QIB to ‘1’.Verify that the mobile station sets EIB to ‘0’ on the Secondary Reverse Power Control Subchannel starting at the second 20ms frame after a detected good frame and otherwise sets EIB to ‘1’ on the Secondary Reverse Power Control Subchannel on the Forward Supplemental Channel.

j. End the call.

k. Repeat steps d through j except for step e to set REV_RC to 3 and FOR_RC to 4.

l. Repeat steps d through j except for step e to set REV_RC to 4 and FOR_RC to 5.

m. Repeat steps d through l except for the following steps:

1. Step e: Set CH_IND = ‘10’;
2. Step f: Set FPC_PRI_CHAN = ‘1’ and DCCH_FRAME_SIZE = ‘11’;
3. Step h: Instruct the base station to send a sequence of alternating good and bad 20ms frames (50 frames or more), followed by a sequence of alternating 4 5ms good and 4 5ms bad frames (50 frames or more), and then followed by a sequence of good and inactive 20ms frames (50 frames or more) on the Forward Dedicated Control Channel by enabling and disabling the transmission of 20ms frames. During the period of sending inactive 20ms frames, only the power control bits are transmitted in full power on the Forward Dedicated Control Channel. Instruct the base station to send a sequence of alternating good and bad 20ms frames (50 frames or more) to the mobile station on the Forward Supplemental Channel.
4. Step i: Verify that the mobile station set the QIB to ‘0’ on the Primary Reverse Power Control Subchannel in the second transmitted 20ms frame following the detection of a good 20ms frame, or detection of at least one good 5ms frame without detection of any bad 5 ms frames within 20ms, or detection of a 20ms period with sufficient signal quality on the Forward Dedicated Control Channel; otherwise the mobile station sets the QIB to ‘0’. Verify that the mobile station sets the EIB to ‘0’ on the Secondary Reverse Power Control Subchannel starting at the second 20ms frame after a detected good frame and otherwise sets EIB to ‘1’ on the Secondary Reverse Power Control Subchannel.

5.11.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps i and m.

5.11.2 Base Station Test

None

5.12 Forward Power Control With 400 bps data rate on the Forward Fundamental Channel or Forward Dedicated Control Channel and EIB derived from Supplemental Channel (FPC_MODE = ‘110’)

5.12.1 Mobile Station Test

5.12.1.1 Definition

This test shall be performed with FPC_MODE equal to ‘110’. The mobile station shall transmit the Primary Reverse Power Control Subchannel at a 400 bps data rate based on the Forward Fundamental Channel or Forward Dedicated Control Channel, and shall transmit EIB derived from Forward Supplemental Channel on the Secondary Reverse Power Control Subchannel. The transmission of the power control bits on the Primary Reverse Power Control Subchannel is based on inner and outer closed loop estimations. The transmission of the EIB on the Secondary

Reverse Power Control Subchannel shall start at the second frame (20ms frame) of the Reverse Traffic Channel following the end of the corresponding Forward Supplemental Channel frame from which the EIB is derived.

5.12.1.2 Traceability (See [1]):

2.1.3.1.10.1 Reverse Power Control Subchannel Structure
2.2.2.2 Erasure Indicator Bit and Quality Indicator Bit
(See [4]):
2.6.4.1.1 Forward Traffic Channel Power Control
2.6.4.1.1 Forward Traffic Channel Power Control
3.7.2.3.2.21 *Extended Channel Assignment Message*

5.12.1.3 Call Flow Example(s)

5.12.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 1.

b. Set power ratios and levels as specified in Annex B.1.

c. The Reverse Link attenuation should be set to balance the forward and reverse links (approximately 90 dB).

d. Set up a mobile station originated data call by using Service Option 33.

e. Instruct the base station to send an *Extended Channel Assignment 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 = '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)	

f. Instruct the base station to send a *Service Connect Message* with the parameters set 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’

g. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel with an infinite duration by using the *Extended Supplemental Channel Assignment Message* with the power control related parameters set as follows:

FPC_INCL = ‘1’	FPC_SEC_CHAN = ‘0’
FPC_MODE_SCH = ‘110’	NUM_SUP = ‘00’

h. Monitor the forward link FER on the Forward Fundamental Channel at the mobile station.

i. Verify that the forward link FER on the FCH is approximately the target value.

j. Instruct the base station to send a sequence of alternating good and bad 20ms frames (50 frames or more) to the mobile station on the Forward Supplemental Channel.

k. Verify that the mobile station sets the EIB to ‘0’ on the Secondary Reverse Power Control Subchannel, starting at the second 20ms after the detection of a good 20ms frame on the Forward Supplemental Channel and set the EIB to ‘1’ on the Secondary Reverse Power Control Subchannel starting at the second 20ms frame after following the detection of a bad 20ms frame on the Forward Supplemental Channel.

l. End the call.

m. Repeat steps d through l except for step e to set REV_RC to 3 and FOR_RC to 4.

n. Repeat steps d through l except for step e to set REV_RC to 4 and FOR_RC to 5.

o. Set up a mobile station originated data call by using Service Option 33.

p. Instruct the base station to send an *Extended Channel Assignment 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)	

q. Instruct the base station to send a *Service Connect Message* with the parameters set 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’

r. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel with an infinite duration by using the *Extended Supplemental Channel Assignment Message* with the power control related parameters set as follows:

FPC_INCL = ‘1’	FPC_SEC_CHAN = ‘1’
FPC_MODE_SCH = ‘110’	NUM_SUP = ‘00’

s. Monitor the forward link FER on the Forward Dedicated Control Channel at the mobile station.

t. Verify that the forward link FER on the DCCH remains at approximately the target value.

u. Instruct the base station to send a sequence of alternating good and bad 20ms frames (50 frames or more) to the mobile station on the Forward Supplemental Channel.

v. Verify that the mobile station set the EIB to ‘0’ on the Secondary Reverse Power Control Subchannel starting at the second 20ms after following the detection of a good 20ms frame on the Forward Supplemental Channel and set the EIB to ‘1’ on the Secondary Reverse Power Control Subchannel starting at the second 20ms frame after following the detection of a bad 20ms frame on the Forward Supplemental Channel.

w. End the call.

x. Repeat steps q through aa except for step r to set REV_RC to 3 and FOR_RC to 4.

y. Repeat steps q through aa except for step r to set REV_RC to 4 and FOR_RC to 5.

5.12.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps i, k, t and v.

5.12.2 Base Station Test

None

5.13 SCH Power Control Modes with RC 11 and RC 8

5.13.1 Mobile Station Test

5.13.1.1 Definition

This test verifies various power control mode assignments using *Radio Configuration Parameters Messge* and *Extended Supplemental Channel Assignment Message*.

5.13.1.2 Traceability (See [1]):

2.1.3.1.11 Reverse Power Control Subchannel

(See [4]):

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

5.13.1.3 Call Flow Examples

5.13.1.4 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. Set up a mobile station originated call using Service Option 32.

c. Instruct the base station to send the *Extended Channel Assignment Message* with 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)	

d. Instruct the base station to send and to send a *Radio Configuration Parameters Mesasge* with REV_FCH_BLANKING_DUTYCYCLE set to '000' and to send the *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	

e. Instruct the base station to download SCH configuration and assign a Forward Supplemental Channel by using the *Extended Supplemental Channel Assignment 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)

f. Verify that the mobile station and base station are able to send and receive frames and that the FER on the channel being power controlled directly is close to the target FER.

g. Repeat steps a-f with the exception that FPC_MODE is set to '010'.

h. Repeat steps a-f with the exception that RPC_MODE is set to '01' and FPC_MODE is set to '011'.

i. Repeat steps a-f with the exception that RPC_MODE is set to '01' and FPC_MODE is set to '010'.

j. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to the default value, RPC_MODE is set to '01' and FPC_MODE is set to '010'.

k. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to the default value, RPC_MODE is set to '01' and FPC_MODE is set to '010'.

l. Repeat steps a-f with the exception that REV_FCH_BLANKING_DUTYCYCLE is set to the default value, RPC_MODE is set to default value of ‘00’ and FPC_MODE is set to ‘010’.

5.13.1.5 Minimum Standard

The mobile station shall comply with the requirement in step f for all cases.

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6 Registration

6.1 Power-Up Registration

6.1.1 Mobile Station Test

6.1.1.1 Definition

These tests verify the proper power-up registration functionality.

The mobile station registers when it powers on, switches from using a different frequency block, switches from using a different band class, switches from using an alternative operating mode, or switches from using the analog system. To prevent multiple registrations when power is quickly turned on and off, the mobile station delays T57m seconds before registering, after entering the Mobile Station Idle State.

6.1.1.2 Traceability (See [4]):

2.6.5.1.1: Power-Up Registration
2.6.5.5.1.3: Entering the Mobile Station Idle State
2.6.5.5.2.1: Idle Registration Procedures
2.7.1.3.2.1: Registration Message
3.6.5: Registration
3.7.2.3.2.1: System Parameters Message
3.7.2.3.2.30 ANSI-41 System Parameters Message

6.1.1.2.1 Call Flow Example(s)

None

6.1.1.3 Method of Measurement

6.1.1.3.1 Power-up Registration Disabled

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Instruct the base station to set POWER_UP_REG = 0 in the *System Parameters Message.*

c. Power on the mobile station.

d. Verify that the mobile station does not attempt power-up registration for at least 1 minute after the mobile station enters the Mobile Station Idle State.

e. If the mobile station supports the F-BCCH, repeat steps a through d substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.1.1.3.2 Power-up Registration Enabled

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Instruct the base station to set POWER_UP_REG = 1 in the *System Parameters Message*.

c. Power on the mobile station.

d. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0001’.

e. If the mobile station supports the F-BCCH, repeat steps a through d substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.1.1.3.3 Power-up Registration entering from a different operating mode

a. Connect the base station and mobile station as shown in Annex A Figure 2. (Base station 1 is a CDMA base station and base station 2 is a non-CDMA base station.

b. Allow the mobile station to operate in the idle state on base station 2.

c. Instruct base station 1 to set POWER_UP_REG = 1 in the *System Parameters Message*.

d. Force the mobile station to acquire base station 1.

e. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0001’.

f. If the mobile station supports the F-BCCH, repeat steps a through e substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.1.1.3.4 Power-up Registration entering into different Band Class

a. Connect the base station and mobile station as shown in Annex A Figure 2. (Base station 1 and base station 2 are CDMA base stations using different band classes)

b. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the *System Parameters Message*.

c. Power on the mobile station.

d. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0001’.

e. Force the mobile station to acquire base station 2.

f. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0001’.

g. Force the mobile station to acquire base station 1.

h. Verify that the mobile station performs power-up registration on base station 1.

i. If the mobile supports the F-BCCH, repeat steps a through i substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.1.1.3.5 Power-up Registration entering into different Frequency Blocks

a. Connect the base station and mobile station as shown in Annex A Figure 2. (Base station 1 and base station 2 are CDMA base stations using frequencies from different blocks in the same Band Class.) Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the *System Parameters Message* while ensuring all other forms of registration are disabled.

b. Power on the mobile station.

c. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0001’.

d. Force the mobile station to acquire base station 2.

e. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0001’.

f. Repeat steps a through f assigning base station 1 and base station 2 to CDMA channels in different frequency blocks of the same band class.

g. If the mobile station supports the F-BCCH, repeat steps a through g substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.1.1.4 Minimum Standard

6.1.1.4.1 Power-up Registration Disabled

The mobile station shall comply with step d.

6.1.1.4.2 Power-up Registration Enabled

The mobile station shall comply with step d.

6.1.1.4.3 Power-up Registration entering from a different operating mode

The mobile station shall comply with step e.

6.1.1.4.4 Power-up Registration entering into different Band Class

The mobile station shall comply with steps d, f and h.

6.1.1.4.5 Power-up Registration entering into different Frequency Blocks

The mobile station shall comply with steps d and f.

6.1.2 Base Station Test

None

6.2 Power - Down Registration

6.2.1 Mobile Station Test

6.2.1.1 Definition

These tests verify power-down registration functionality.

This test verifies the mobile station performs Power-Down Registration only if it has previously registered in the current serving system, identified by its SID and NID.

6.2.1.2 Traceability (See [4]):

2.6.5.1.1: Power-Up Registration
2.6.5.1.2: Power-Down Registration
2.6.5.5.2.1: Idle Registration Procedures
2.7.1.3.2.1: Registration Message
3.6.5: Registration
3.7.2.3.2.1: System Parameters Message
3.7.2.3.2.30 ANSI – 41 System Parameters Message

6.2.1.3 Call Flow Diagram

None

6.2.1.4 Method of Measurement

6.2.1.4.1 Power-down Registration Disabled

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Enable power-up registration (by setting POWER_UP_REG = 1 in the *System Parameters Message* ensure all other forms of registration are disabled.

c. Power on the mobile station.

d. Verify that the mobile station performs a power-up registration.

e. Power down the mobile station.

f. Verify that power-down registration does not occur.

g. If the mobile station supports the F-BCCH, repeat steps a through f substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.2.1.4.2 Power-down Registration of a Currently Registered Mobile Station

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Enable power-up registration and power-down registration by setting POWER_UP_REG = 1 and POWER_DOWN_REG = 1 in the *System Parameters Message*. Ensure all other forms of registration are disabled.

c. Power on the mobile station.

d. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0011’.

e. Power down the mobile station.

f. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0011’.

g. If the mobile supports the F-BCCH, repeat steps a through f substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.2.1.4.3 Power-down Registration of an Unregistered Mobile Station.

a. Connect the base station and mobile station as shown in Annex A Figure 2. (Base station 1 and base station 2 are CDMA base stations using a different SID/NID).

b. Instruct both base station 1 and base station 2 to set POWER_ UP_REG = 1 and POWER_DOWN_REG = 1 in the *System Parameters*. Ensure all other forms of registration are disabled.

c. Power on the mobile station.

d. Verify that power-up registration on base station 1.

e. Force the mobile station to acquire base station 2 and verify that the mobile station does not register on Base Station 2.

f. Power down the mobile station.

g. Verify that power-down registration does not occur on base station 2.

h. If the mobile station supports the F-BCCH, repeat steps a through g substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.2.1.5 Minimum Standard

6.2.1.5.1 Power-down Registration Disabled.

The mobile station shall comply with steps d and f.

6.2.1.5.2 Power-down Registration of a Currently Registered Mobile Station.

The mobile station shall comply with steps d and f.

6.2.1.5.3 Power-down Registration of an Unregistered Mobile Station in a New System/Network.

The mobile station shall comply with steps d, e and g.

6.2.2 Base Station

None

6.3 Distance-Based Registration

6.3.1 Mobile Station Test

6.3.1.1 Definition

These tests verify proper distance-based registration functionality. The mobile station registers when the distance between the current base station and the base station in which it last registered exceeds a threshold.

6.3.1.2 Traceability (See [4]):

2.6.5.1.1 Power-Up Registration
2.6.5.1.4: Distance-Based Registration

3.6.5 Registration
3.7.2.3.2.1: System Parameters Message
3.7.2.3.2.30 ANSI – 41 System Parameters Message
3.7.2.3.2.31 MC-RR Parameters Message to Traceability

6.3.1.3 Call Flow Diagram

None

6.3.1.4 Method of measurement

6.3.1.4.1 Distance-Based Registration Disabled

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Configure base station 1 and base station 2 with REG_DIST, BASE_LAT, and BASE_LONG parameters indicated in Test Case 1 in Table 6.3.1.4.1-1.

c. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the *System Parameters Message*.

d. Power on the mobile station on base station 1.

e. Verify that power-up registration occurs.

f. Force the mobile station to perform an idle handoff to base station 2 by reducing base station 2 forward link attenuation, then increasing base station 1 forward link attenuation.

g. Verify that the mobile station does not perform distance-based registration.

h. If the mobile station supports the F-BCCH, repeat steps a through g substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

Table 6.3.1.4.1-1 BTS Distance based LAT/LONG *System Parameters Message* or the ANSI – 41 *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

6.3.1.4.2 Distance Threshold Not Exceeded

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Configure base station 1 and base station 2 with REG_DIST, BASE_LAT, and BASE_LONG parameters indicated in Test Case 2 in Table 6.3.1.4.1-1.

c. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the System Parameters Message .

d. Power on the mobile station.

e. Verify that power-up registration occurs.

f. Force the mobile station to perform an idle handoff to base station 2 by reducing base station 2 forward link attenuation, then increasing base station 1 forward link attenuation.

g. Verify that the mobile station does not perform distance-based registration.

h. If the mobile station supports the F-BCCH, repeat steps a through g substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.3.1.4.3 Distance Threshold Exceeded

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Configure base station 1 and base station 2 with REG_DIST, BASE_LAT, and BASE_LONG parameters indicated in Test Case 3 in Table 6.3.1.4.1-1.

c. Instruct both base station 1 and base station 2 to set POWER_UP_REG = 1 in the *System Parameters Message*.

d. Power on the mobile station.

e. Verify that power-up registration occurs.

f. Force mobile station to perform an idle handoff to base station 2 by reducing base station 2 forward link attenuation, then increasing base station 1 forward link attenuation.

g. Verify the mobile station sends a *Registration Message* with REG_TYPE ='0110'.

h. If the mobile station supports the F-BCCH, repeat steps a through g substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.3.1.5 Minimum Standard

6.3.1.5.1 Distance-based Registration Disabled

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

6.3.1.5.2 Distance Threshold Not Exceeded

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

6.3.1.5.3 Distance Threshold Exceeded

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

6.3.2 Base Station Test

None

6.4 Timer-Based Registration

6.4.1 Mobile Station Test

6.4.1.1 Definition

These tests verify proper timer - based registration functionality.
The mobile station registers when a timer expires.
Timer-based registration is performed when the counter reaches a maximum value (REG_COUNT_MAX) that is controlled by the base station via the REG_PRD field of the *System Parameters Message* or *ANSI-41 System Parameters Message*. The counter is reset when the mobile station powers on and when the mobile station switches from different band classes, different serving systems, different frequency blocks, and alternate operating modes. The counter is also reset after each successful registration.

6.4.1.2 Traceability (See [4]):

2.6.5.1.2: Power-Down Registration
2.6.5.1.3: Timer-Based Registration
2.7.1.3.2.1: Registration Message
3.6.5: Registration
3.7.2.3.2.1: System Parameters Message
3.7.2.3.2.30 ANSI – 41 System Parameters Message

6.4.1.3 Call Flow Diagram

None

6.4.1.4 Method of Measurement

6.4.1.4.1 Timer-based Registration Disabled

a. Connect the base station and mobile station as shown in Annex A Figure 1.
b. Instruct the base station to set POWER_UP_REG =1 and set REG_PRD = 0 in the *System Parameters Message*.
c. Power on the mobile station.
d. Verify that power-up registration occurs.
e. Verify that the mobile station does not perform timer-based registration.
f. If the mobile station supports the F-BCCH, repeat steps a through e substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.4.1.4.2 Lowest Timer Value

a. Connect the base station and mobile station as shown in Annex A Figure 1.
b. Instruct the base station to set POWER_UP_REG = 0 and set REG_PRD = 29 (12.16 seconds) in the *System Parameters Message*.
c. Power on the mobile station.

d. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0000’ at approximately 12 second intervals.

e. If the mobile station supports the F-BCCH, repeat steps a through e substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.4.1.4.3 Mid-range Timer Value

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Instruct the base station to set POWER_UP_REG =0 and set REG_PRD = 38 (57.93 seconds) in the *System Parameters Message*.

c. Power on the mobile station.

d. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0000’ at approximately 58 second intervals.

e. If the mobile station supports the F-BCCH, repeat steps a through d substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.4.1.4.4 Timer-Based Registration on Different Band Classes

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Set the values from table 6.4.1.4.4 -1 for BS 1 and BS 2 in the *System Parameters Message*. Ensure all other forms of registration are disabled.

c. Power on the mobile station.

d. Verify that timer-based registration occurs on BS 1 at approximately 12 second intervals.

e. Force the mobile station to acquire base station 2.

f. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0000’ at approximately 58 second intervals.

g. If the mobile station supports the F-BCCH, repeat steps a through f substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

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

6.4.1.4.5 Timer-Based Registration on Different Frequency Blocks

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Set the values from table 6.4.1.4.5 -1 for BS 1 and BS 2in the *System Parameters Message.* Ensure all other forms of registration are disabled.

c. Power on the mobile station.

d. Verify that timer-based registration occurs on BS 1 at approximately 12 second intervals.

e. Force the mobile station to acquire Base station 2.

f. Verify the mobile station sends a *Registration Message* with REG_TYPE = ‘0000’ at approximately 58 second intervals.

g. If the mobile station supports the F-BCCH, repeat steps a through g substituting *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

6.4.1.5 Minimum Standard

6.4.1.5.1 Timer-based Registration Disabled

The mobile station shall comply with steps d and e.

6.4.1.5.2 Lowest Timer Value

The mobile station shall comply with step d.

6.4.1.5.3 Mid-Range Timer Value

The mobile station shall comply with step d.

6.4.1.5.4 Timer-Based Registration on Different Band Classes

The mobile station shall comply with steps d and f.

6.4.1.5.5 Timer-Based Registration on Different Frequency Blocks

The mobile station shall comply with steps d and f.

6.4.2 Base Station Test

None

6.5 Parameter-Change Registration

6.5.1 Mobile Station Test

6.5.1.1 Definition

These tests verify proper parameter-change registration functionality. Parameter-change registration is performed when a mobile station modifies any of the following stored parameters or system changes:

- The preferred slot cycle index (SLOT_CYCLE_INDEX)
- The station class mark (SCM)
- The call termination enabled indicators (MOB_TERM_HOME, MOB_TERM_FOR_SID, and MOB_TERM_FOR_NID)
- The mobile station's SID_NID_LIST does not match the base station's SID and NID.

6.5.1.2 Traceability (See [4]):

2.6.5.1.6: Parameter-Change Registration
3.6.5: Registration
3.7.2.3.2.1: System Parameters Message
3.7.2.3.2.30 ANSI – 41 System Parameters Message

6.5.1.3 Call flow

None

6.5.1.4 Method of Measurement

6.5.1.4.1 Parameter-Change Registration Disabled

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Instruct the base station to set POWER_UP_REG=1 and POWER_ DOWN_REG = 1. Ensure all other forms of registration are disabled (set equal to 0) in the in the *System Parameters Message*.

c. Power on the mobile station and allow the mobile station to acquire the network.

d. After approximately thirty seconds power down the mobile station.

e. Verify that the mobile station performs a power up and a power down registration.

f. Instruct the base station to disable power up registration by setting POWER_UP_REG=0.

g. Change the SLOT_CYCLE_INDEX in the mobile station.

h. Power up the mobile station and verify that parameter-change registration does not occur.

i. If the mobile station supports the F-BCCH, repeat steps a through h substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.5.1.4.2 Parameter-Change Registration Per SLOT_CYCLE_INDEX

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Instruct the base station to set PARAMETER_REG = 1. Ensure all other forms of registration are disabled (set equal to 0) in the in the *System Parameters Message*.

c. Power on the mobile station and allow time for the mobile station to acquire the network.

d. Change the SLOT_CYCLE_INDEX in the mobile station (if mobile station supported).

e. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0100'.

f. If the mobile station supports the F-BCCH, repeat steps a through e substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.5.1.4.3 Parameter-Change Registration Per SCM (if supported)

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Instruct the base station to set PARAMETER_REG = 1. Ensure all other forms of registration are disabled (set equal to 0) in the in the *System Parameters Message*.

c. Power on the mobile station and allow time for the mobile station to acquire the network.

d. Change the value of the SCM (if mobile station supported).

e. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0100'.

f. If the mobile station supports the F-BCCH, repeat steps a through e substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.5.1.4.4 Parameter-Change Registration Per MOB_TERM

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Instruct the base station to set PARAMETER_REG = 1. Ensure all other forms of registration are disabled (set equal to 0) in the in the *System Parameters Message*.

c. Enable MOB_TERM_HOMEp, MOB_TERM_FOR_SID and MOB_TERM NID in the mobile station.

d. Power on the mobile station and allow the mobile station to acquire the network.

e. Set MOB_TERM_HOME = 0 in the mobile station (if mobile station supported).

f. Verify that the parameter-change registration occurs.

g. Set MOB_TERM_FOR_SID = 0 in the mobile station (if mobile station supported).

h. Verify that the parameter-change registration occurs.

i. Set MOB_TERM_FOR_NID = 0 in the mobile station (if mobile station supported).

j. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0100'.

k. If the mobile station supports the F-BCCH, repeat steps a through j substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.5.1.4.5 Parameter-Based Registration per SID-NID List change

a. Connect the base station and mobile station as shown in Annex A Figure 2. (Base station 1 and base station 2 are CDMA base stations using different SID configurations).

b. Instruct both base stations to set POWER_UP_REG=1 and PARAMETER_REG = 1. Ensure all other forms of registration are disabled (set equal to 0) in the in the *System Parameters Message.*

c. Power on the mobile station and verify that the mobile station acquires base station 1.

d. Verify that power up registration occurs on BS 1.

e. Force the mobile station to acquire BS 2.

f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0100'.

g. Repeat steps a through f changing the NID instead if the SID.

h. If the mobile station supports the F-BCCH, repeat steps a through g substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.5.1.5 Minimum Standard

6.5.1.5.1 Parameter-Change Registration Disabled

The mobile shall comply with steps e and h.

6.5.1.5.2 Parameter-Change Registration Per SLOT_CYCLE_INDEX

The mobile station shall comply with step e.

6.5.1.5.3 Parameter-Change Registration Per SCM (if supported)

The mobile station shall comply with step e.

6.5.1.5.4 Parameter-Change Registration Per MOB_TERM

The mobile station shall comply with steps f, h and j.

6.5.1.5.5 Parameter-Based Registration per SID-NID List change

The mobile station shall comply with steps c, d and f.

6.5.2 Base Station Test

None

6.6 Zone-Based Registration

6.6.1 Mobile Station Test

6.6.1.1 Definition

These tests verify proper Zone-based registration functionality. The mobile station registers when it enters a new zone that is not on its internally stored list of visited registration zones. The mobile station does not register when it performs an idle handoff into a zone that is on its internally stored list of visited zones. The mobile station should properly delete entries from its internally stored list of visited registration zones.

6.6.1.2 Traceability (See [4]):

2.6.5.1.1 Power-Up Registration
2.6.5.1.5: Zone-Based Registration
3.6.5: Registration
3.7.2.3.2.1: System Parameters Message
3.7.2.3.2.30 ANSI –41 System Parameters Message

6.6.1.3 Call Flow Diagram

None

6.6.1.4 Method of Measurement

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	

6.6.1.4.1 Zone-Based Registration Disabled

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Configure the *System Parameters Message* on base stations 1 and 2 with the REG_ZONE settings from table 6.6.1.4-1 test case 1.

c. Enable power-up registration (set POWER_UP_REG = 1 in the *System Parameters Message*).

d. Allow for the mobile station to perform a power up registration on base station 1.

e. Force the mobile station to perform an idle handoff to base station 2 by reducing the base station 2 forward link attenuation, while at the same time increasing the base station 1 forward link attenuation.

f. Verify that zone-based registration does not occur.

g. If the mobile station supports the F-BCCH, repeat steps a through f substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.6.1.4.2 Zone-Based Registration Enabled

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Configure the *System Parameters Message* on base stations 1 and 2 with the settings from table 6.6.1.4-1 test case 2.

c. Enable power-up registration (set POWER_UP_REG = 1 in the *System Parameters Message*).

d. Power on the mobile station and allow it to perform a power up registration on base station 1. (The mobile station should now be registered in zone 1 and the only entry in the mobile station's ZONE_LIST).

e. Force the mobile station to perform an idle handoff to base station 2 by reducing the base station 2 forward link attenuation, while at the same time increasing the base station 1 forward link attenuation.

f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0010'.(The mobile station should now be registered in zone 2. Zone 1 and Zone 2 should be in the mobile station's ZONE_LIST).

g. Before the period of time specified by ZONE_TIMER has elapsed (one minute) and the mobile station deletes zone 1 from it's ZONE_LIST, force the mobile station to perform an idle handoff back to base station 1.

h. Verify that zone-based registration does not occur. (Zone 1 is still in the mobile station's ZONE_LIST).

i. If the mobile station supports the F-BCCH, repeat steps a through h substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.6.1.4.3 Zone-Based Registration Timer

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Configure the *System Parameters Message* on base stations 1 and 2 with the settings from table 6.6.1.4-1 test case 3.

c. Enable power-up registration (set POWER_UP_REG = 1 in the *System Parameters Message*).

d. Power on the mobile station and allow it to perform a power up registration on base station 1. (The mobile station should now be registered in zone 1 and the only entry in the mobile station's ZONE_LIST).

e. Force the mobile station to perform an idle handoff to base station 2 by reducing the base station 2 forward link attenuation, while at the same time increasing the base station 1 forward link attenuation.

f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0010'.(The mobile station should now be registered in zone 2. Zone 1 and Zone 2 should be in the mobile station's ZONE_LIST).

g. Wait for the period of time specified by ZONE_TIMER to elapse (one minute, after which the mobile station should delete zone 1 from ZONE_LISTs).

h. Force the mobile station to perform an idle handoff to base station #1.

i. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0010'.

j. If the mobile station supports the F-BCCH, repeat steps a through i substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.6.1.4.4 Mobile Station ZONE_LIST Deletion

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Configure the *System Parameters Message* on base stations 1 and 2 with the settings from table 6.6.1.4-1 test case 4.

c. Enable power-up registration (set POWER_UP_REG = 1 in the Systems Parameters Message).

d. Power on the mobile station and allow it to perform a power up registration on base station 1. (The mobile station should now be registered in zone 1 and the only entry in the mobile station's ZONE_LIST).

e. Force the mobile station to perform an idle handoff to base station 2 by reducing the base station 2 forward link attenuation, while at the same time increasing the base station 1 forward link attenuation.

f. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0010'.(The mobile station is now registered in zone 2, and only zone 2 should be in mobile station's ZONE_LIST because the mobile station was forced to delete zone 1 from ZONE_LISTs to make room for zone 2).

g. Force the mobile station to perform an idle handoff back to base station 1.

h. Verify the mobile station sends a *Registration Message* with REG_TYPE = '0010'.

i. If the mobile station supports the F-BCCH, repeat steps a through h substituting *ANSI – 41 System Parameters Message* for *System Parameters Message*.

6.6.1.5 Minimum Standard

6.6.1.5.1 Zone-Based Registration Disabled

The mobile station shall comply with step f.

6.6.1.5.2 Zone-Based Registration Enabled

The mobile station shall comply with steps f and h.

6.6.1.5.3 Zone-Based Registration Timer

The mobile station shall comply with steps f and i.

6.6.1.5.4 Mobile Station ZONE_LIST Deletion

The mobile station shall comply with steps f and h.

6.6.2 Base Station Test

None

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7 Authentication

7.1 Shared Secret Data (SSD) Initialized when A-Key is Changed

7.1.1 Mobile Station Test:

7.1.1.1 Definition

This test verifies that when the A-Key is changed at both the base station and mobile station, authentication of mobile station registrations, originations, and terminations and the Unique Challenge-Response Procedure are successful.

7.1.1.2 Traceability (See [4]):

2.3.12.1: *(MS) Authentication*
2.6.5.1.3: *Timer-Based Registration*
3.3.1: *(BS) Authentication*

7.1.1.3 Call Flow Diagram

None

7.1.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Power on the mobile station.

c. Initialize the A-Key to the same value in the mobile station and base station.

d. Ensure timer-based registration is enabled with the registration period (REG_PRD) set to 29.

e. Verify that the mobile station sends a *Registration Message* with REG_TYPE set to ‘0000’ (i.e. timer-based registration) and which includes AUTHR, RANDC and COUNT.

f. Verify that the registration authentication is successful at the base station.

g. Set up a mobile station originated call.

h. Verify user data in both directions.

i. End the call.

j. Set up a mobile station terminated call.

k. Verify that correct user data is received in both directions.

l. Configure the base station to initiate a Unique Challenge-Response Procedure while on the f/r-dsch.

m. Verify that upon receiving an Authentication Challenge Message, the mobile station sends an Authentication Challenge Response Message and the Unique Challenge-Response Procedure is successful.

n. End the call.

o. Configure the base station to initiate a Unique Challenge-Response Procedure while on the f/r-csch.

p. Verify that upon receiving an Authentication Challenge Message, the mobile station sends an Authentication Challenge Response Message and the Unique Challenge-Response Procedure is successful.

7.1.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: e, m and p.

7.1.2 Base Station Test:

None

7.2 Shared Secret Data Update

7.2.1 Mobile Station Test:

7.2.1.1 Definition

This test verifies the mobile station and base station can perform a Shared Secret Data update on the f/r-csch and f/r-dsch.

7.2.1.2 Traceability (See [4]):

2.3.12.1.4: *Unique Challenge-Response Procedure*
2.3.12.1.5: *Updating the Shared Secret Data (SSD)*
2.6.5.1.3: *Timer-Based Registration*
2.7.1.3.2.6: *Authentication Challenge Response Message*
3.7.2.3.2.1: *System Parameters Message (f-csch)*
3.7.2.3.2.10: *Authentication Challenge Message (f-csch)*

7.2.1.3 Call Flow Diagram

None

7.2.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Power on the mobile station.

c. Initialize the A-Key to the same value in both the mobile station and base station.

d. Configure the base station to initiate a Shared Secret Data update on the f/r-csch.

e. Verify the following:

1. Upon receiving a SSD Update Message, the mobile station sends a Base Station Challenge Order.
2. Upon receiving a Base Station Challenge Confirmation Order, the mobile station sends a SSD Update Confirmation Order.
3. That the SSD Update Procedure is successful.

f. Ensure timer-based registration is enabled with the registration period (REG_PRD) set to 29.

g. Wait for the mobile station to send the *Registration Message* with REG_TYPE set to '0000' (i.e. timer-based registration).

h. Verify that the *Registration Message* includes AUTHR, COUNT and RANDC.

i. Verify that registration authentication is successful at the base station.

j. Set up a mobile station originated call.

k. Verify that correct user data is received in both directions.

l. Configure the base station to initiate a Unique Challenge-Response Procedure on the f/r-dsch.

m. Verify that upon receiving an Authentication Challenge Message, the mobile station sends a Authentication Challenge Response Message and the Unique Challenge-Response Procedure is successful.

n. End the call.

o. Configure the base station to initiate a Unique Challenge-Response Procedure on the f/r-csch.

p. Verify that upon receiving an Authentication Challenge Message, the mobile station sends an Authentication Challenge Response Message and the Unique Challenge-Response Procedure is successful.

q. Repeat steps c through p but with the following exception: In step c, Set up a call and initiate a Shared Secret Data update on the f/r-dsch, and then end the call.

7.2.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: e, h, m, p, q.

7.2.2 Base Station Test:

None

7.3 Mismatched A-Keys

7.3.1 Mobile Station Test:

7.3.1.1 Definition

This test verifies that when there is an A_KEY mismatch, authentication of registrations, originations, terminations, and Unique Challenge-Response procedures will fail.

7.3.1.2 Traceability (See [4]):

2.3.12.1.4:	*Unique Challenge-Response Procedure*
2.3.12.1.5:	*Updating the Shared Secret Data (SSD)*
2.7.1.3.2.6:	*Authentication Challenge Response Message*
2.7.2.3.2.2:	*Authentication Challenge Response Message (r-dsch)*
3.7.2.3.2.10:	*Authentication Challenge Message (f-csch)*
3.7.2.3.2.11:	*SSD Update Message (f-csch)*
3.7.3.3.2.2:	*Authentication Challenge Message (f-dsch)*
3.7.3.3.2.13:	*SSD Update Message (f-dsch)*

7.3.1.3 Call Flow Diagram

None

7.3.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Power on the mobile station.

c. Initialize the A-Key to the same value in the mobile station and base station.

d. Configure the base station to initiate a Shared Secret Data update on the f/r-csch.

e. Set up a mobile station originated call.

f. Verify that correct user data is received in both directions.

g. End the call.

h. Change the A-Key in the mobile station.

i. Ensure timer-based registration is enabled with the registration period (REG_PRD) set to 29.

j. Wait for the mobile station to send a *Registration Message* with REG_TYPE set to '0000' (i.e. timer-based registration).

k. Verify that the *Registration Message* includes AUTHR, COUNT and RANDC.

l. At the base station, verify that registration authentication fails due to an AUTHR mismatch.

m. Set up a mobile station originated call.

n. Verify that the call request was denied.

o. Set up a mobile station terminated call.

p. Verify that the call fails due to an AUTHR mismatch.

q. At the base station, initiate a Shared Secret Data Update Procedure on the f-csch.

r. Verify that the SSD Update Procedure fails with an AUTHBS mismatch.

s. Initiate at the base station a Unique Challenge-Response Procedure on the f-csch.

t. Verify that the Unique Challenge-Response Procedure fails with an AUTHU mismatch.

7.3.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: k, p, r, t.

7.3.2 Base Station Test:

None

7.4 Activating Voice Privacy on Call Set up

7.4.1 Mobile Station Test:

7.4.1.1 Definition

This test verifies that Voice Privacy can be activated at call setup by the mobile station subscriber.

7.4.1.2 Traceability (See [4]):

2.3.12.3: *(MS) Voice Privacy*
2.6.4.1.6: *(MS) Long Code Transition Request Processing*
2.7.1.3.2.4: *Origination Message*
2.7.1.3.2.5: *Page Response Message*
2.7.3: *(MS) Orders*
3.3.3: *(BS) Voice Privacy*
3.6.4.1.5: *(BS) Long Code Transition Request Processing*
3.6.4.3: *Traffic Channel Substate*
3.6.4.4: *Release Substate*
3.7.4: *(BS) Orders*

7.4.1.3 Call Flow Diagram

None

7.4.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Ensure authentication is enabled. The AUTH field of the *Access Parameters Message* is set to '01' .

c. Power on the mobile station.

d. Enable Voice Privacy in the mobile station and ensure the base station is configured to use voice privacy.

e. Set up a mobile station originated call and verify that in the *Origination Message* the Voice Privacy Mode Indicator (PM) is set to '1'.

f. Configure the base station to send a Long Code Transition Request Order (ORDQ='00000001') on the f-dsch.

g. Verify that the mobile station responds with a Long Code Transition Response Order (ORDQ='00000011')

h. If supported on the user interface, verify that the mobile station indicates to the user that Voice Privacy is active.

i. Verify that correct user data is received in both directions.

j. Set up a mobile station terminated call and verify that in the *Page Response Message* that the voice privacy indicator (PM) is set to '1' then repeat steps f through.i

k. Repeat step a to j by using *ANSI-41 RAND message* in step b.

7.4.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: e, g, h, k.

7.4.2 BS Conformance:

None

7.5 Activating Voice Privacy at the Mobile Station When a Call Is Active

7.5.1 Mobile Station Test:

7.5.1.1 Definition

This test verifies that Voice Privacy can be activated at the mobile station when a call is active.

7.5.1.2 Traceability (See [4]):

2.3.12.3: *(MS) Voice Privacy*
2.6.4.1.6: *Long Code Transition Request Processing*
2.7.1.3.2.4: *Origination Message*
2.7.1.3.2.5: *Page Response Message*
2.7.3: *(MS) Orders*
3.3.3: *(BS) Voice Privacy*
3.6.4.1.5: *(BS) Long Code Transition Request Processing*
3.6.4.3.1: *Traffic Channel Substate*
3.6.4.4: *Release Substate*
3.7.4: *(BS) Orders*

7.5.1.3 Call Flow Diagram

None

7.5.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Configure the base station to use Voice Privacy.

c. Ensure authentication is enabled. The AUTH field of the *Access Parameters Message* is set to ‘01’.

d. Power on the mobile station.

e. Set up a mobile station originated call.

f. Enable voice privacy at the mobile station. Verify that the mobile station sends a Long Code Transition Request Order with ORDQ set to ‘00000001’.

g. Upon receiving a Long Code Transition Request Order with ORDQ set to ‘00000001’, verify that the mobile station responds with a Long Code Transition Response Order (ORDQ='00000011').

h. If supported on the user interface, verify that the mobile station indicates Voice Privacy is active.

i. Verify that correct user data is received in both directions.

j. End the call.

k. Repeat step a to j by using *ANSI-41 RAND message* in step b

7.5.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: f, g, h.

7.5.2 BS Conformance:

None

7.6 Signaling Message Encryption on Forward Traffic Channel

7.6.1 Mobile Station Test:

7.6.1.1 Definition

This test verifies that Signaling Message Encryption on the f-dsch is performed correctly.

7.6.1.2 Traceability (See [4]):

2.3.12.2: *(MS) Signaling Message Encryption*
2.7.4.4: *(MS) Calling Party Number*
3.3.2: *(BS) Encryption*
3.7.2.3.2.8: *Channel Assignment Message (f-csch)*

3.7.3.3.2.3: *Alert With Information Message (f-dsch)*
3.7.5.3: *(BS) Calling Party Number*

7.6.1.3 Call Flow Diagram

None

7.6.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Activate the Calling Party Number (CPN) feature for the mobile station subscriber.

c. Ensure authentication is enabled. The AUTH field of the *Access Parameters Message* is set to ‘01’.

d. Power on the mobile station.

e. Enable Signaling Message Encryption on the base station.

f. Set up a mobile station terminated call.

g. Verify that the ENCRYPT_MODE field is set to '01' or ‘10’ in the transmitted *Channel Assignment Message* or *Extended Channel Assignment Message*.

h. Verify that the CPN information is displayed on the mobile station during the alerting state.

i. Verify that user correct data is received in both directions.

j. End the call.

k. Repeat step a to j by using *ANSI-41 RAND message* in step c.

7.6.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: h and i.

7.6.2 BS Conformance:

None

7.7 Signaling Message Encryption on Reverse Traffic Channel

7.7.1 MS Conformance:

7.7.1.1 Definition

This test verifies that Signaling Message Encryption on the r-dsch is performed correctly.

7.7.1.2 Traceability (See [4]):

2.3.12.2: *(MS) Signaling Message Encryption*
2.7.2.3.2.7: *Send Burst DTMF Message*
3.3.2: *(BS) Encryption*
3.7.2.3.2.8: *Channel Assignment Message (f-csch)*

7.7.1.3 Call Flow Diagram

None

7.7.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Ensure authentication is enabled. The AUTH field of the *Access Parameters Message* is set to '01' .

c. Power on the mobile station.

d. Configure the mobile station to send a *Send Burst DTMF Message*.

e. Enable Signaling Message Encryption on the base station.

f. Set up a mobile station call to a voice mail system or a paging system.

g. Verify that the ENCRYPT_MODE field is set to '01' or '10' in the transmitted *Channel Assignment Message* or *Extended Channel Assignment Message*.

h. Enter the appropriate pin code as burst DTMF tones.

i. Verify the following:

    1. Required fields in the appropriate messages are encrypted and can be correctly decrypted. For example, certain fields of the Burst DTMF Message will be encrypted; but verification can be done on other messages as well.

    2. The ENCRYPTION field in these messages is set to the same value as the ENCRYPT_MODE field received in the *Channel Assignment Message* or *Extended Channel Assignment Message*.

j. Verify that either the voice mail system recognizes the DTMF tones and plays the message back, or that the paging system accepts the pin and sends out the page.

k. End the call.

l. Repeat step a to k by using *ANSI-41 RAND message* in step b.

7.7.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following step: i.

7.7.2 BS Conformance:

None

7.8 Hard Handoff between Base Stations with Signaling Message Encryption Active.

7.8.1 Mobile Station Test:

None

7.8.2 BS Conformance:

7.8.2.1 Definition

This test verifies that when Signaling Message Encryption is used, the new base station activates encryption upon handoff.

7.8.2.2 Traceability (See [4]):

2.3.12.2: *(MS) Signaling Message Encryption*
2.6.6.2.8: *CDMA-to-CDMA Hard Handoff*
2.7.4.4: *(MS) Calling Party Number.*
3.3.2: *(BS) Encryption*
3.6.6.2.2.2: *Extended Handoff Direction Message (call processing).*
3.6.6.2.2.10: *General Handoff Direction Message (call processing).*
3.6.6.2.2.11: *Universal Handoff Direction Message (call processing).*
3.7.2.3.2.8: *Channel Assignment Message (f-csch)*
3.7.3.3.2.14: *Flash With Information Message (f-dsch).*
3.7.3.3.2.17: *Extended Handoff Direction Message (f-dsch).*
3.7.3.3.2.31: *General Handoff Direction Message (f-dsch).*
3.7.3.3.2.36: *Universal Handoff Direction Message (f-dsch).*
3.7.5.3: *(BS) Calling Party Number.*

7.8.2.3 Call Flow Diagram

None

7.8.2.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Activate Call Waiting and Caller ID on base station 2.

c. Ensure authentication is enabled. The AUTH field of the *Access Parameters Message* is set to ‘01’ or the ANSI-41 RAND Message is being transmitted.

d. Power on the mobile station.

e. Enable Signaling Message Encryption on both base stations.

f. Set up a mobile station originated call.

g. Verify that ENCRYPT_MODE field is set to '01' or ‘10’ in the transmitted *Channel Assignment Message* or *Extended Channel Assignment Message*.

h. Verify user data in both directions.

i. Trigger a hard handoff from base station 1 to base station 2.

j. Verify that ENCRYPT_MODE field is set to '01' or '10' in the transmitted *Extended Handoff Direction Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message*.

k. Set up another call to the mobile station and listen for the Call Waiting tone.

l. Verify that base station 2 sends a *Flash With Information Message* with ENCRYPTION='01'.

m. Verify that correct user data is received in both directions.

n. End the call.

7.8.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: g, j, l.

7.9 Authentication Upon Originations

7.9.1 Mobile Station Test:

7.9.1.1 Definition

This test verifies the mobile station can successfully Authenticate upon origination.

7.9.1.2 Traceability (See [4]):

2.3.12.1.5: *Updating the Shared Secret Data (SSD)*
2.7.1.3.2.6: *Authentication Challenge Response Message*
2.7.2.3.2.2: *Authentication Challenge Response Message (r-dsch)*
3.7.2.3.2.10: *Authentication Challenge Message (f-csch)*
3.7.2.3.2.11: *SSD Update Message (f-csch)*
3.7.3.3.2.2: *Authentication Challenge Message (f-dsch)*
3.7.3.3.2.13: *SSD Update Message (f-dsch)*

7.9.1.3 Call Flow Diagram

None

7.9.1.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 1.

b. Power on the mobile station.

c. Initialize the A-Key to the same value in both the mobile station and base station.

d. Configure the base station to initiate a Shared Secret Data update on the f/r-csch.

e. Verify that the SSD Update Procedure is successful.

f. Set up a mobile station originated call (seven digits).

g. Verify that correct user data is received in both directions and that authentication is successful.

h. End the call.

i. Set up a mobile station originated call (three digits such as *73).

j. Verify that correct user data is received in both directions and that authentication is successful.

k. End the call.

l. Set up a mobile station originated call (four digits such as *123).

m. Verify that correct user data is received in both directions and that authentication is successful.

n. End the call.

7.9.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: e, g, j, m.

7.9.2 BS Conformance:

None

7.10 Hard Handoff from CDMA to Analog with Signaling Message Encryption Active

7.10.1 Mobile Station Test:

None

7.10.2 Base Station Test:

7.10.2.1 Definition

This test verifies that when Signaling Message Encryption is used, the new base station activates Analog Signaling Message Encryption upon handoff.

7.10.2.2 Traceability (See [4]):

2.3.12.2: *(MS) Signaling Message Encryption*
2.6.6.2.9: *CDMA-Analog HO*
2.7.4.4: *(MS) Calling Party Number.*
3.3.2: *(BS) Encryption*
3.6.4.3: *Traffic Channel Substate*
3.7.2.3.2.8: *Channel Assignment Message (f-csch)*
3.7.3.3.2.3: *Alert with Information Message (f-dsch)*
3.7.3.3.2.6: *Analog Handoff Direction Message*
3.7.5.3: *(BS) Calling Party Number.*

7.10.2.3 Call Flow Diagram

None

7.10.2.4 Method of Measurement

a. Connect the base station and mobile station as shown in Annex A Figure 2.

b. Activate Call Waiting and Caller ID on base station 2.

c. Ensure authentication is enabled. The AUTH field of the *Access Parameters Message* is set to ‘01’ or the ANSI-41 RAND Message is being transmitted.

d. Power on the mobile station.

e. Enable Signaling Message Encryption on both base stations.

f. Set up a mobile station originated call.

g. Verify that the ENCRYPT_MODE field is set to '01' or ‘10’ in the transmitted *Channel Assignment Message* or *Extended Channel Assignment Message*.

h. Verify that correct user data is received in both directions.

i. Cause a CDMA to an analog hard handoff from base station 1 to base station 2.

j. Verify that ENCRYPT_MODE='01' and MEM=’1’ in the *Analog Handoff Direction Message*.

k. Set up another call to the mobile station and listen for the Call Waiting tone.

l. Verify that base station 2 sends an encrypted *Alert with Information Message* (AMPS).

m. Verify that correct user data is received in both directions.

n. End the call.

7.10.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: g, j, l.

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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.

f. End the call.

g. Repeat steps b and c with the mobile station operating in the *Mobile Station Idle State* on base station 1 with the following modifications to the *Global Service Redirection Message:*

Field	Value
EXCL_P_REV_MS	‘1’

h. Verify the following:

- If the MOB_P_REV is greater than or equal six, verify that the mobile station remains in the Mobile Station Idle State on the current system,
- If MOB_P_REV is less than six, verify the mobile station acquires the target system.

8.1.1.5 Minimum Standard

The mobile station shall comply with steps d and h.

8.1.2 Base Station Test

None

8.2 Global Service Redirection between CDMA and a Non-CDMA System

8.2.1 Mobile Station Test

8.2.1.1 Definition

This test verifies that when a mobile station receives a *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 would be an analog system defined in [21].

8.2.1.2 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*

8.2.1.3 Call Flow Example(s)

None

8.2.1.4 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 a *Global Service Redirection Message* from the current base station with the non-CDMA base station with the following parameters:

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’

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=’00000001’, 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	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

i. Repeat steps b and c with the following changes to the *Global Service Redirection Message:*

Field	Value
EXCL_P_REV_MS	‘1’

j. Verify that the mobile station ignores the *Global Service Redirection Message* and remains in the *Mobile Station Idle State* on the current system.

8.2.1.5 Minimum Standard

The mobile station shall comply with steps d, g, h, and i.

8.2.2 Base Station Test

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.

g. Verify that the mobile station does not acquire the system from which it was redirected.

h. Repeat steps b and c with the mobile station operating in the *Mobile Station Idle State* on base station 1 with the following modifications to the *Global Service Redirection Message:*

Field	Value
EXCL_P_REV_MS	‘1’

i. Verify that the mobile station ignores the *Global Service Redirection Message* and remains in the *Mobile Station Idle State* on the current system.

8.3.1.4 Minimum Standard

The mobile station shall comply with steps d, g, h, and i.

8.3.2 Base Station Test

None

8.4 Service Redirection between Band Classes

8.4.1 Mobile Station Test

8.4.1.1 Definition

This test verifies that a mobile station is capable of being redirected between band classes when the *Service Redirection Message* is sent on the f-csch or on the f-dsch prior to user traffic being transmitted. Both Network Directed System Selection (NDSS) and normal redirection are tested.

8.4.1.2 Traceability (See [4]):

2.6.1.1.2 *System Selection Using Current Redirection Criteria*
2.6.2.4 *Mobile Station Order and Message Processing Operation*
2.6.3.5 *Mobile Station Origination Attempt Substate*
3.6.2.3 *Mobile Station Directed Messages*
3.7.2.3.2.1 *System Parameters Message*
3.7.2.3.2.30 *ANSI-41 System Parameters Message*
3.7.2.3.2.16 *Service Redirection Message {f-csch}*
3.7.3.3.2.23 *Service Redirection Message {f-dsch}*

8.4.1.3 Call Flow Example(s)

None

8.4.1.4 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. Instruct the mobile station send an *Origination Message* to the base station.

d. Instruct the base station to send a *Service Redirection Message* with the following information to the mobile station on the f-csch or on the f-dsch prior to user traffic 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)

e. If the mobile station supports the target band class, verify that the mobile station acquires base station 2 and the call completes and user traffic is present; 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).

f. End the call.

g. Power off the mobile station.

h. Set POWER_UP_REG=’1’ in the *System Parameters Message* .

i. Power on the mobile station.

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:

k. If the mobile station supports the target 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).

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)

8.4.1.5 Minimum Standard

The mobile station shall comply with steps e and k.

8.4.2 Base Station Test

None

8.5 Service Redirection between CDMA and a Non-CDMA System

8.5.1 Mobile Station Test

8.5.1.1 Definition

This test verifies that a mobile station is capable of being redirected from a CDMA system to a non-CDMA system when the *Service Redirection Message* is sent on the f-csch or on the f-dsch prior to user traffic being transmitted. Both Network Directed System Selection (NDSS) and normal redirection are tested. An example of a non-CDMA system is an analog system defined in [21].

8.5.1.2 Traceability (See [4]):

2.6.1.1.2	*System Selection Using Current Redirection Criteria*
2.6.2.4	*Mobile Station Order and Message Processing Operation*
2.6.3.5	*Mobile Station Origination Attempt Substate*
3.6.2.3	*Mobile Station Directed Messages*
3.7.2.3.2.1	*System Parameters Message*
3.7.2.3.2.30	*ANSI-41 System Parameters Message*
3.7.2.3.2.16	*Service Redirection Message {f-csch}*
3.7.3.3.2.23	*Service Redirection Message {f-dsch}*

8.5.1.3 Call Flow Example(s)

None

8.5.1.4 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. Instruct the mobile station send an *Origination Message* to the base station.

d. Instruct the base station to send a *Service Redirection Message* with the following information to the mobile station on the f-csch or on the f-dsch prior to user traffic being transmitted.

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’

e. If the mobile station supports the target operating mode and band class, verify that the mobile station acquires base station 2 and the call completes and user traffic is present; 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).

f. End the call.

g. Power off the mobile station.

h. Set POWER_UP_REG=’1’ in the *System Parameters Message* .

i. Power on the mobile station.

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 changes to *Service Redirection Message*:

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.

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

8.5.1.5 Minimum Standard

The mobile station shall comply with steps e, k, and l.

8.5.2 Base Station Test

None

8.6 Service Redirection between Channels in the Same Band Class

8.6.1 Mobile Station Test

8.6.1.1 Definition

This test verifies that a mobile station is capable of being redirected between channels in the same band class when the *Service Redirection Message* is sent on the f-csch or on the f-dsch prior to user traffic being transmitted. Both Network Directed System Selection (NDSS) and normal redirection are tested.

8.6.1.2 Traceability (See [4]):

2.6.1.1.2	*System Selection Using Current Redirection Criteria*
2.6.2.4	*Mobile Station Order and Message Processing Operation*
2.6.3.5	*Mobile Station Origination Attempt Substate*
3.6.2.3	*Mobile Station Directed Messages*
3.7.2.3.2.1	*System Parameters Message*
3.7.2.3.2.30	*ANSI-41 System Parameters Message*
3.7.2.3.2.16	*Service Redirection Message {f-csch}*
3.7.3.3.2.23	*Service Redirection Message {f-dsch}*

8.6.1.3 Call Flow Example(s)

None

8.6.1.4 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 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. Instruct the mobile station send an *Origination Message* to the base station.

d. Instruct the base station to send a *Service Redirection Message* with the following information to the mobile station on the f-csch or on the f-dsch prior to user traffic 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)

e. Verify that the mobile station acquires base station 2.Verify that the call completes and user traffic is present.

f. End the call.

g. Power off the mobile station.

h. Set POWER_UP_REG=’1’ in the *System Parameters Message* .

i. Power on the mobile station.

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:

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)

k. Verify that the mobile station acquires base station 2.

8.6.1.5 Minimum Standard

The mobile station shall comply with steps e and k.

8.6.2 Base Station Test

None

8.7 Extended Global Service Redirection between Band Classes

8.7.1 Mobile Station Test

8.7.1.1 Definition

This test verifies that when a mobile station receives an *Extended Global Service Redirection Message* directing it to another band class, the mobile station acquires the appropriate system.

8.7.1.2 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*

8.7.1.3 Call Flow Example(s)

None

8.7.1.4 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 an *Extended Global Service Redirection Message* from the current base station with:

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)

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 attempt to acquire the system from which it was redirected.

h. Repeat steps c through g with the mobile station operating in the *Mobile Station Idle State* on base station 2.

i. Repeat steps b through g with the mobile station operating in the *Mobile Station Idle State* on base station 1 with the following modifications to the *Extended Global 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	>= $MOB\_P\_REV_p$

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

k. Verify that the mobile station remains idle on the current base station.

l. Repeat step c with following changes to the *Extended Global Service Redirection 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	>= $MOB\_P\_REV_p$

m. Verify that the mobile station remains idle on the current base station.

8.7.1.5 Minimum Standard

The mobile station shall comply with steps d, e, g, h, i, k and m.

8.7.2 Base Station Test

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’

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=’00000001’, 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

i. Repeat step c ensuring that the value $MOB\_P\_REV_p$ is outside the range specified by REDIRECT_P_MIN and REDIRECT_P_MAX along with the following changes to the *Extended Global Service Redirection Message*:

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

j. Verify that the mobile station remains idle on the current base station.

k. Repeat step c with following changes to the *Extended Global Service Redirection 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	$>= MOB\_P\_REV_p$

l. Verify that the mobile station remains idle on the current base station.

8.8.1.5 Minimum Standard

The mobile station shall comply with steps: d, e, g, h, j, and l.

8.8.2 Base Station Test

None

8.9 Extended Global Service Redirection between Channels in the Same Band Class

8.9.1 Mobile Station Test

8.9.1.1 Definition

This test verifies that when a mobile station receives an *Extended Global Service Redirection Message* directing it to another channel in the same band class, the mobile station acquires the appropriate system.

8.9.1.2 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

8.9.1.3 Call Flow Example(s)

None

8.9.1.4 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 an *Extended Global Service Redirection Message* from the current base station with:

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)

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 attempt to acquire the system from which it was redirected.

h. Repeat steps b through g with the mobile station operating in the *Mobile Station Idle State* on base station 1 with the following modifications to the *Extended Global 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	>= $MOB\_P\_REV_p$

i. Repeat step c ensuring that the value $MOB\_P\_REV_p$ is outside the range specified by REDIRECT_P_MIN and REDIRECT_P_MAX along with the following changes to the *Extended Global Service Redirection Message*:

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

j. Verify that the mobile station remains idle on the current base station.

k. Repeat step c with following changes to the *Extended Global Service Redirection 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	>= $MOB\_P\_REV_p$

l. Verify that the mobile station remains idle on the current base station.

8.9.1.5 Minimum Standard

The mobile station shall comply with steps: d, e, g, h, j, and l.

8.9.2 Base Station Test

None

8.10 FGOIM based System Reselection

8.10.1 Mobile Station Test

8.10.1.1 Definition

This test verifies that when a mobile station receives a Frequent General Overhead Information Message that contains the SID-NID pair or the MCC MNC information of the home system as pasrt of Other Networks Available record, the mobile station attempts to acquire the home system.

8.10.1.2 Traceability (See [4]):

2.6.2.2.25 *Frequent General Overhead Information Message*
3.7.2.3.2.42 *Frequent General Overhead Information Message*

8.10.1.3 Call Flow Example(s)

None

8.10.1.4 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 should be configured with a SID NID value such that it is not the preferred system (home system) for the mobile station. Base station 2 should be configured configured with SID NID pair such that is the preferred system (home system) for the mobile station. Attenuate the signal from base station 2 such that mobile station is unable to acquire the home system.

b. Ensure that the mobile station has acquired base station 1.

c. Terminate a call on the mobile station.

d. Instruct base station 1 to start sending *Frequent General Overhead Information Message* with with GOI_REC_TYPE of '00000010' and this record carries the MCC and MNC information for the home system (base station 2).

e. Increase the signal strength for base station 2.

f. End the call.

g. Verify that the mobile station acquires base station 2 (home system).

8.10.1.5 Minimum Standard

The mobile station should comply with steps g

8.10.2 Base Station Test

None

9 Subscriber Calling Features

9.1 Call Alerting

9.1.1 Mobile Station Test

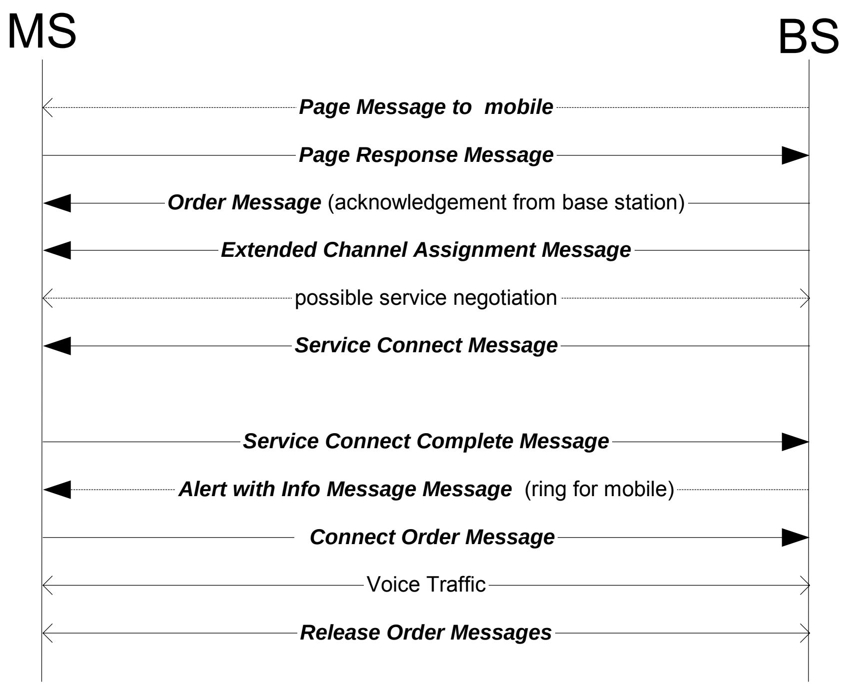
9.1.1.1 Definition

This is a test for standard mobile station incoming call alerting (ringing). An incoming call alert is played or displayed by the mobile station as a result of receiving an *Alert With Information Message* or *Extended Alert with Information Message* with a Signal info record.

9.1.1.2 Traceability (See [4]):

Table 3.7.5.5-1 Signal Type
Table 3.7.5.5-2 Alert Pitch
Table 3.7.5.5-3 Tone Signals (SIGNAL_TYPE = ‘00’)
Table 3.7.5.5-4 ISDN Alerting (SIGNAL_TYPE = ‘01’)
Table 3.7.5.5-5 IS-54B Alerting (SIGNAL_TYPE = ‘10’)
Table 3.7.5-1 Information Record Types (base station)

9.1.1.3 Call Flow



9.1.1.4 Method of Measurement

a. Allow the mobile station to come to the idle state on the base station, and make a mobile station terminated call.

b. Verify that the mobile station receives a *Alert with Information Message* with the 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)

c. Verify that the mobile station plays an incoming call alert, e. g. rings.

d. Answer the call, and verify that the call completes successfully, then end the call.

e. Repeat steps a through d except substitute *Extended Alert with Information Message* in step b.

9.1.1.5 Minimum Standard

The mobile station shall comply with the requirements in step c, d and e.

9.1.2 Base Station Test

None

9.2 Caller ID

9.2.1 Mobile Station Test

9.2.1.1 Definition

This test verifies that the mobile station's response to an *Alert with Information Message* or *Extended Alert with Informantion Message* with a Calling Party Number information record delivered on a dedicated channel during mobile station terminated call setup, and also *Flash with Information Message* or *Extended Flash with Information Message* for incoming Call Waiting. It checks for common values of NUMBER_TYPE, NUMBER_PLAN, PI, and SI.

9.2.1.2 Traceability (See [4]):

3.7.5.3 Calling Party Number
3.7.5.16 Extended Display, Calling Party Name = type '10001101'
3.7.5.21 Multiple Character Extended Display
3.7.5.22 Call Waiting Indicator
Table 3.7.5.16-2 Mandatory Control Tags and Display Text Tags
Table 2.7.1.3.2.4-2 Number Types
Table 2.7.1.3.2.4-3 Numbering Plan Identification
Table 2.7.4.4-1 Presentation Indicators
Table 3.7.5-1 Information Record Types (base station)

9.2.1.3 Call Flow Diagram

None

9.2.1.4 Method of Measurement

a. Allow the mobile station to come to the idle state on the base station, and initiate a mobile station terminated call.

b. During the course of normal call setup, cause the base station to send an *Alert with Information Message* or *Extended Alert with Information Message* containing the Calling Party Number info record with fields below.

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

c. Verify that the mobile station displays the correct Caller ID before the call is answered, then answer the call.

d. While the mobile station is in the voice call conversation state, cause the base station to send a *Flash with Information Message* or *Extended Flash with Information Record* 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

e. Verify that the mobile station displays the correct Caller ID.

f. End the call.

g. Repeat steps a through e except in steps b and d, substitute PI = ‘01’ (Presentation Restricted), in the Calling Party Number info record, and verify that the Caller ID is *not displayed* in steps c and e.

h. Repeat steps a through e except substitute PI = ‘10’ (Number not available), in the Calling Party Number info record, and verify that the Caller ID is not displayed in steps c and e.

i. Repeat steps a through e except substitute SI = ‘01’ (User-provided, verified and passed), in the Calling Party Number info record, and verify that the Caller ID is displayed correctly in steps c and e.

j. Repeat steps a through e except substitute SI = ‘11’ (Network-provided), in the Calling Party Number info record, and verify that the Caller ID is displayed correctly in steps c and e.

k. Repeat steps a through e except substitute NUMBER_TYPE = ‘001’ (International number), in the Calling Party Number info record, and verify that the Caller ID is displayed correctly in steps c and e.

l. Repeat steps a through e except substitute NUMBER_PLAN = ‘1001’ (Private numbering plan), in the Calling Party Number info record, and verify that the Caller ID is displayed correctly in steps c and e.

9.2.1.5 Minimum Standard

The mobile station shall comply with requirements in steps c, e, and g through l.

9.2.2 Base Station Test

None

9.3 Voice Mail Message Waiting Notification

9.3.1 Mobile Station Test

9.3.1.1 Definition

This test verifies mobile station response to Message Waiting info record delivered by the *Feature Notification Message* while the mobile station is in the idle state, or by the *Flash with Information Message* while in the traffic state.

9.3.1.2 Traceability (See [4]):

3.7.5.6 Message Waiting
3.7.2.3.2.12 Feature Notification Message

9.3.1.3 Call Flow Diagram

None

9.3.1.4 Method of Measurement

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

b. Cause the base station to send a *Feature Notification Message* with a Message Waiting info record as follows.

Information Record Type	‘00000110’
MSG_COUNT	a value from 0 to 31

c. Verify that the mobile station plays or displays a voice mail message notification alert.

d. Verify that any indication of number of messages on the mobile station reflects the MSG_COUNT in the *Feature Notification Message*.

e. Set up a voice call with the mobile station.

f. While in the call, cause the base station to send a *Flash With Information Message* 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

g. Verify that the mobile station plays or displays a message notification alert.

h. Verify that any indication of number of messages on the mobile station reflects the MSG_COUNT in the *Flash with Information Message*.

9.3.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps c, d, gand h.

9.3.2 Base Station Test

None

9.4 Global Emergency Call Support When Mobile Station is in Idle State

Applicability: This test is applicable only if the global emergency call feature is supported.

9.4.1 Mobile Station Test

9.4.1.1 Definition

This test verifies that the mobile station can originate a global emergency call during idle state.

9.4.1.2 Traceability (See [4]):

2.7.1.3.2.4 Origination Message

9.4.1.3 Call Flow Example(s)

None

9.4.1.4 Method of Measurement

a. Connect the base station to the mobile station as shown in Annex A Figure 1.

b. If the mobile station is capable of recognizing emergency number by analyzing the dialed digits, originate an emergency call from the mobile station by dialing an emergency number.

c. Verify that the GLOBAL_EMERGENCY_CALL field is set to '1' in the *Origination Message*.

d. End the call.

e. If the mobile station has a special interface to initiate an emergency call, originate an emergency call from the mobile station using this special interface.

f. Verify that the mobile station sets the GLOBAL_EMERGENCY_CALL field to '1' in the *Origination Message*.

g. End the call.

9.4.1.5 Minimum Standard

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

9.4.2 Base Station Test

9.4.2.1 Definition

This test verifies that the base station can recognize an emergency call and process it correctly.

9.4.2.2 Traceability (See [4]):

2.7.1.3.2.4 Origination Message

9.4.2.3 Call Flow Example(s)

None

9.4.2.4 Method of Measurement

a. Connect the base station to the mobile station as shown in Annex A Figure 1.

b. Instruct the mobile station to originate an emergency call by setting GLOBAL_EMERGENCY_CALL field to '1' with no dialed digits in the *Origination Message*.

c. Verify that the base station recognizes this is an emergency call.

d. End the call.

e. Instruct the mobile station to include the appropriate emergency number in the *Origination Message* with the GLOBAL_EMERGENCY_CALL field set to '0'.

f. Verify that the base station recognizes this is an emergency call.

g. End the call.

h. Instruct the mobile station to include the appropriate emergency number with the GLOBAL_EMERGENCY_CALL field set to '1' in the *Origination Message*.

i. Verify that the base station recognizes this is an emergency call.

j. End the call.

k. Instruct the mobile station to include some invalid emergency number with the GLOBAL_EMERGENCY_CALL field set to '1' in the *Origination Message*.

l. Verify that the base station recognizes this is an emergency call.

m. End the call.

9.4.2.5 Minimum Standard

The base station shall comply with the requirements in steps c, f, i and l.

9.5 Global Emergency Call Support When Mobile Station is in a voice call.

Applicability: This test is applicable only if global emergency call feature is supported.

9.5.1 Mobile Station Test

9.5.1.1 Definition

This test verifies that the mobile station can originate a global emergency call while another voice call is in progress.

9.5.1.2 Traceability (See [4]):

2.7.1.3.2.4 Origination Message
2.7.2.3.2.32 Enhanced Origination Message
2.7.2.3.2.3 Flash With Information Message
2.7.2.3.2.33 Extended Flash With Information Message

9.5.1.3 Call Flow Example(s)

None

9.5.1.4 Method of Measurement

a. Connect the base station to the mobile station as shown in Annex A Figure 1.

b. Originate a voice call from the mobile station. Verify audio in both directions.

c. If the mobile station is capable of recognizing an emergency number by analyzing the dialed digits, originate an emergency call from the mobile station by dialing an emergency number.

d. Verify that the mobile station sends a *Flash With Information Message* or *Extended Flash With Information Message* with the Global Emergency Call information record included.

e. End the calls.

f. Originate a voice call from the mobile station. Verify audio in both directions.

g. If mobile station has special interface to initiate an emergency call, originate an emergency call from the mobile station using this special interface.

h. Verify that the mobile station sends a *Flash With Information Message* or *Extended Flash With Information Message* with the Global Emergency Call information record included.

i. End the calls

9.5.1.5 Minimum Standard

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

9.5.2 Base Station Test

9.5.2.1 Definition

This test verifies that the base station recognizes the emergency call when the mobile station is in a voice call.

9.5.2.2 Traceability (See [4]):

2.7.1.3.2.4 Origination Message
2.7.2.3.2.32 Enhanced Origination Message
2.7.2.3.2.3 Flash With Information Message
2.7.2.3.2.33 Extended Flash With Information Message

9.5.2.3 Call Flow Example(s)

None

9.5.2.4 Method of Measurement

a. Connect the base station to the mobile station as shown in Annex A Figure 1.

b. Originate a voice call from the mobile station. Verify audio in both directions.

c. Instruct the mobile station to send a *Flash With Information Message* with global emergency call information record.

d. Verify that the base station recognizes this is an emergency call.

e. End the calls.

f. Repeat steps a through e, but with the following modifications – in step c, instruct the mobile station to send *Extended Flash With Information Message*.

9.5.2.5 Minimum Standard

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

9.6 Global Emergency Call Support When Mobile Station is in a data call.

Applicability: This test is applicable only if global emergency call feature and concurrent services are supported.

9.6.1 Mobile Station Test

9.6.1.1 Definition

This test verifies that the mobile station can originate a global emergency call when a packet data call (Ex. SO33) is in progress.

9.6.1.2 Traceability (See [4]):

2.7.1.3.2.4 Origination Message
2.7.2.3.2.32 Enhanced Origination Message
2.7.2.3.2.3 Flash With Information Message
2.7.2.3.2.33 Extended Flash With Information Message

9.6.1.3 Call Flow Example(s)

None

9.6.1.4 Method of Measurement

a. Connect the base station to the mobile station as shown in Annex A Figure 1.

b. Originate a data call from the mobile station.

c. If the mobile station is capable of recognizing an emergency number by analyzing the dialed digits then, while the data call is up, originate an emergency call from the mobile station by dialing an emergency number.

d. Verify that the mobile station sends an *Enhanced Origination Message* with GLOBAL_EMERGENCY_CALL field set to '1'.

e. End the calls.

f. Originate a data call from the mobile station.

g. If the mobile station has a special interface to initiate an emergency call then, while the data call us up, originate an emergency call from the mobile station using this special interface.

h. Verify that the mobile station sends an *Enhanced Origination Message* with the GLOBAL_EMERGENCY_CALL field set to '1'.

i. End the calls.

9.6.1.5 Minimum Standard

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

9.6.2 Base Station Test

9.6.2.1 Definition

This test verifies that the base station can recognize an emergency call origination from a mobile station in a call.

9.6.2.2 Traceability (See [4]):

2.7.1.3.2.4 Origination Message
2.7.2.3.2.32 Enhanced Origination Message
2.7.2.3.2.3 Flash With Information Message
2.7.2.3.2.33 Extended Flash With Information Message

9.6.2.3 Call Flow Example(s)

None

9.6.2.4 Method of Measurement

a. Connect the base station to the mobile station as shown in Annex A Figure 1.

b. Instruct the mobile station to set up a data call.

c. While the data call is up, instruct the mobile station to originate an emergency call by including an appropriate emergency number in the *Enhanced Origination Message* with GLOBAL_EMERGENCY_CALL field set to ‘0’.

d. Verify that the base station recognizes the call as an emergency call.

e. End the calls.

f. Instruct the mobile station to set up a data call.

g. While the data call is up, instruct the mobile station to originate an emergency call by setting the GLOBAL_EMERGENCY_CALL field to ‘1’ and including the appropriate emergency number in the *Enhanced Origination Message*.

h. Verify that the base station recognizes the call as an emergency call.

i. End the calls.

j. Instruct the mobile station to set up a data call.

k. While the data call is up, instruct the mobile station to originate an emergency call by setting the GLOBAL_EMERGENCY_CALL field to ‘1’ with no dialed digits in the *Enhanced Origination Message*.

l. Verify that the base station recognizes the call as an emergency call.

m. End the calls.

n. Instruct the mobile station to set up a data call.

o. While the data call is up, instruct the mobile station to originate an emergency call by setting the GLOBAL_EMERGENCY_CALL field to ‘1’ and including some invalid emergency number in the *Enhanced Origination Message*.

p. Verify that the base station recognizes the call as an emergency call.

q. End the calls.

9.6.2.5 Minimum Standard

The base station shall comply with the requirements in steps d, h, l and p.

9.7 WLL Support

Applicability: This test case is applicable only if WLL is supported.

9.7.1 Mobile Station Test

9.7.1.1 Definition

This test verifies that the WLL terminal (mobile station) is able to work properly in the system.

9.7.1.2 Traceability (See [4]):

2.7.1.3.2.4 Origination Message
2.7.1.3.2.11 Device Information Message

9.7.1.3 Call Flow Example(s)

None

9.7.1.4 Method of Measurement

a. Connect the base station (capable of WLL) to the WLL terminal as shown in Figure Annex A Figure 1.

b. Configure the base station to send an *Extended System Parameters Message* with the AUTO_MESSAGE_SUPPORTED field set to ‘1’ and the AUTO_MESSAGE_INTERVAL field set to ‘111’

c. Power up the WLL terminal and verify that a *Registration Message* is sent by the WLL terminal with the following field settings: WLL_INCL field set to ’1’, WLL_DEVICE_TYPE field set to value as per type of WLL device (’000’, ‘001’ or ‘010’), HOOK_STATUS field set to ’0000’.

d. Pick up the handset of WLL terminal. Verify that a Device Information Message is sent by the WLL terminal with the following field setting: WLL_DEVICE_TYPE field set to value as per type of WLL device (’000’, ‘001’ or ‘010’) and information record setting: HOOK_STATUS field set to ’0001’.

e. Within 15 seconds, press the WLL terminal hook back and forth a couple of times and finally put the handset back on the hook. Verify that no Device Information Message is sent (This indicates that the timer keeps being reset).

f. When the last timer expires, verify that a Device Information Message is sent by the WLL terminal with the following field setting: WLL_DEVICE_TYPE field set to value as per type of WLL device (’000’, ‘001’ or ‘010’) and information record setting: HOOK_STATUS field set to ’0000’.

g. After 15 seconds, pick up the handset. Verify that a Device Information Message is sent by the WLL terminal with the following field setting: WLL_DEVICE_TYPE field set to value as per type of WLL device (’000’, ‘001’ or ‘010’) and information record setting: HOOK_STATUS field set to ’0001’.

h. After another 15 seconds, put the handset back on the hook. Verify that a Device Information Message is sent by the WLL terminal with the following field setting: WLL_DEVICE_TYPE field set to value as per type of WLL device (’000’, ‘001’ or ‘010’) and information record setting: HOOK_STATUS field set to ’0000’.

i. Pick up the handset. Ensure the dial tone is available and then originate a call.

j. Verify that an *Origination Message* is sent by the WLL terminal with the following field settings: WLL_INCL field set to ’1’, WLL_DEVICE_TYPE field set to value as per type of WLL device (’000’, ‘001’ or ‘010’).

k. After 15 seconds, end the call and put the handset back on the hook.

l. Verify that a Device Information Message is sent by the WLL terminal with the following field setting: WLL_DEVICE_TYPE field set to value as per type of WLL device ('000', '001' or '010') and information record setting: HOOK_STATUS field set to '0000'.

m. Make a WLL-terminated call, and verify that a *Page Response Message* is sent by the WLL terminal with the following field settings: WLL_INCL field set to '1', WLL_DEVICE_TYPE field set to value as per type of WLL device ('000', '001' or '010'), HOOK_STATUS field set to '0000'.

n. End the call.

o. Pick up the WLL terminal handset. Keep handset off-hook. Verify that a Device Information Message is sent by the WLL terminal with the following field setting: WLL_DEVICE_TYPE field set to value as per type of WLL device ('000', '001' or '010') and information record setting: HOOK_STATUS field set to '0010'

9.7.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps c, d, e, f, g, h, j, l, m and o.

9.7.2 Base Station Test

Not Applicable.

9.8 WLL Call Waiting Indicator Support

Applicability: This test case is applicable only if WLL is supported.

9.8.1 Mobile Station Test

9.8.1.1 Definition

This test verifies that a WLL terminal (mobile station) in a two-way conversation with call waiting enabled, will be able to connect to a waiting call by sending a flash request.

9.8.1.2 Traceability (See [4]):

2.7.2.3.2.3 Flash With Information Message
3.7.5.5: Signal
3.7.5.22 Call Waiting Indicator

9.8.1.3 Call Flow Example(s)

None

9.8.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Ensure that call waiting is enabled.

c. Make a mobile station to land party #1 voice call. Verify audio in both directions.

d. Set up a voice call from land party #2 to the mobile station. Wait for ringback tone on land party #2 and instruct the base station to send a *Flash With Information Message* with the Call Waiting Indicator Information Record as follows: CALL_WAITING_INDICATOR field set to '1'.

e. Press the hook (or FLASH button if available) in the handset to put land party #1 on hold and to connect to land party #2. Verify that the mobile station sends a *Flash With Information Message* or an *Extended Flash With Information Message* to the base station.

f. Verify that no dial tone is audible in the handset and a voice path is established between the mobile station and land party #2.

g. Press the hook (or FLASH button if available) again in the handset to put land party #2 on hold, and reconnect the voice path to land party #1. Verify:

   1. The mobile station sends a *Flash With Information Message* or *Extended Flash With Information Message* to the base station.

   2. An audio path is established between the handset and land party #1

h. End the call from land party #1.

i. Press hook (or FLASH button if available) again in the handset. Verify that the mobile station sends a *Flash With Information Message* or *Extended Flash With Information Message* to the base station.

j. Verify that an audio path is established between the mobile station and land party #2.

k. End the call to land party #2.

l. Make a mobile station to land party #1 voice call. Verify that an audio path is established in both directions.

m. Set up a voice call from land party #2 to the mobile station. Wait for ringback tone on land party #2 and instruct the base station to send a *Flash With Information Message* with the Call Waiting Indicator Information Record as follows: CALL_WAITING_INDICATOR field set to '1'.

n. Do not answer this call waiting call at the mobile station.

o. Disconnect call from land party #2.

p. Instruct the base station to send a *Flash With Information Message* with the Call Waiting Indicator Information Record as follows: CALL_WAITING_INDICATOR field set to '0'.

q. Press the hook (or FLASH button if available) of the handset and verify that a dial tone is generated.

r. Press the hook (or FLASH button if available) again and verify that voice path between the handset and land party #1 is established.

s. End the call to land party #1.

9.8.1.5 Minimum Standard

The mobile station shall comply with the requirements in steps e, f, g, i, j, q and r.

The mobile station shall be able to switch between two calls when call-waiting call is present.

9.8.2 Base Station Test

9.8.2.1 Definition

This test verifies that the base station will send a call waiting indicator to the WLL terminal (mobile station) in a two-way conversation (with call waiting enabled). This test verifies that the base station will connect the WLL terminal to waiting call when a flash request is received from the WLL terminal.

9.8.2.2 Traceability (See [4]):

2.7.2.3.2.3 Flash With Information Message
3.7.5.5: Signal
3.7.5.22 Call Waiting Indicator

9.8.2.3 Call Flow Example(s)

None

9.8.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Ensure that call waiting is enabled.

c. Make a mobile station to land party #1 call. Verify audio in both directions.

d. Set up a voice call from land party #2 to the mobile station.

e. Verify that the base station sends a *Flash With Information Message* or *Extended Flash With Information Message* with the Call Waiting Indicator Information Record as follows: CALL_WAITING_INDICATOR field set to '1'.

f. Instruct the mobile station to send *Flash With Information Message* to the base station.

g. Verify that an audio path is established between the mobile station and land party #2.

h. Instruct the mobile station to send *Flash With Information Message* to the base station.

i. Verify that an audio path is established between the mobile station and land party #1

j. End the call from land party #1.

k. Instruct the mobile station to send a *Flash With Information Message* to the base station.

l. Verify that an audio path is established between the mobile station and land party #2.

m. End the call to land party #2.

n. Make a mobile station to land party #1 call. Verify that an audio path is established in both directions.

o. Set up a voice call from land party #2 to the mobile station.

p. Verify that the base station sends a *Flash With Information Message* or *Extended Flash With Information Message* with the Call Waiting Indicator Information Record as follows: CALL_WAITING_INDICATOR field set to ’1’.

q. Do not answer this call waiting call from the mobile station.

r. Disconnect the call from land party #2.

s. Verify that the base station sends a *Flash With Information Message* or *Extended Flash With Information Message* with the Call Waiting Indicator Information Record as follows: CALL_WAITING_INDICATOR field set to ’0’.

t. Instruct the mobile station to send a *Flash With Information Message* to the base station. Verify that a dial tone is audible at the mobile station.

u. Instruct the mobile station to send a *Flash With Information Message* to the base station. Verify that an audio path between the mobile station and land party #1 is established.

v. End the call to land party #1.

w. Repeat steps a through v, but with the following changes: In steps where mobile station is instructed to send a *Flash With Information Message*, instruct mobile station to send an *Extended Flash With Information Message*.

9.8.2.5 Minimum Standard

The base station shall comply with the requirements in steps e, g, i, l, p, s and u.

9.9 Multiple Character Extended Display Records sent in the *Feature Notification Message* sent on the f-csch.

9.9.1 Mobile Station Test

9.9.1.1 Definition

This test verifies that the mobile station can display Multiple Character Extended Display Information Records (if supported) sent to the mobile station on the f-csch. This test also verifies that Multiple Character Extended Display Information Records do not interfere with mobile station processing of any other information records or features.

9.9.1.2 Traceability (See [4]):

2.6.2.4: Mobile Station Order and Message Processing Operation
3.7.2.3.2.12: Feature Notification Message
3.7.3.3.2.3: Alert with Information Message
3.7.3.3.2.14: Flash with Information Message

9.9.1.3 Call Flow Example(s)

None

9.9.1.4 Method of Measurement

9.9.1.4.1 Mobile station capable of displaying Unicode characters

a. Connect the mobile station and base station as shown in Annex A Figure 1.

b. Verify that the mobile station is in Mobile Station Idle State.

c. Instruct the base station to send a Multiple Character Extended Display Record (with DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters and Message Waiting Indicator Information Record in a *Feature Notification Message*.

d. Verify that the mobile station displays characters as instructed in the Multiple Character Extended Display Record and processes other information records contained in the *Feature Notification Message*.

e. Instruct the base station to send a new Multiple Character Extended Display Record (with DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters and Message Waiting Indicator Information Record in a *Feature Notification Message*.

f. Verify that the mobile station displays the new characters as instructed in the display record, and performs other information records contained in the *Feature Notification Message* without user interaction with the mobile station.

g. Instruct the base station to make a mobile station terminated voice call. Verify that the call is established. Verify user traffic in both directions.

9.9.1.4.2 Mobile station capable of displaying ASCII characters only

a. Connect the mobile station and base station as shown in Annex A Figure 1.

b. Verify that the mobile station is in Mobile Station Idle State.

c. Instruct the base station to send a Multiple Character Extended Display Record (with DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters and Message Waiting Indicator Information Record in a *Feature Notification Message*.

d. Verify that the mobile station either displays the ASCII portion of the Multiple Character Extended Display Record correctly or ignores all of the Multiple Character Extended Display Record, and processes other information records contained in the *Feature Notification Message*.

e. Instruct the base station to send a new Multiple Character Extended Display Record (with DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters and Message Waiting Indicator Information Record in a *Feature Notification Message*.

f. Verify that the mobile station either displays the ASCII portion of the Multiple Character Extended Display Record correctly or ignores all of the Multiple Character Extended Display Record, and processes other information records contained in the *Feature Notification Message*.

g. Instruct the base station to make a mobile station terminated voice call. Verify that the call is established. Verify user traffic in both directions.

9.9.1.5 Minimum Standard

9.9.1.5.1 Mobile station capable of displaying Unicode characters

The mobile station shall comply with the requirements in step d, f and g.

9.9.1.5.2 Mobile station capable of displaying ASCII characters only

The mobile station shall comply with the requirements in step d, f and g.

9.9.2 Base Station Test

Not Applicable.

9.10 Multiple Character Extended Display Records sent on f-dsch.

9.10.1 Mobile Station Test

9.10.1.1 Definition

This test verifies that the mobile station can display Multiple Character Extended Display Information Records (if supported) sent to mobile station on the f-dsch. This test also verifies that Multiple Character Extended Display Information Records do not interfere with mobile station processing of other information records or features.

9.10.1.2 Traceability (See [4]):

2.6.2.4: Mobile Station Order and Message Processing Operation
3.7.2.3.2.12: Feature Notification Message
3.7.3.3.2.3: Alert with Information Message
3.7.3.3.2.14: Flash with Information Message

9.10.1.3 Call Flow Example(s)

None

9.10.1.4 Method of Measurement

9.10.1.4.1 Mobile station capable of displaying Unicode characters

a. Connect the mobile station and base station as shown in Annex A Figure 1.

b. Set up a mobile station originated voice call.

c. Instruct the base station to send a Multiple Character Extended Display Record (with DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters and Message Waiting Indicator Information Record in a *Flash With Information Message*.

d. Verify that the mobile station displays characters as instructed in the Multiple Character Extended Display Record and that it processes other information records contained in the *Flash with Information Message*.

e. Disconnect the call.

f. Instruct the base station to make a mobile station terminated voice call. Verify that the call is established. Verify user traffic on both directions.

g. Repeat steps c to e, but with following changes: In steps where base station is instructed to send *Flash With Information Message*, instruct the base station to send an *Extended Flash With Information Message*.

h. Repeat steps a to e, but with following changes: In steps where base station is instructed to send *Flash With Information Message*, instruct the base station to send an *Alert With Information Message*.

i. Repeat steps a to e, but with following changes: In steps where base station is instructed to send *Flash With Information Message*, instruct the base station to send an *Extended Alert With Information Message*.

9.10.1.4.2 Mobile station capable of displaying ASCII characters only

a. Connect the mobile station and base station as shown in Annex A Figure 1.

b. Set up a mobile station originated voice call.

c. Instruct the base station to send a Multiple Character Extended Display Record (with DISPLAY_ENCODING set to 7-bit ASCII and UNICODE) of at least 15 characters and Message Waiting Indicator Information Record in a *Flash With Information Message*.

d. Verify that the mobile station either displays the ASCII portion of the Multiple Character Extended Display Record correctly or ignores all of the Multiple Character Extended Display Record, and processes other information records contained in the *Flash With Information Message*.

e. Disconnect the call.

f. Instruct the base station to make a mobile station terminated voice call. Verify that the call is established. Verify user traffic on both directions.

g. Repeat steps c to e, but with following changes: In steps where base station is instructed to send a *Flash With Information Message*, instruct base station to send an *Extended Flash With Information Message*.

h. Repeat steps a to e, but with following changes: In steps where base station is instructed to send a *Flash With Information Message*, instruct base station to send an *Alert With Information Message*.

i. Repeat steps a to e, but with following changes: In steps where base station is instructed to send *Flash With Information Message*, instruct the base station to send an *Extended Alert With Information Message*.

9.10.1.5 Minimum Standard

9.10.1.5.1 Mobile station capable of displaying Unicode characters

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

9.10.1.5.2 Mobile station capable of displaying ASCII characters only

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

9.10.2 Base Station Test

Not Applicable.

10 Concurrent Services

10.1 Set up Mobile Station Originated Data Call while Voice Call or Teleservice on Dedicated Channels are in Progress

10.1.1 Mobile Station Test

10.1.1.1 Definition

This test verifies that, when a voice call is already in progress, the mobile station can successfully originate a data call.

10.1.1.2 Traceability (See [4]):

2.6.4.1.2.2.5 (Waiting for Service Action Time Subfunction)
2.6.4.1.12 (Processing the Service Configuration Record)
2.6.4.2 (Traffic Channel Initialization Substate)
2.6.4.3 (Traffic Channel Substate)
2.6.4.4 (Release Substate)
2.6.10 (Call Control Processing)
2.7.2.3.2.32 (Enhanced Origination Message)
2.7.2.3.2.33 (Extended Flash With Information Message)
2.7.2.3.2.37 (Call Cancel Message)
2.7.2.3.2.29 (Resource Release Request Message)
2.7.2.3.2.30 (Resource Release Request Mini Message)
2.7.3.4 (Mobile Station Reject Order)
2.7.4.25 (Capability Information)
3.6.4.1.7 (Response to Enhanced Origination Message)
3.6.4.1.8 (Processing Resource Release Request Message and Resource Release Request Mini Message)
3.6.4.2 (Traffic Channel Initialization Substate)
3.6.4.3 (Traffic Channel Substate)
3.6.8 (Call Control Processing)
3.7.2.3.2.13 (Extended System Parameters Message)
3.7.2.3.2.30 (ANSI-41 System Parameters Message)
3.7.3.3.2.20 (Service Connect Message)
3.7.3.3.2.36 (Universal Handoff Direction Message)
3.7.3.3.2.43 (Call Assignment Message)
3.7.3.3.2.44 (Extended Alert With Information Message)
3.7.3.3.2.45 (Extended Flash With Information Message)

10.1.1.3 Call Flow Example(s)

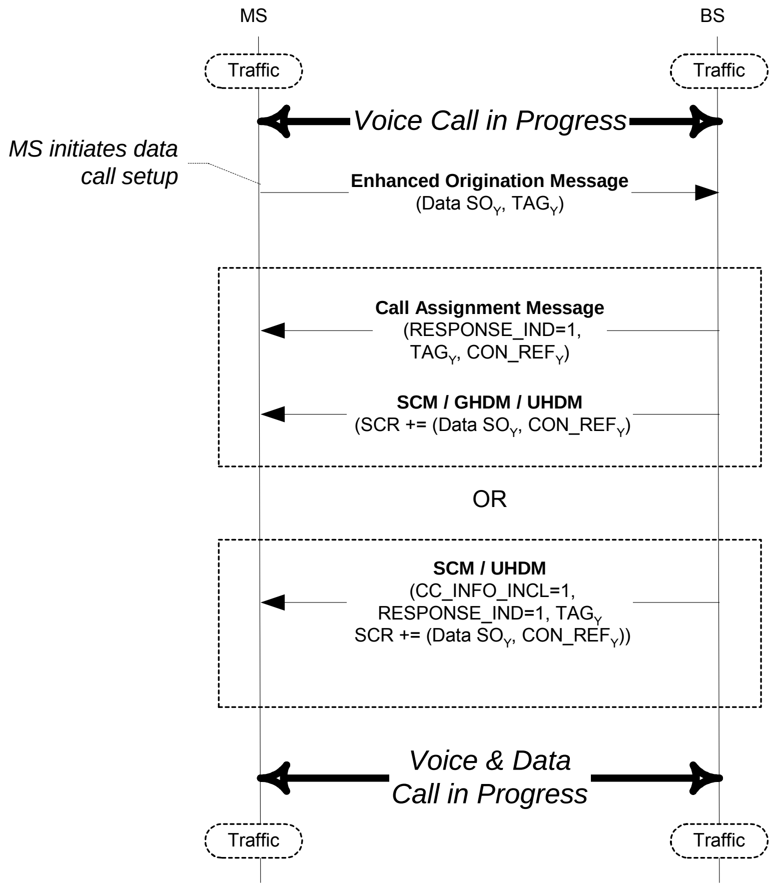


Figure 10.1.1.3-1 Call Flow Example for mobile station initiated data call set up while voice call in progress

10.1.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a voice call and ensure the voice call is in progress.

c. Ensure retry delay for call origination (i.e. RETRY_DELAY$_S$[001]) is currently not set for the data service option.

d. Initiate a packet data call (e.g. SO33) at the mobile station. Verify the following:

   1. The 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)

e. Instruct the base station to accept the call origination by sending the call assignment prior to service option connection establishment as follows. The base station sends a *Call Assignment Message* to the mobile station, prior to the expiration of the 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 *Enhanced Origination Message*
ACCEPT_IND	'1' (call request accepted)
CON_REF	Connection reference value for this call

f. 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 service option as received in *Enhanced Origination Message*
CON_REF (within SCR)	Same as sent in *Call Assignment Message*
CC_INFO_INCL	'0'

g. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

   1. After the action time of the *Service Connect Message*, data call user traffic can be exchanged successfully.

   2. The voice call is not dropped.

h. Repeat steps a-f with the following modifications:

   1. In step f, 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.

i. The expected results are as specified in step g.

j. Repeat steps a-f with the following modifications:

   1. In step f, 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.

k. The expected results are as specified in step g.

l. Repeat steps a through d.

m. Instruct the base station to accept the call origination 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, prior to the expiration of the enhanced origination timer at the mobile station, with the fields set as follows:

SERVICE_OPTION (within SCR)	Same service option as received in *Enhanced Origination Message*
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 *Enhanced Origination Message*

n. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

   1. After the action time of the *Service Connect Message*, data call user traffic can be exchanged successfully.

   2. The voice call is not dropped.

o. Repeat steps l-m with the following modifications:

   1. In step m, instruct the base station to send a *Universal Handoff Direction Message* instead of *Service Connect Message* to establish the service option connection.

p. The expected results are as specified in step n.

q. Repeat steps a-p with the following modifications:

   1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.) requiring dedicated channels.

   2. In steps g and n, upon receiving the *Service Connect Message* at the mobile station, verify the following:

      a. After the action time of the *Service Connect Message*, data call user traffic can be exchanged successfully.

      b. The teleservice call is not dropped after the establishment of the data call.

10.1.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: d, g, h, i, k, n, p and q.

10.1.2 Base Station Test

10.1.2.1 Definition

This test verifies that, when a voice call is already in progress, the base station can successfully process a mobile station originated data call.

10.1.2.2 Traceability

See 10.1.1.2.

10.1.2.3 Call Flow Example(s)

See 10.1.1.3

10.1.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a voice call and ensure the voice call is in progress.

c. Ensure retry delay for call origination (i.e. $RETRY\_DELAY_S[001]$) is currently not set for the data service option.

d. Instruct the mobile station to initiate a packet data call (e.g. SO33) as follows. The 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)

e. Upon receiving the *Enhanced Origination Message* at the base station, verify that the base station performs one of the following:

1. The base station sends the call assignment prior to service option connection establishment as follows:

    a) The base station sends a *Call Assignment Message* to accept the call origination, prior to the expiration of the 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 *Enhanced Origination Message*
ACCEPT_IND	'1' (call request accepted)
CON_REF	Connection reference value for this call

    b) Upon successful call assignment, service negotiation is initiated to establish the service option connection corresponding to this call assignment, as follows: 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 *Enhanced Origination Message*
CON_REF (within SCR)	Same as sent in *Call Assignment Message*
CC_INFO_INCL (not applicable for the GHDM)	'0'

c) Upon receiving the *Service Connect Message*, *General Handoff Direction Message*, or Universal Handoff Direction at the mobile station, verify the following:

1. After the action time of the message, data call user traffic can be exchanged successfully.
2. The voice 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* (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 *Enhanced Origination Message*
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 *Enhanced Origination Message*

b) Upon receiving the *Service Connect Message* or the *Universal Handoff Direction Message* at the mobile station, verify the following:

1. After the action time of the message, data call user traffic can be exchanged successfully.
2. The voice call is not dropped.

f. Repeat steps a-e with the following modifications:

1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.) requiring dedicated channels.
2. In step e, the teleservice call is not dropped after the establishment of the data call.

10.1.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: e and f.

10.2 Set up Mobile Station terminated Data Call while Voice Call or Teleservice on Dedicated Channels are in Progress

10.2.1 Mobile Station Test

10.2.1.1 Definition

This test verifies that, when a voice call is already in progress, the mobile station can successfully process a base station initiated data call (for a dormant data session).

10.2.1.2 Traceability

See 10.1.1.2.

10.2.1.3 Call Flow Example(s)

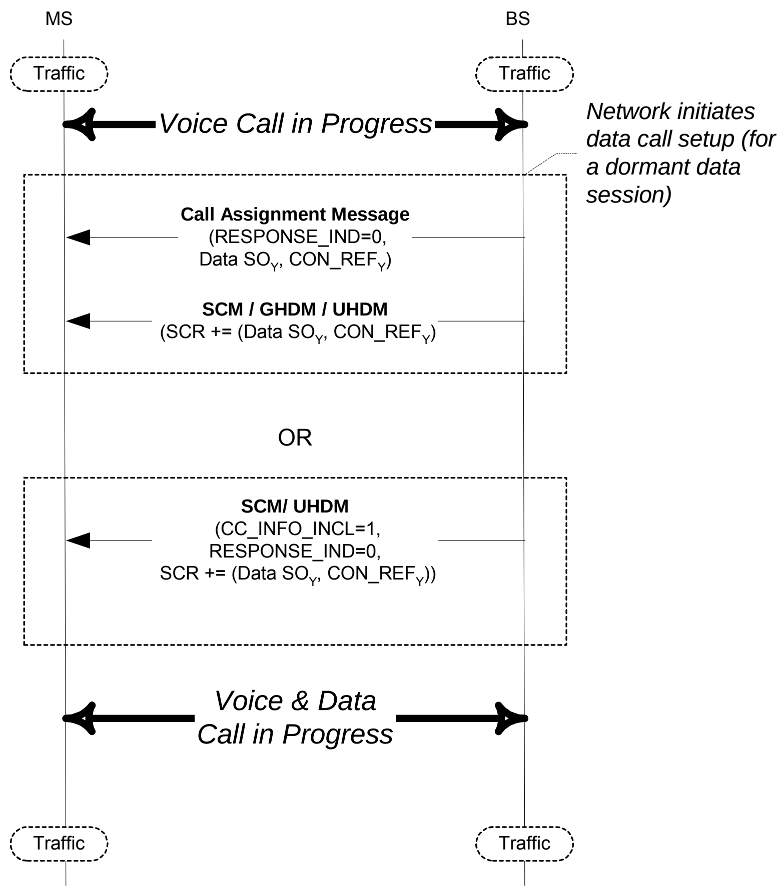


Figure 10.2.1.3-1 Call Flow Example for Mobile Station terminated data call set up while voice call in progress

10.2.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a packet data call (e.g. SO33). Ensure that the data call transitions to the Dormant state. Ensure that the dedicated traffic channels are released.

c. Set up a voice call and ensure the voice call is in progress.

d. Instruct the base station to initiate a call to activate the dormant packet data session by sending the call assignment prior to service option connection establishment as follows. The base station sends a *Call Assignment Message* to the mobile station 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

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 *Call Assignment Message*
CON_REF (within SCR)	Same as sent in *Call Assignment Message*
CC_INFO_INCL	'0'

f. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

  1. After the action time of the *Service Connect Message*, data call user traffic can be exchanged successfully.
  2. The voice call is not dropped.

g. Repeat steps a-f with the following modifications:

  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.
  2. The expected results are as specified in step f.

h. Repeat steps a-f with the following modifications:

  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.
  2. The expected results are as specified in step f.

i. Repeat steps a through c.

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:

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)

k. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

   1. After the action time of the *Service Connect Message*, data call user traffic can be exchanged successfully.
   2. The voice call is not dropped.

l. Repeat steps i-k with the following modifications:

   1. In step j, instruct the base station to send a *Universal Handoff Direction Message* instead of a *Service Connect Message* to establish the service option connection.
   2. The expected results are as specified in step k.

m. Repeat steps a-l with the following modifications:

   1. In step c, setup a Teleservice call (e.g. SMS, Position Determination, etc.) requiring dedicated channels.
   2. In steps f and k, upon receiving the *Service Connect Message* at the mobile station, verify the following:

      a) After the action time of the *Service Connect Message*, data call user traffic can be exchanged successfully.

      b) The teleservice call is not dropped after the establishment of the data call.

10.2.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: f, g, h, k, l, m,.

10.2.2 Bass Station Test

10.2.2.1 Definition

This test verifies that, when a voice call is already in progress, the base station can successfully initiate a data call (for a dormant data session).

10.2.2.2 Traceability

See 10.1.1.2.

10.2.2.3 Call Flow Example(s)

See 10.2.1.3.

10.2.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a packet data call (e.g. SO33). Ensure that the data call transitions to the Dormant state. Ensure that the dedicated traffic channels are released.

c. Set up a voice call and ensure the voice call is in progress.

d. Trigger network-initiated transition to active state for the dormant packet data session. Verify that base station follows one of the following two sequence of events to establish the data call:

1. The base station sends the call assignment prior to service option connection establishment as follows.
    a. The base station sends a *Call Assignment Message* to the mobile station 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

    b. Upon successful call assignment, service negotiation is initiated to establish the service option connection corresponding to this call assignment, as follows:
        1. The service negotiation is terminated via sending a *Service Connect Message*, *General Handoff Direction Message* (containing a SCR), or a *Universal Handoff Direction Message* (containing a SCR).
        2. If the *Service Connect Message* or the *Universal Handoff Direction Message* is used to terminate the service negotiation, the CC_INFO_INCL (call assignment included) field is set to '0' in these messages.
        3. The service option connection is established with the same connection reference (CON_REF) as used in the corresponding *Call Assignment Message*.
    c. After the action time of the message used to establish the service option connection corresponding to this call, data call user traffic is exchanged successfully.
    d. The voice 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:

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)

b. After the action time of the message used to establish the service option connection corresponding to this call, data call user traffic is exchanged successfully.

c. The voice call is not dropped.

e. Repeat steps a-d with the following modifications:

1. In step c, setup a Teleservice call (e.g. SMS, Position Determination, etc.) requiring dedicated channels.

2. In step d, the teleservice call is not dropped after the establishment of the data call.

10.2.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: d and e.

10.3 Set up Mobile Station Originated Voice Call while Data Call or Teleservice on Dedicated Channels are in Progress

10.3.1 Mobile Station Test

10.3.1.1 Definition

This test verifies that, when a data call is already in progress, the mobile station can successfully originate a voice call.

10.3.1.2 Traceability

See 10.1.1.2

10.3.1.3 Call Flow Example(s)

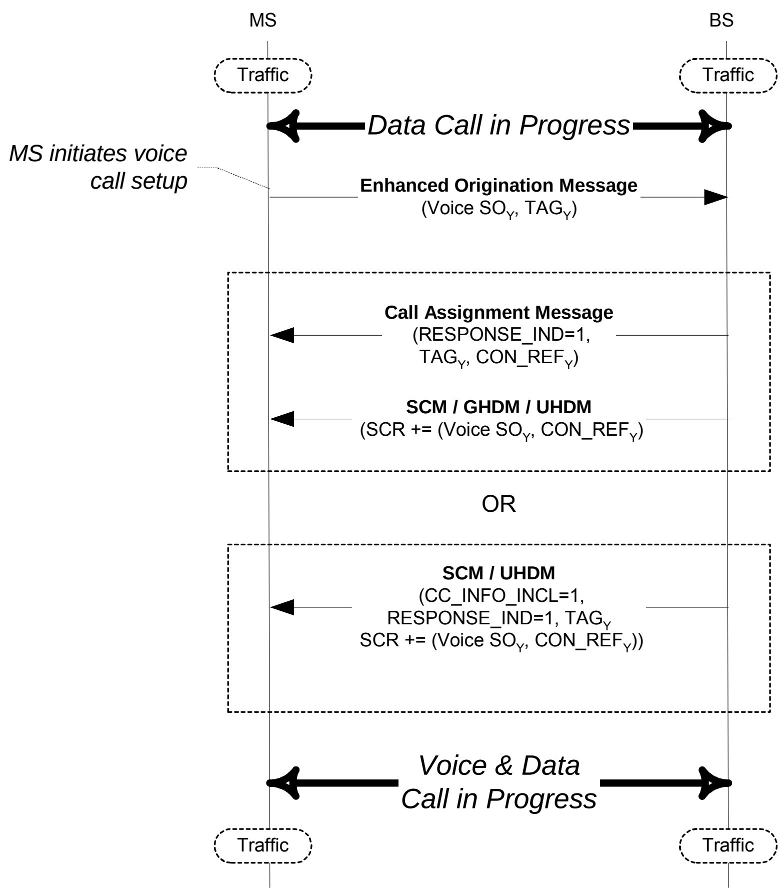


Figure 10.3.1.3-1 Call Flow Example for mobile station initiated voice call set up while data call in progress

10.3.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a packet data call (e.g. SO33). Wait till the data call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Initiate a voice call at the mobile station.

d. Ensure that the mobile station 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)

e. Instruct the base station to accept the call origination by sending the call assignment prior to service option connection establishment as follows. The base station sends a

Call Assignment Message to the mobile station, prior to the expiration of the 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 *Enhanced Origination Message*
ACCEPT_IND	‘1’ (call request accepted)
CON_REF	Connection reference value for this call

f. 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)	A service option from the same service option group as received in *Enhanced Origination Message*
CON_REF (within SCR)	Same as sent in *Call Assignment Message*
CC_INFO_INCL	‘0’

g. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

1. After the action time of the *Service Connect Message*, voice call user traffic can be exchanged successfully.
    1. The data call is not dropped.

h. Repeat steps a-f with the following modifications,

In step f, 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.

i. 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*, voice call user traffic can be exchanged successfully.
    2. The data call is not dropped.

j. Repeat steps a-f with the following modifications,

1. In step f, 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.

k. 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 Message*, voice call user traffic can be exchanged successfully.

3. The data call is not dropped .

l. Repeat steps a through d.

m. Instruct the base station to accept the call origination 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, prior to the expiration of the enhanced origination timer at the mobile station, with the fields set as follows:

SERVICE_OPTION (within SCR)	A service option from the same service option group as received in the *Enhanced Origination Message*
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 *Enhanced Origination Message*

n. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

1. After the action time of the *Service Connect Message*, voice call user traffic can be exchanged successfully.

4. The data call is not dropped.

o. Repeat steps l-m with the following modifications,

In step m, instruct the base station to send a *Universal Handoff Direction Message* instead of *Service Connect Message* to establish the service option connection.

p. 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*, voice call user traffic can be exchanged successfully.

5. The data call is not dropped.

q. Repeat steps a-p with the following modifications:

1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.) requiring dedicated channels.

6. In steps g, i, k, n and p, upon receiving the *Service Connect Message*, *General Handoff Direction Message* or *Universal Handoff Direction Message* at the mobile station, verify the following:

a. After the action time of the message received, voice call user traffic can be exchanged successfully.

b. The teleservice call is not dropped after the establishment of the voice call.

10.3.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: g, i, k, n, p and q.

10.3.2 Base Station Test

10.3.2.1 Definition

This test verifies that, when a data call is already in progress, the base station can successfully process a mobile station originated voice call.

10.3.2.2 Traceability

See 10.1.1.2.

10.3.2.3 Call Flow Example(s)

See 10.3.1.3

10.3.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a data call and ensure the data call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Instruct the mobile station to initiate a voice call (e.g. SO1). Ensure the mobile station 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)

d. Upon receiving the *Enhanced Origination Message* at the base station, verify that the base station performs one of the following:

1. The base station sends the call assignment prior to service option connection establishment as follows:

   a) The base station sends a *Call Assignment Message* to accept the call origination, prior to the expiration of the 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 *Enhanced Origination Message*
ACCEPT_IND	‘1’ (call request accepted)

CON_REF	Connection reference value for this call

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 *Enhanced Origination Message*
CON_REF (within SCR)	Same as sent in *Call Assignment Message*
CC_INFO_INCL (not applicable for the GHDM)	'0'

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 *Enhanced Origination Message*
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 *Enhanced Origination Message*

b) Upon receiving the *Service Connect Message* or the *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.

e. Repeat steps a-d with the following modifications:

1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.) requiring dedicated channels.
2. In steps d, upon receiving the *Service Connect Message*, *General Handoff Direction Message* or *Universal Handoff Direction Message* at the mobile station, verify the following:
    a. After the action time of the message received, voice call user traffic can be exchanged successfully.
    b. The teleservice call is not dropped after the establishment of the voice call.

10.3.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: d and e.

10.4 Set up Mobile Station terminated Voice Call or Teleservice Using Dedicated Channels are while Data Call in Progress

10.4.1 Mobile Station Test

10.4.1.1 Definition

This test verifies that, when a data call is already in progress, the mobile station can successfully process a base station initiated voice call.

10.4.1.2 Traceability

See 10.1.1.2.

10.4.1.3 Call Flow Example(s)

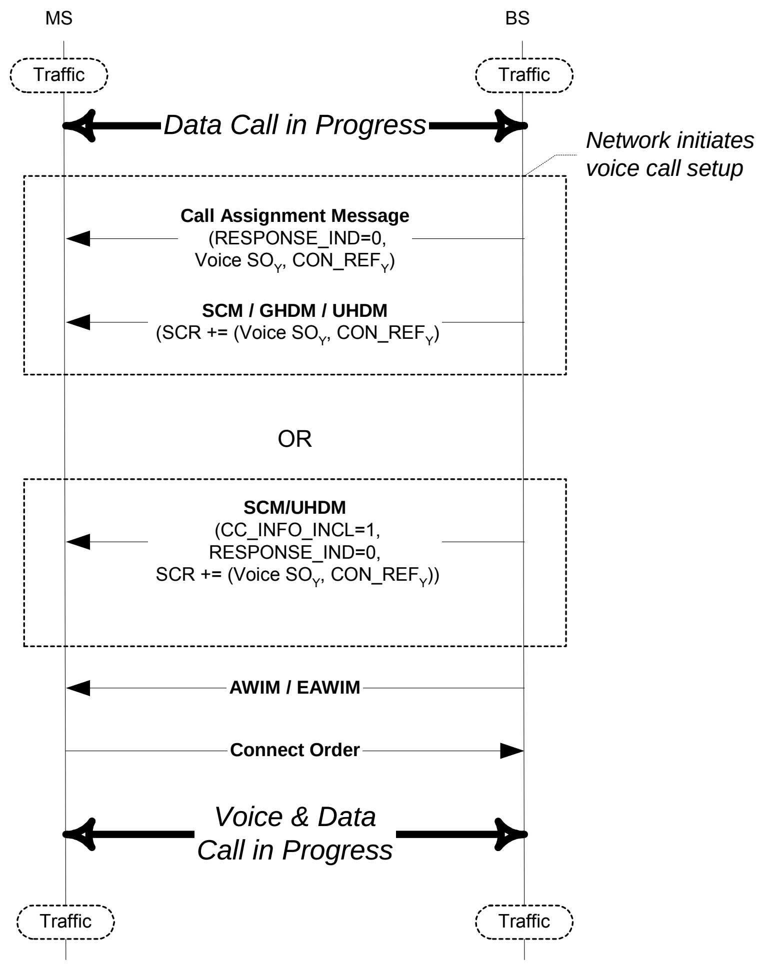


Figure 10.4.1.3-1 Call Flow Example for Mobile Station terminated voice call set up while data call in progress

10.4.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a packet data call (e.g. SO33). Wait till the packet data call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Instruct the base station to initiate a voice call by sending the call assignment prior to service option connection establishment as follows. The base station sends a *Call 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

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 *Call Assignment Message*
CON_REF (within SCR)	Same as sent in the *Call Assignment Message*
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

MS sends a *connect order* and verify that voice call user traffic can be exchanged successfully.

2. The data call is not dropped.

j. Repeat steps a through b.

k. Instruct the base station to initiate a voice call 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:

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	‘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)

l. 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.

m. Repeat steps j-k with the following modifications: In step k, instruct the base station to send a *Universal Handoff Direction Message* instead of a *Service Connect Message* to establish the service option connection.

n. 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 MS sends a *connect order* and verify that voice call user traffic can be exchanged successfully.

2. The data call is not dropped.

p. Repeat steps a-o with the following modifications:

1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.) requiring dedicated channels.
2. In steps e, g, i, l and o, upon receiving the *Service Connect Message*, *General Handoff Direction Message* or *Universal Handoff Direction Message* at the mobile station, verify the following:
   a. After the action time of the message received, voice call user traffic can be exchanged successfully.
   b. The teleservice call is not dropped after the establishment of the voice call.

10.4.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: e, g, i, l, n, and o.

10.4.2 Base Station Test

10.4.2.1 Definition

This test verifies that, when a data call is already in progress, the base station can successfully initiate a voice call.

10.4.2.2 Traceability

See 10.1.1.2.

10.4.2.3 Call Flow Example(s)

See 10.4.1.3

10.4.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.
b. Set up a packet data call (e.g. SO33). Wait till the packet call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.
c. Initiate a network originated voice call. Verify that base station follows one of the following two sequence of events to establish the voice call:
   1. The base station sends the call assignment prior to service option connection establishment as follows.
      a) The base station sends a *Call 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

b) Upon successful call assignment, service negotiation is initiated to establish the service option connection corresponding to this call assignment, as follows:

1. The service negotiation is terminated via sending a *Service Connect Message*, *General Handoff Direction Message* (containing a SCR), or a *Universal Handoff Direction Message* (containing a SCR).
1. If the *Service Connect Message* or the *Universal Handoff Direction Message* is used to terminate the service negotiation, the CC_INFO_INCL (call assignment included) field is set to ‘0’ in these messages.
2. The service option connection is established with the same connection reference (CON_REF) as used in the corresponding *Call Assignment Message*.

c) After the action time of the message used to establish the service option connection corresponding to this call, verify that the base station sends an *Alert With Information Message* or *Extended Alert With Information Message*. Instruct the mobile station to send a *connect order*, and verify that voice call user traffic is exchanged successfully.

d) 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 *Universal Handoff Direction Message* (containing a SCR) with the following 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)

b) After the action time of the message used to establish the service option connection corresponding to this call, verify that the base station sends an *Alert With Information Message* or *Extended Alert With Information Message*. Instruct the mobile station to send a *connect order*, and verify that voice call user traffic is exchanged successfully.

c) The data call is not dropped.

d. Repeat steps a-c with the following modifications:
    1. In step b, setup a Teleservice call (e.g. SMS, Position Determination, etc.) requiring dedicated channels.
    2. In step c, the teleservice call is not dropped after the establishment of the voice call.

10.4.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: c and d.

10.5 Mobile Station Release of a Single Call While Voice and Data Calls are in Progress

10.5.1 Mobile Station Test

10.5.1.1 Definition

This test verifies that, when both voice and data calls are in progress, mobile station can release one of the calls successfully and the other call continues uninterrupted.

10.5.1.2 Traceability

See 10.1.1.2.

10.5.1.3 Call Flow Example(s)

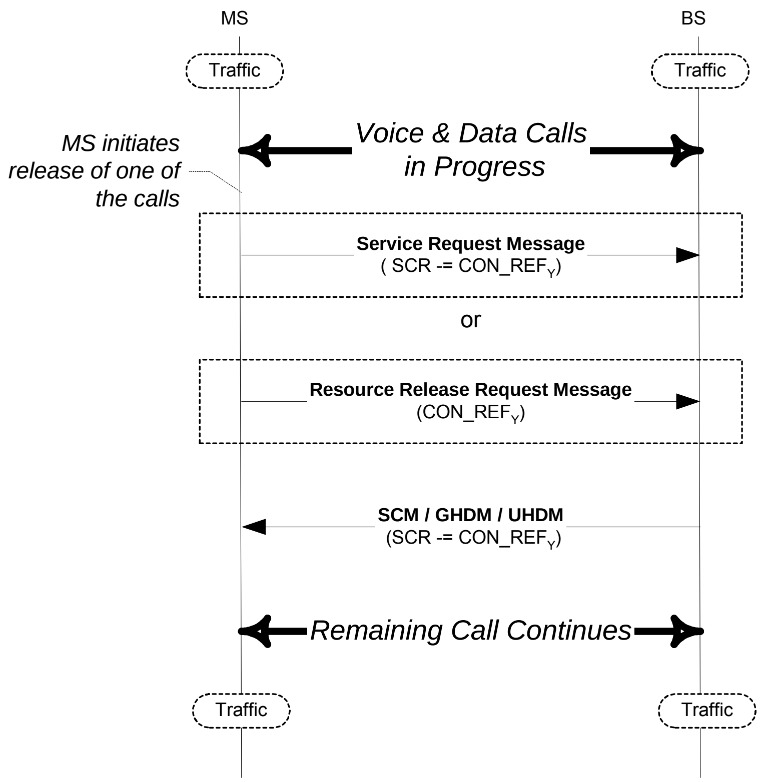


Figure 10.5.1.3-1 Call Flow Example for Mobile Station release of a single call while both voice and data calls in progress

10.5.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice call and the data call are in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Release the voice call at the mobile station. Verify that the mobile station sends a *Service Request Message* or a *Resource Release Request (Mini) Message* requesting the release of the voice call as follows:

   1. If the mobile station sends a *Service Request Message*, the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

   2. If the mobile station sends a *Resource Release Request (Mini) Message*, 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

d. Upon receiving the *Service Request Message* or the *Resource Release Request (Mini) Message* requesting the release of the voice call, instruct the base station to grant the request as follows: the base station sends a *Service Connect Message* to the mobile station where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

e. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

    1. After the action time of the *Service Connect Message* used to release the voice call, the voice traffic no longer flows.

    2. The data call is not dropped.

f. Repeat steps a through d with the following modifications: In step d, instead of the *Service Connect Message*, instruct the base station to send a *General Handoff Direction Message* (with SCR) where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

g. Upon receiving the *General Handoff Direction Message* (with SCR) at the mobile station, verify the following:

    1. After the action time of the *General Handoff Direction Message* (with SCR) used to release the voice call, the voice traffic no longer flows.

    2. The data call is not dropped.

h. Repeat steps a through d with the following modifications: In step d, instead of the *Service Connect Message*, instruct the base station to send a *Universal Handoff Direction Message* (with SCR) where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

i. Upon receiving the *Universal Handoff Direction Message* (with SCR) at the mobile station, verify the following:

    1. After the action time of the *Universal Handoff Direction Message* (with SCR) used to release the voice call, the voice traffic no longer flows.

    2. The data call is not dropped.

j. Repeat steps a though g with the following modifications: In step c, initiate the release of the data call at the mobile station. The expected results are as specified in steps c, e, h, and k with the modification that the data call is not present and the voice call user traffic is exchanged successfully.

10.5.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: c, e, g and i for all test cases.

10.5.2 Base Station Test

10.5.2.1 Definition

This test verifies that, when both voice and data calls are in progress, base station can successfully process mobile station release of one of the calls and the other call continues uninterrupted.

10.5.2.2 Traceability

See 10.1.1.2.

10.5.2.3 Call Flow Example(s)

See 10.5.1.3.

10.5.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice call and the data call are in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Instruct the mobile station to release the voice call as follows: the mobile station sends a *Service Request Message* with the service option connection record corresponding to the voice call omitted from the *Service Configuration information record* included in this message.

d. Upon receiving the *Service Request Message*, verify that the base station does one of the following to grant this request: the base station sends a *Service Connect Message*, *General Handoff Direction Message* (with SCR), or a *Universal Handoff Direction Message* (with SCR) to the mobile station where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

e. Upon receiving the *Service Connect Message*, *General Handoff Direction Message* (with SCR), or a *Universal Handoff Direction Message* (with SCR) at the mobile station, verify the following:

    1. After the action time of this message used to release the voice call, the voice traffic no longer flows.

    2. The data call is not dropped.

f. Repeat steps a through c with the following modifications: In step c, instruct the mobile station to release the voice call as follows: The mobile station sends a *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

g. Upon receiving the *Resource Release Request (Mini) Message*, verify that the base station does one of the following to grant this request: the base station sends a *Service Connect Message*, *General Handoff Direction Message* (with SCR), or a *Universal Handoff Direction Message* (with SCR) to the mobile station where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

h. Upon receiving the *Service Connect Message*, *General Handoff Direction Message* (with SCR), or a *Universal Handoff Direction Message* (with SCR) at the mobile station, verify the following:

   1. After the action time of this message used to release the voice call, the voice traffic no longer flows.

   2. The data call is not dropped.

i. Repeat steps a through h with the following modifications: In step c, instruct the mobile station to release the data call instead of the voice call.

j. The expected results are as specified in steps d, e, g and h.

10.5.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: d, e, g and h.

10.6 Base Station Release of a Single Call While Voice and Data Calls are in Progress

10.6.1 Mobile Station Test

10.6.1.1 Definition

This test verifies that, when both voice and data calls are in progress, mobile station can successfully process base station release of one of the calls and the other call continues uninterrupted.

10.6.1.2 Traceability

See 10.1.1.2.

10.6.1.3 Call Flow Example(s)

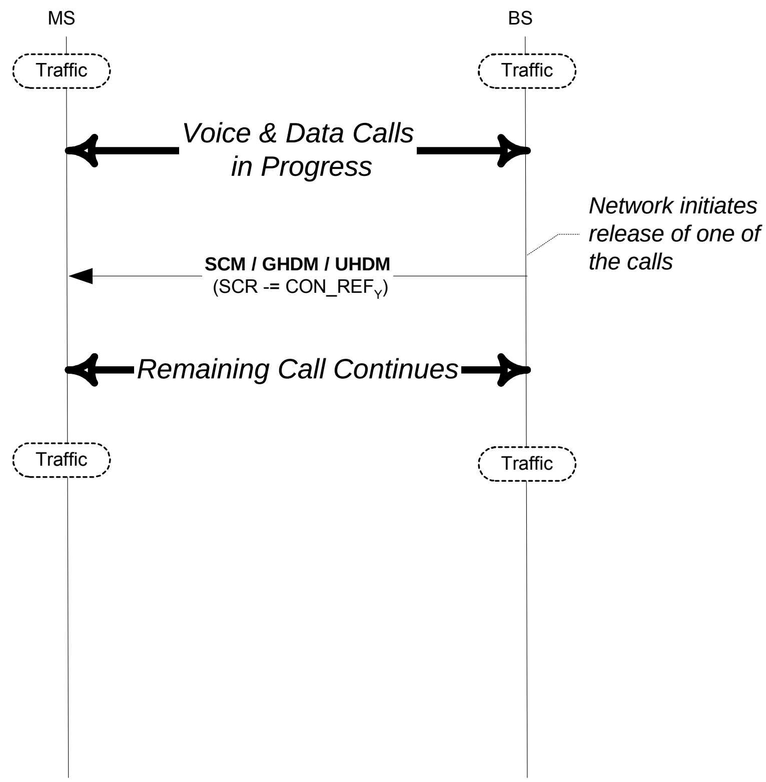


Figure 10.6.1.3-1 Call Flow Example for base station release of a single call while both voice and data calls in progress

10.6.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice call and the data call are in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Instruct the base station to initiate the release of the voice call as follows: the base station sends a *Service Connect Message* to the mobile station where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

d. Upon receiving the *Service Connect Message* at the mobile station, verify the following:

    1. At the action time of the *Service Connect Message* used to release the voice call, the voice traffic no longer flows.

    2. The data call is not dropped.

e. Repeat steps a though c with the following modifications: In step c, instead of the *Service Connect Message*, instruct the base station to send a *General Handoff Direction Message* (with SCR) where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

f. Upon receiving the *General Handoff Direction Message* (with SCR) at the mobile station, verify the following:

   1. At the action time of the *General Handoff Direction Message* (with SCR) used to release the voice call, the voice traffic no longer flows.

   2. The data call is not dropped.

g. Repeat steps a though c with the following modifications: In step c, instead of the *Service Connect Message*, instruct the base station to send a *Universal Handoff Direction Message* (with SCR) where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

h. Upon receiving the *Universal Handoff Direction Message* (with SCR) at the mobile station, verify the following:

   1. At the action time of the *Universal Handoff Direction Message* (with SCR) used to release the voice call, the voice traffic no longer flows.

   2. The data call is not dropped.

i. Repeat steps a though j with the following modifications: In step c, instruct the base station to release the data call instead of the voice call.

.

j. The expected results are as specified in steps d, g and j (with the modification that the voice call remains and the data call is dropped).

10.6.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: d, f and h for all test cases.

10.6.2 Base Station Test

10.6.2.1 Definition

This test verifies that, when both voice and data calls are in progress, base station can successfully release one of the calls and the other call continues uninterrupted.

10.6.2.2 Traceability

See 10.1.1.2.

10.6.2.3 Call Flow Example(s)

See 10.6.1.3.

10.6.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice call and the data call are in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Trigger a network initiated release of the voice call.

d. Verify that the base station does one of the following to release the voice call: the base station sends a *Service Connect Message*, *General Handoff Direction Message* (with SCR), or a *Universal Handoff Direction Message* (with SCR) to the mobile station where the service option connection record corresponding to the voice call is omitted from the *Service Configuration information record* included in this message.

e. Upon receiving the *Service Connect Message*, *General Handoff Direction Message* (with SCR), or a *Universal Handoff Direction Message* (with SCR) at the mobile station, verify the following:

    1. At the action time of this message used to release the voice call, the voice traffic no longer flows.

    2. The data call is not dropped.

f. Repeat steps a though e with the following modifications: In step c, trigger a network initiated release of the data call instead of the voice call.

g. The expected results are as specified in steps d and e with the modification that the voice call remains and the data call is dropped.

10.6.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: d and e for all test cases.

10.7 Mobile Station Release of All Calls While Voice and Data Calls are in Progress

10.7.1 Mobile Station Test

N/A

10.7.2 Base Station Test

10.7.2.1 Definition

This test verifies that, when both voice and data calls are in progress, base station can successfully process mobile station simultaneous release of both calls.

10.7.2.2 Traceability

See 10.1.1.2.

10.7.2.3 Call Flow Example(s)

None

10.7.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice call and the data call are in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Instruct the mobile station to simultaneously release both the voice call and the data call by sending a *Release Order* to the base station.

d. Upon receiving the *Release Order*, verify that the base station grants this request by sending a *Release Order* to the mobile station.

e. Upon receiving the *Release Order* at the mobile station, verify the following:

   1. The voice call user traffic no longer flows
   2. The data call user traffic no longer flows
   3. Dedicated traffic channels are released.

10.7.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: d, e.

10.8 Base Station Release of All Calls While Voice and Data Calls are in Progress

10.8.1 Mobile Station Test

10.8.1.1 Definition

This test verifies that, when both voice and data calls are in progress, mobile station can successfully process base station simultaneous release of both calls.

10.8.1.2 Traceability

See 10.1.1.2.

10.8.1.3 Call Flow Example(s)

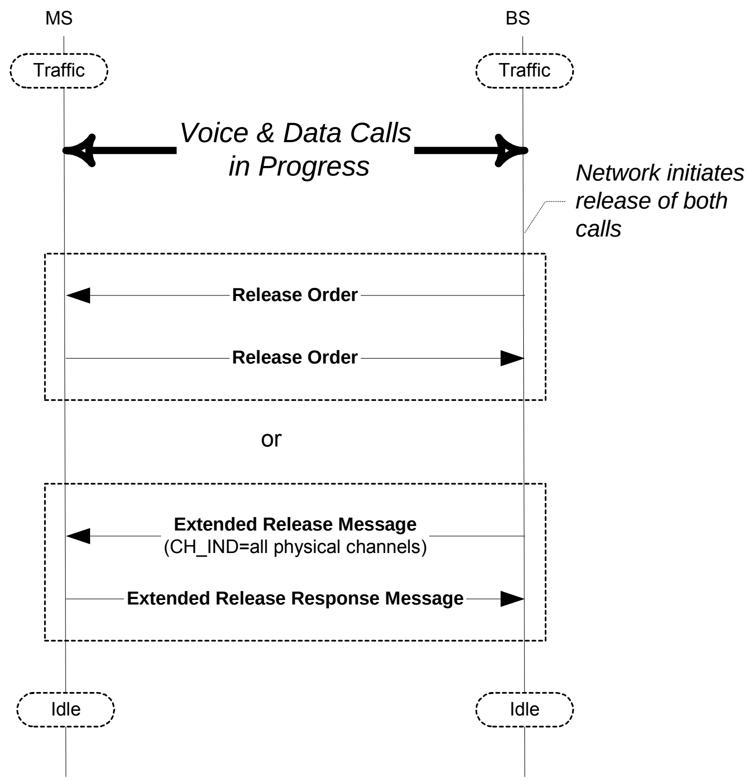


Figure 10.8.1.3-1 Call Flow Example for base station release both calls while both voice and data calls in progress

10.8.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up both a voice call and a packet data call (e.g. SO33). Wait till both the voice call and the data call are in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Instruct the base station to simultaneously release both the voice call and the data call by sending a *Release Order* to the mobile station.

d. Upon receiving the *Release Order*, verify that the mobile station sends a *Release Order* to the base station.

e. Upon receiving the *Release Order* at the base station, verify the following:

   1. The voice call user traffic no longer flows

   2. The data call user traffic no longer flows

   3. Dedicated traffic channels are released.

f. Repeat steps a through e with the following modifications:

   1. In step c, instruct the base station to send an *Extended Release (Mini)*

Message to simultaneously release both the voice call and the data call as follows: The base station sets the CH_IND field of the *Extended Release (Mini) Message* to all the dedicated physical channels currently established.

2. Upon receiving the *Extended Release (Mini) Message*, verify that the mobile station sends an *Extended Release Response (Mini) Message* to the base station.

g. Upon receiving the *Extended Release Response (Mini) Message* at the base station, verify the following:

1. The voice call user traffic no longer flows
2. The data call user traffic no longer flows
3. Dedicated traffic channels are released.

10.8.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: d, e, f and g.

10.8.2 Base Station Test

None

10.9 Correct Handling of Call Control Signaling

10.9.1 Mobile Station Test

10.9.1.1 Definition

This test verifies that, when one or more calls are in progress, base station initiated call control signaling messages are handled correctly by the mobile station.

10.9.1.2 Traceability

See 10.1.1.2.

10.9.1.3 Call Flow Example(s)

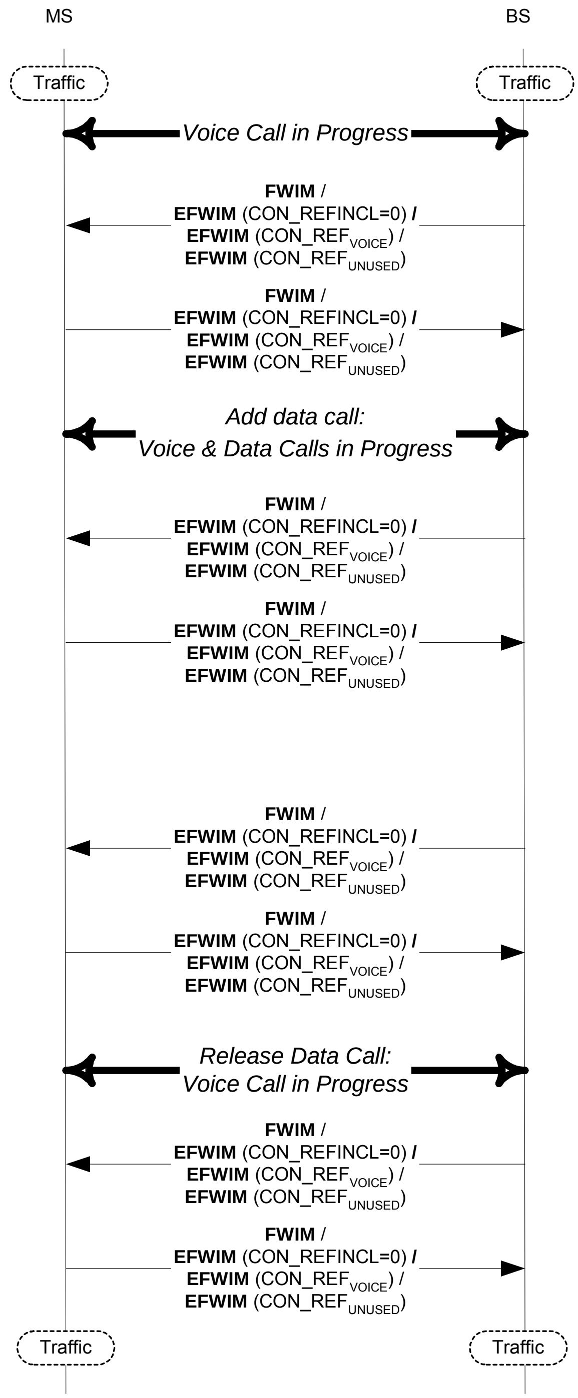


Figure 10.9.1.3-1 Call Flow Example for Correct Handling of Call Control Signaling Messages

10.9.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a voice call and wait till the voice call is in progress.

c. Instruct the base station to send a Display (00000001) information record to the mobile station via a *Flash With Information Message*.

d. Upon receiving the *Flash With Information Message*, verify that the Display information record is correctly displayed in the mobile station.

e. Instruct the base station to send a Display (00000001) information record to the mobile station via an *Extended Flash With Information Message* (with CON_REF_INCL set to '0').

f. Upon receiving the *Extended Flash With Information Message* with the CON_REF_INCL field set to '0', verify that the Display information record is correctly displayed in the mobile station.

g. Instruct the base station to send a Display (00000001) information record to the mobile station via an *Extended Flash With Information Message* (with CON_REF set to the connection reference corresponding to the voice call).

h. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to the connection reference corresponding to the voice call, verify that the Display information record is correctly displayed in the mobile station.

i. Instruct the base station to send a Display (00000001) information record to the mobile station via an *Extended Flash With Information Message* (with CON_REF set to an unused value).

j. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to an unused value, verify that the mobile station sends a *Mobile Station Reject Order* with ORDQ field set to '00010001' (no call control instance present with the specified identifier) to the base station within T_{56m} seconds.

k. Set up a mobile station terminated data call. Instruct the base station to include the service option connection corresponding to the voice call as the first entry in the SCR of *Service Connect Message*, *General Handoff Direction Message*, or *Universal Handoff Direction Message* used to complete service negotiation.

l. Instruct the base station to send a Display (00000001) information record to the mobile station via a *Flash With Information Message*.

m. Upon receiving the *Flash With Information Message*, verify that the Display information record is correctly displayed in the mobile station.

n. Instruct the base station to send a Display (00000001) information record to the mobile station via an *Extended Flash With Information Message* (with CON_REF_INCL set to '0').

o. Upon receiving the *Extended Flash With Information Message* with the CON_REF_INCL field set to '0', verify that the Display information record is correctly displayed in the mobile station.

p. Instruct the base station to send a Display (00000001) information record to the mobile station via an *Extended Flash With Information Message* (with CON_REF set to the connection reference corresponding to the voice call).

q. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to the connection reference corresponding to the voice call, verify that the Display information record is correctly displayed in the mobile station.

r. Instruct the base station to send a Display (00000001) information record to the mobile station via an *Extended Flash With Information Message* (with CON_REF set to an unused value).

s. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to an unused value, verify that the mobile station sends a *Mobile Station Reject Order* with ORDQ field set to ‘00010001’ (no call control instance present with the specified identifier) to the base station within T_{56m} seconds.

t. Instruct the base station to release the data call. Wait till this operation is successful.

u. Instruct the base station to send a Display (00000001) information record to the mobile station via a *Flash With Information Message*.

v. Upon receiving the *Flash With Information Message*, verify that the Display information record is correctly displayed in the mobile station.

w. Instruct the base station to send a Display (00000001) information record to the mobile station via an *Extended Flash With Information Message* (with CON_REF_INCL set to ‘0’).

x. Upon receiving the *Extended Flash With Information Message* with the CON_REF_INCL field set to ‘0’, verify that the Display information record is correctly displayed in the mobile station.

y. Instruct the base station to send a Display (00000001) information record to the mobile station via an *Extended Flash With Information Message* (with CON_REF set to the connection reference corresponding to the voice call).

z. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to the connection reference corresponding to the voice call, verify that the Display information record is correctly displayed in the mobile station.

10.9.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: d, f, h, j, m, o, q, s, v, x, z.

10.9.2 Base Station Test

10.9.2.1 Definition

This test verifies that, when one or more calls are in progress, mobile station initiated call control signaling messages are handled correctly by the base station.

10.9.2.2 Traceability

See 10.1.1.2.

10.9.2.3 Call Flow Example(s)

See 10.9.1.3

10.9.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a voice call and wait till the voice call is in progress.

c. Instruct the mobile station to send a Keypad Facility (00000011) information record to the base station via a *Flash With Information Message*.

d. Upon receiving the *Flash With Information Message*, verify that it is correctly delivered in the network.

e. Instruct the mobile station to send a Keypad Facility (00000011) information record to the base station via an *Extended Flash With Information Message* (with CON_REF_INCL set to '0').

f. Upon receiving the *Extended Flash With Information Message* with the CON_REF_INCL field set to '0', verify that it is correctly delivered in the network.

g. Instruct the mobile station to send a Keypad Facility (00000011) information record to the base station via an *Extended Flash With Information Message* (with CON_REF set to the connection reference corresponding to the voice call).

h. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to the connection reference corresponding to the voice call, verify that it is correctly delivered in the network.

i. Instruct the mobile station to send a Keypad Facility (00000011) information record to the base station via an *Extended Flash With Information Message* (with CON_REF set to an unused value).

j. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to an unused value, verify it is rejected or ignored by the base station.

k. Set up a mobile station originated data call.

l. Instruct the mobile station to send a Keypad Facility (00000011) information record to the base station via an *Extended Flash With Information Message* (with CON_REF set to the connection reference corresponding to the voice call).

m. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to the connection reference corresponding to the voice call, verify it is correctly delivered in the network.

n. Instruct the mobile station to release the data call. Wait till this operation is successful.

o. Instruct the mobile station to send a Keypad Facility (00000011) information record to the base station via a *Flash With Information Message*.

p. Upon receiving the *Flash With Information Message*, verify that it is correctly delivered in the network.

q. Instruct the mobile station to send a Keypad Facility (00000011) information record to the base station via an *Extended Flash With Information Message* (with CON_REF_INCL set to '0'.

r. Upon receiving the *Extended Flash With Information Message* with the CON_REF_INCL field set to '0', verify that it is correctly delivered in the network.

s. Instruct the mobile station to send a Keypad Facility (00000011) information record to the base station via an *Extended Flash With Information Message* (with CON_REF set to the connection reference corresponding to the voice call).

t. Upon receiving the *Extended Flash With Information Message* with the CON_REF field set to the connection reference corresponding to the voice call, verify it is correctly delivered in the network.

10.9.2.5 Minimum Standard

The base station shall comply with the requirements in the following steps: d, f, h, j, m, p,r and t.

10.10 Base Station Rejects Dedicated Channel Call Origination by Mobile Station

10.10.1 Mobile Station Test

10.10.1.1 Definition

This test verifies that, when base station rejects an *Enhanced Origination Message* sent by the mobile station, the mobile station discontinues the call origination.

10.10.1.2 Traceability

See 10.1.1.2.

10.10.1.3 Call Flow Example(s)

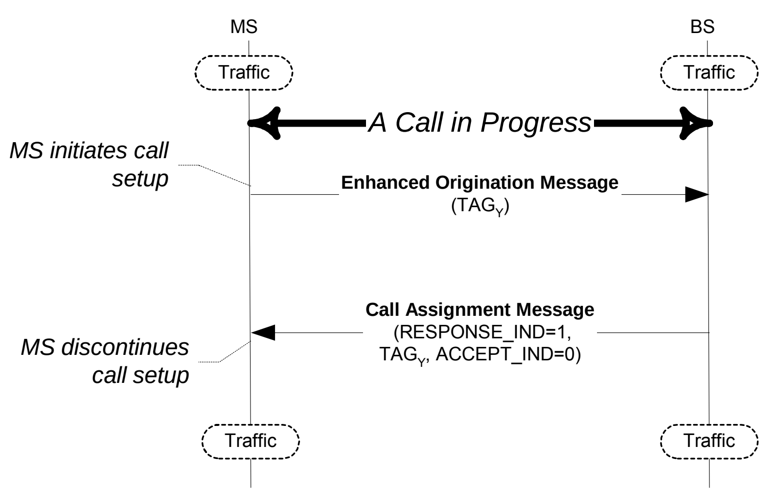


Figure 10.10.1.3-1 Call Flow Example for base station rejection of dedicated channel mobile station call origination

10.10.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Initiate a mobile station originated voice call.

d. Instruct the base station to reject the mobile station call origination by sending a *Call Assignment Message* with the following fields set as follows:

RESPONSE_IND	'1' (Response to mobile station call request)
TAG	Value received in the *Enhanced Origination Message*
ACCEPT_IND	'0'

e. Upon receiving the *Call Assignment Message*, verify the following:

   1. The mobile station discontinues the call origination. This can be tested via one of the following:

      a) The Upper Layer/User Interface receives an indication of call failure.

      b) If the base station sends a second *Call Assignment Message* accepting this call and using the same TAG value, the mobile station will reject this assignment by sending a *Mobile Station Reject Order* with ORDQ field set to '00010011' (TAG received does not match TAG stored), with the TAG field and CON_REF of the order set to the TAG and CON_REF values respectively received in the message.

   2. The original call in progress is not dropped.

10.10.1.5 Minimum Standard

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

10.10.2 Base Station Test

None

10.11 Enhanced Origination Timer Expires before Receiving Base Station Response

10.11.1 Mobile Station Test

10.11.1.1 Definition

This test verifies that, upon sending an *Enhanced Origination Message* to originate a call, if the enhanced origination timer expires prior to receiving a L3 response from the base station, the mobile station discontinues the call origination.

10.11.1.2 Traceability

See 10.1.1.2.

10.11.1.3 Call Flow Example(s)

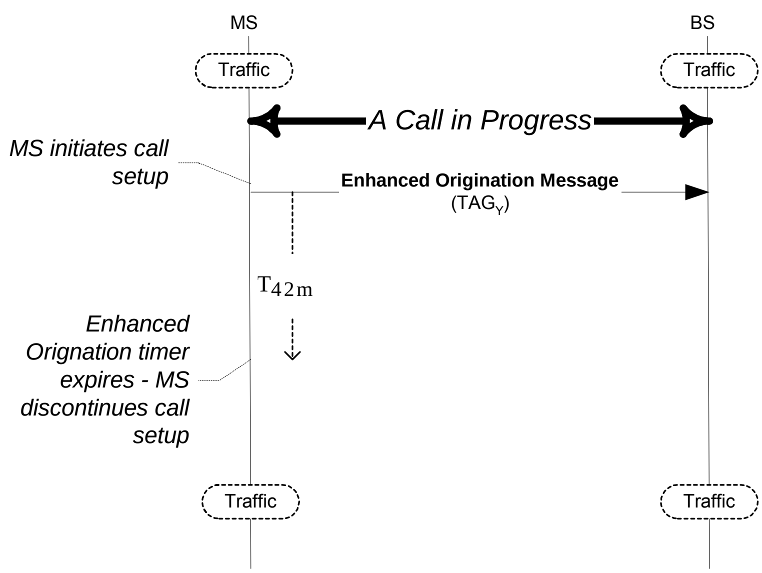


Figure 10.11.1.3-1 Call Flow Example for Expiration of Enhanced Origination Timer Upon Call Origination

10.11.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Initiate a mobile station originated voice call.

d. Instruct the base station to not send a Layer 3 response to this *Enhanced Origination Message* as follows: The base station does not send a *Call Assignment Message*, *Service Connect Message* (with the CC_INFO_INCL field set to '1'), *Universal Handoff Direction Message* (with the CC_INFO_INCL field set to '1'), or a *Retry Order* (with RETRY_TYPE field set to '001').

e. Verify the following:

1. Upon expiration of the enhanced origination timer (T42m: 12 seconds), the mobile station discontinues the call origination. This can be tested via one of the following:

    a) The Upper Layer/User Interface receives an indication of call failure (if applicable).

    b) If the base station sends a *Call Assignment Message* accepting this call and using the same TAG value, the mobile station will reject this assignment by sending a *Mobile Station Reject Order* with ORDQ field set to ‘00010011’ (TAG received does not match TAG stored), with the TAG field and CON_REF of the order set to the TAG and CON_REF values respectively received in the message.

2. The original call in progress is not dropped.

10.11.1.5 Minimum Standard

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

10.11.2 Base Station Test

None

10.12 Mobile Station Cancels Call Origination Before Receiving Call Assignment

10.12.1 Mobile Station Test

10.12.1.1 Definition

This test verifies that, upon sending an *Enhanced Origination Message* to originate a call and prior to receiving a Layer 3 response from the base station, if the user requests to cancel the call origination, the mobile sends a *Call Cancel Message* to the base station and discontinues the call origination.

10.12.1.2 Traceability

See 10.1.1.2.

10.12.1.3 Call Flow Example(s)

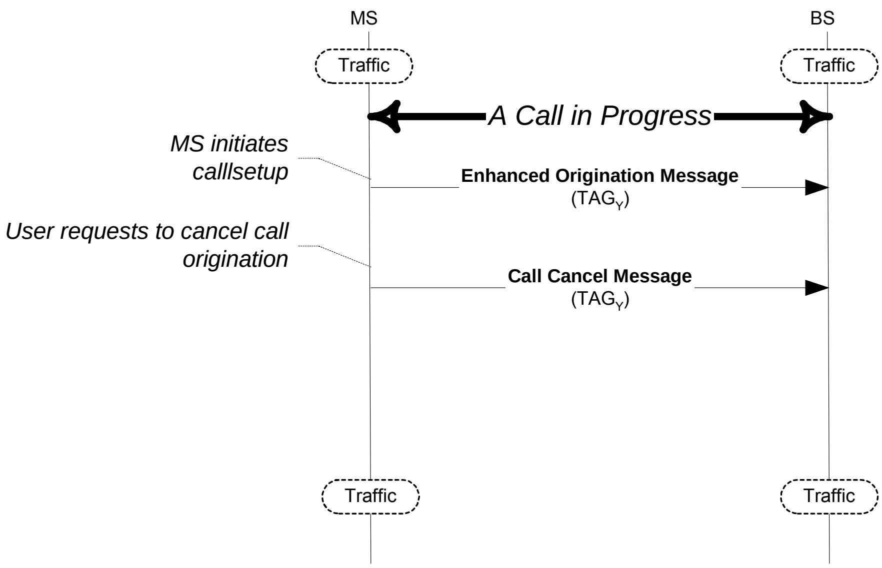


Figure 10.12.1.3-1 Call Flow Example for Cancellation of Call Origination

10.12.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Initiate a mobile station originated voice call.

d. Instruct the base station to not send a Layer 3 response to this *Enhanced Origination Message* as follows: The base station does not send a *Call Assignment Message*, *Service Connect Message* (with the CC_INFO_INCL field set to '1'), *Universal Handoff Direction Message* (with the CC_INFO_INCL field set to '1'), or a *Retry Order* (with RETRY_TYPE field set to '001').

e. Within few seconds (i.e. well in advance of the enhanced origination timer of 12 seconds) of initiating the call, release this call at the mobile station. Verify the following:

    1. The mobile station sends a *Call Cancel Message* to the base station, with the TAG field of the message set to the same value used in the *Enhanced Origination Message*.

    2. The mobile station discontinues the call origination. This can be tested via one of the following:

        a) The Upper Layer/User Interface receives an indication of call failure (if applicable).

        b) If the base station sends a *Call Assignment Message* accepting this call and using the same TAG value, the mobile station will reject this assignment by sending a *Mobile Station Reject Order* with ORDQ field set to '00010011' (TAG received does not match TAG stored), with the TAG field and CON_REF of the order set to the TAG and CON_REF values respectively received in the message.

3. The original call in progress is not dropped.

10.12.1.5 Minimum Standard

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

10.12.2 Base Station Test

None

10.13 Analog Handoff Direction Message Terminates All Calls Except One

10.13.1 Mobile Station Test

10.13.1.1 Definition

This test verifies that, when the base station directs the mobile station to perform a handoff from the CDMA system to an analog system by sending an *Analog Handoff Direction Message*, all calls except for the one indicated by the *Analog Handoff Direction Message* are terminated.

10.13.1.2 Traceability

See 10.1.1.2.

10.13.1.3 Call Flow Example(s)

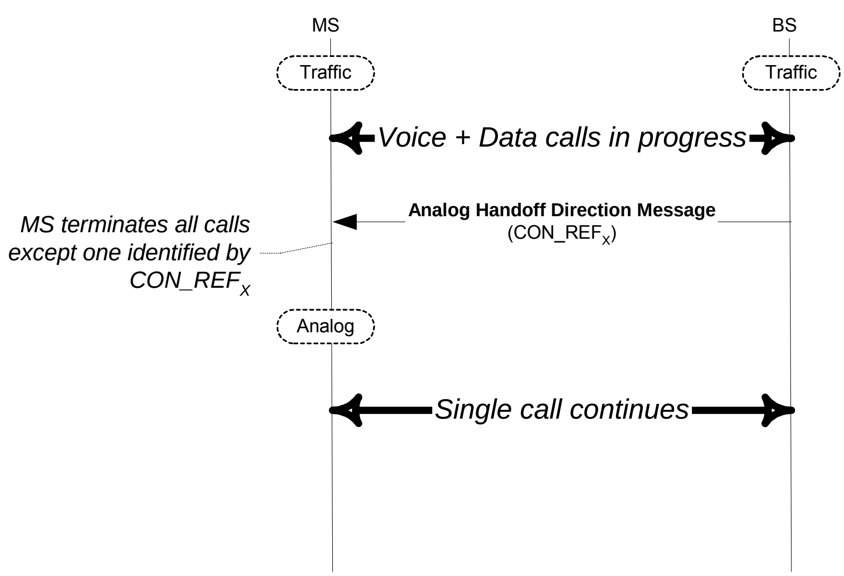


Figure 10.13.1.3-1 Call Flow Example for AHDM terminating all calls except one

10.13.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a voice call and a packet data call (e.g. SO33) and wait till both calls are in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state. Instruct the base station to list the service option connection corresponding to the voice call as the first entry in the *Service Configuration information record*.

c. Instruct the base station to direct the mobile station to perform a handoff from the CDMA system to an analog system in a band class that the mobile station supports and to maintain the voice call as follows: the base station sends an *Analog Handoff Direction Message* to the mobile station, with the CON_REF_INCL field set to '0'.

d. Upon receiving this message, verify the following:

    1. The mobile station terminates the data call and maintains the voice call.

    2. The mobile station performs handoff to the analog system indicated by the *Analog Handoff Direction Message*.

e. Repeat steps a through d but with the following modifications:

    1. In step c: The base station sends an *Analog Handoff Direction Message* to the mobile station, with the CON_REF field is set to the connection reference of the voice call.

    2. The expected results are as specified in step d.

10.13.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: d, e.

10.13.2 Base Station Test

None

10.14 Mobile Station Rejects Dedicated Channel Call Origination by Base Station

10.14.1 Mobile Station Test

None

10.14.2 Base Station Test

10.14.2.1 Definition

This test verifies that, when the mobile station rejects a dedicated channel call origination by the base station, the base station discontinues the call origination.

10.14.2.2 Traceability

See 10.1.1.2.

10.14.2.3 Call Flow Example(s)

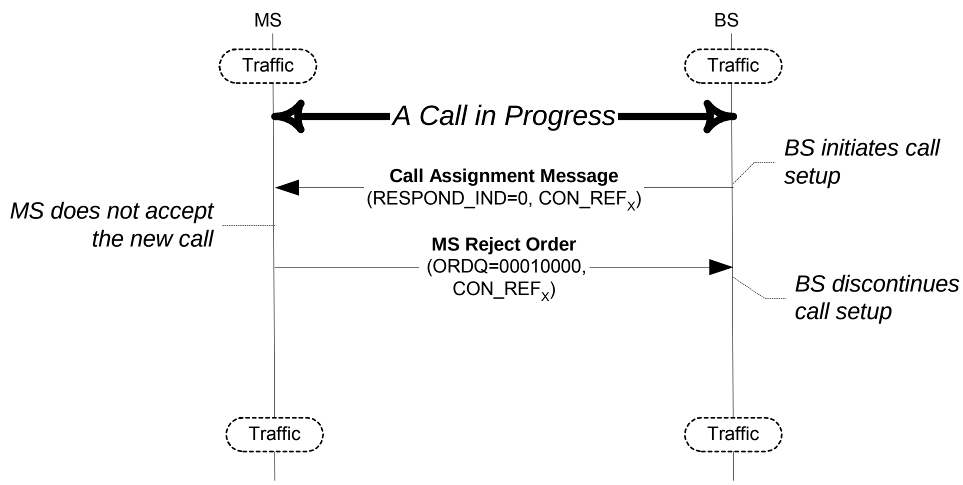


Figure 10.14.2.3-1 Call Flow Example for Mobile Station rejection of dedicated channel call origination by base station

10.14.2.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Initiate a network originated voice call.

d. Instruct the mobile station to perform the following:

   1. If the base station sends a *Call Assignment Message* (i.e. call assignment prior to service option connection establishment): Instruct the mobile station to reject the call assignment by sending a *Mobile Station Reject Order* with ORDQ field set to ‘00010000’ (call assignment not accepted), with the CON_REF field of the order set to the value of the connection reference received in the *Call Assignment Message*.

   2. If the base station sends a *Service Connect Message* (i.e. call assignment as part of the service option connection establishment): Instruct the mobile station to reject the call assignment by sending a *Mobile Station Reject Order* (ORDQ = ‘00000111’) within T_{56m} seconds of receiving this message.

   3. If the base station sends a *Universal Handoff Direction Message* (containing a SCR) (i.e. call assignment as part of the service option connection establishment): Instruct the mobile station to reject the call assignment by sending a *Mobile Station Reject Order* with ORDQ field set to ‘00010000’ (call assignment not accepted), with the CON_REF field of the order set to the value of the connection reference received in the *Call Assignment Message*.

e. Upon receiving the *Mobile Station Reject Order*, verify the following:

1. The base station discontinues the call origination. This can be tested by one of the following:

    a) The network side call originating entity receives an indication of call failure.

    b) If the mobile station sends a Keypad Facility (00000011) information record to the base station via a *Flash With Information Message* or an *Extended Flash With Information Message* destined to a call identified by the CON_REF that was rejected, the base station shall ignore or reject this message.

2. The original call in progress is not dropped.

10.14.2.5 Minimum Standard

The base station shall comply with the requirements in the following step e.

10.15 Base Station Does Not Support Concurrent Services

10.15.1 Mobile Station Test

10.15.1.1 Definition

This test verifies that, when the base station indicates that it does not support concurrent services, the mobile station shall not send an *Enhanced Origination Message* to initiate a second call.

10.15.1.2 Traceability

See 10.1.1.2.

10.15.1.3 Call Flow Example(s)

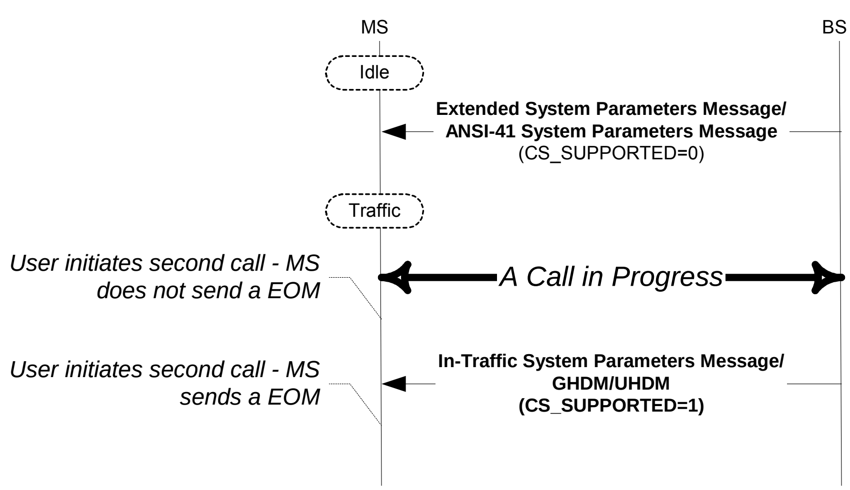


Figure 10.15.1.3-1 Call Flow Example for base station not supporting Concurrent Services

10.15.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Instruct the base station to indicate no support for concurrent services as follows:

    1. The CS_SUPPORTED field of the *Extended System Parameters Message* is set to ‘0’.

    2. The CS_SUPPORTED field of the *ANSI-41 System Parameters Message* is set to ‘0’.

c. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

d. Initiate a voice or data call at the mobile station. Verify the following:

    1. The mobile station does not send an *Enhanced Origination Message* to the base station.

    2. The mobile station provides an appropriate indication of call failure to the user.

e. Instruct the base station to send an *In-Traffic System Parameters Message* with CS_SUPPORTED field set to ‘1’.

f. Initiate a data call at the mobile station. Verify that the mobile station sends an *Enhanced Origination Message* to initiate the call.

g. Repeat steps a through f but with the following modifications:

    1. In step e, instruct the base station to send a *General Handoff Direction Message* with CS_SUPPORTED field set to ‘1’.

    2. The expected result is as specified in step f.

h. Repeat steps a through f but with the following modifications:

    1. In step e, instruct the base station to send a *Universal Handoff Direction Message* with CS_SUPPORTED field set to ‘1’.

    2. The expected result is as specified in step f.

10.15.1.5 Minimum Standard

The mobile station shall comply with the requirements in the following steps: d and f for all test cases.

10.15.2 Base Station Test

None

10.16 Base Station Assigns a New Call with an Existing Identifier

10.16.1 Mobile Station Test

10.16.1.1 Definition

This test verifies that, when the base station assigns a call using a call identifier that is currently in use, the mobile station rejects the call assignment.

10.16.1.2 Traceability

See 10.1.1.2.

10.16.1.3 Call Flow Example(s)

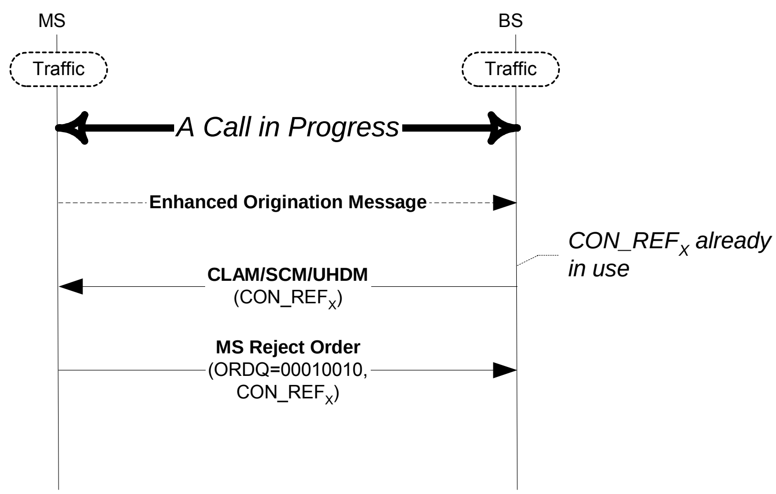


Figure 10.16.1.3-1 Call Flow Example for Base Station assigning a New Call with CON_REF currently in use

10.16.1.4 Method of Measurement

a. Connect the mobile station to the base station as shown in Annex A Figure 1.

b. Set up a mobile station data call and wait till the call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Initiate a mobile station originated or mobile station terminated voice call.

d. Instruct the base station to assign this call using a call identifier that is already in use by sending a *Call Assignment* Message to the mobile station to assign this call, with the CON_REF field set to a value that is currently in use for the first call.

e. Upon receiving this message, verify that the mobile station sends a *Mobile Station Reject Order* with ORDQ field set to '00010010' (a call control instance is already present with the specified identifier) and with the CON_REF field of the order set to the value received in the message.

f. Repeat steps a to e, but with following changes: In steps where base station is instructed to send a *Call Assignment Message*, instruct the base station to send a Service Connect Message (with CC_INFO_INCL=1).

g. Repeat steps a to e, but with following changes: In steps where base station is instructed to send a *Call Assignment Message*, instruct the base station to send a *Universal Handoff Direction Message* (with CC_INFO_INCL=1).

10.16.1.5 Minimum Standard

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

10.16.2 Base Station Test

None

10.17 Release A Mobile Station in Concurrent Calls with a Release A Base Station Hands off to a Base Station which does not support Concurrent Calls

10.17.1 Mobile Station Test

Not applicable due to the following reasons: The mobile station protocol conformance aspects of receiving a GHDM/UHDM where SCR is included and a service option connection is being released is already being tested in Test Case 10.6.1.

10.17.2 Base Station Test

10.17.2.1 Definition

This test verifies that, when a Release A base station hands off a Release A mobile station currently in concurrent calls to a base station which does not support Concurrent Calls, only a single call is maintained and this call continues successfully.

10.17.2.2 Traceability

See 10.1.1.2.

10.17.2.3 Call Flow Example(s)

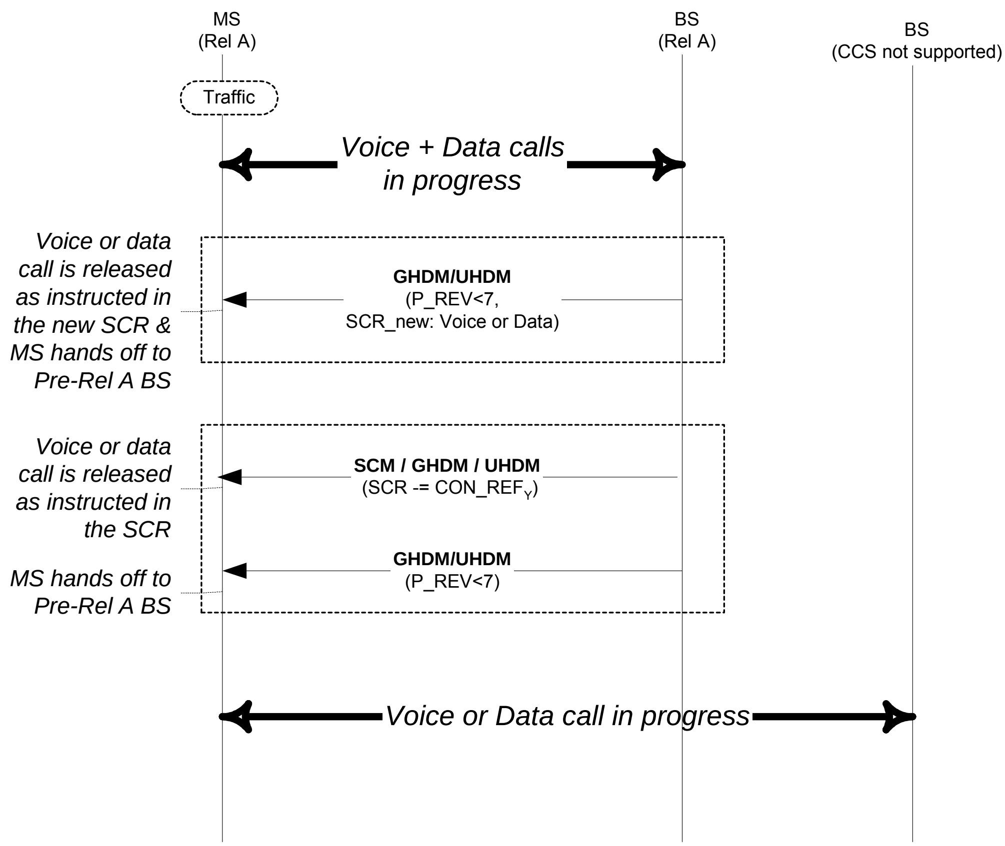


Figure 10.17.2.3-1 Release A Mobile Station Concurrent Calls with a Release A Base Station hands off to a Pre-Release A Base Station

10.17.2.4 Method of Measurement

a. Connect the mobile station (MOB_P_REV = 7) to the P_REV =7 base station (base station 1) and the P_REV < 7 (Ex. P_REV = 6) base station 2 as shown in Annex A Figure 2.

b. Set up a mobile station packet data call (e.g. SO33) and wait till the call is in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

c. Set up a mobile station packet data call (e.g. SO33) and wait till both voice and data calls are in progress. Ensure sufficient traffic is exchanged to keep the data instance in active state.

d. Trigger a handoff from base station 1 to base station 2 (by moving the mobile station from coverage of one base station to the other, etc.). Verify that the base station performs one of the following two sequence of events:

    1. base station 1 releases one of the calls off to base station 2:

a) The base station 1 sends a *General Handoff Direction Message* or a *Universal Handoff Direction Message* to the mobile station to handoff to base station 2, with the *Service Configuration information record* included and set as follows:

1. The service option connection corresponding to the call to be maintained is included.

b) The service option connection corresponding to the other call is omitted.

c) At the action time of this message, the call corresponding to the omitted service option connection is released.

d) The remaining call continues successfully in the base station 2.

2. Base station 1 releases one of the calls prior to handing off to base station 2:

a) The base station releases one of the calls by sending a *Service Connect Message*, *General Handoff Direction Message* (with SCR), or *Universal Handoff Direction Message* (with SCR) to the mobile station where the service option connection record corresponding to the call to be released is omitted from the *Service Configuration information record* included in this message.

b) The Release A base station sends a *General Handoff Direction Message* or a *Universal Handoff Direction Message* to the mobile station to handoff to the Pre-Release A base station.

c) The remaining call continues successfully in base station 2.

d) Repeat steps a-d with the following modifications:

1. Base station 2 is a P_REV = 7 base station but one which does not support the Concurrent Services capability.

10.17.2.5 Minimum Standard

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.

i. Repeat steps c through f.

11.1.1.5 Minimum Requirements

The mobile station shall comply with the requirement in step e.

11.1.2 Base Station Test

N/A.

11.2 Paging Channel

11.2.1 Mobile Station Test

11.2.1.1 Definition

This test verifies that the mobile station ignores any additional fields at the end of messages on the Paging Channel and ignores/rejects any message types that do not exist in the protocol revision supported by the mobile station (MOB_P_REV).

11.2.1.2 Traceability (See [4]):

2.6.2: *Mobile Station Idle State*
2.6.3: *System Access State*
3.7.2.3.2.26: *Sync Channel Message*

11.2.1.3 Call Flow Example(s)

None

11.2.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 1. Configure the base station to disable the Broadcast Control Channel and Forward Common Control Channel operation by setting SR1_BCCH_NON_TD_INCL, SR1_TD_INCL and SR3_INCL to ‘0’ in the *Sync Channel Message*.

b. Instruct the base station to set 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 any one of the Paging Channel overhead messages such that the new message length is greater than the maximum length for the protocol revision specified by MOB_P_REV.

c. Power on the mobile station.

d. Initiate a mobile station terminated voice call.

e. Verify audio in both directions.

f. End the call.

g. Instruct the base station to send a new Paging Channel overhead message (e.g. MSG_ID = ‘111111’) in addition to other existing Paging Channel overhead messages.

h. Repeat steps d through f.

i. Instruct the base station to send a mobile station-directed message (e.g. the *Status Request Message*) on the Paging Channel addressed to a different mobile station. Ensure that P_REV is set to a value larger than MOB_P_REV, and add additional fields at the end of any one of the Paging Channel overhead messages such that the new message length is greater than the maximum length for the protocol revision specified by MOB_P_REV message length is greater than the maximum length for the protocol revision specified by MOB_P_REV.

j. Verify the mobile station ignores the message that is addressed to the other mobile station.

k. Repeat the steps d through f.

l. Instruct the base station to send a mobile station directed message (e.g. the *Status Request Message*) on the Paging Channel to the mobile station under test. Add additional fields at the end of any one of the Paging Channel overhead messages such that the new message length is greater than the maximum length for the protocol revision specified by P_REV_IN_USE =MOB_P_REV.

m. Verify that the mobile station sends a correct response to the base station and ignores the extra parameters.

n. Repeat the steps d through f.

o. Instruct the base station to send a mobile station directed message containing an information record that is unknown for the protocol revision specified by MOB_P_ REV=P_REV_IN_USE (e.g. sending the *Status Request Message* containing an information record with a record type of '11111111') on the Paging Channel to the mobile station under test.

p. Verify that the mobile station ignores the unknown information record or sends a *Mobile Station Reject Order*.

q. Repeat the steps d through f.

r. Instruct the base station to send, on the Paging Channel to the mobile station under test, a mobile station directed message containing an information record that is known for the protocol revision specified by MOB_P_ REV=P_REV_IN_USE (e.g. sending the *Feature Notification Message* containing an information record with a record type of '00000101') but with a larger length than the expected length.

s. Verify that the mobile station processes the message correctly.

t. Repeat the steps d through f.

u. Instruct the base station to send, on the Paging Channel to the mobile station under test, a mobile station directed message known for the protocol revision specified by MOB_P_ REV=P_REV_IN_USE but containing reserved bits that are set to non zero values.

v. Verify that the mobile station sends a *Mobile Station Reject Order* or processes the message correctly.

w. Repeat the steps d through f.

x. End the call.

y. Instruct the base station to send new Paging Channel overhead messages (GOIM, FGOIM, FDCCLM, and APPIM) in addition to other existing Paging Channel overhead messages and SPM message that has extended (SPM).

z. Repeat steps d through f.

11.2.1.5 Minimum Requirements

The mobile station shall comply with the requirements in steps e, m, p, s and v.

11.2.2 Base Station Test

N/A.

11.3 Traffic Channel

11.3.1 Mobile Station Test

11.3.1.1 Definition

This test verifies the mobile station does not drop the call when any of the following conditions exist:

- The mobile station receives a message that contains additional fields that do not exist in the protocol revision supported by the mobile station (MOB_P_REV=P_REV_IN_USE) while on the traffic channel.
- The mobile station receives any message whose message type does not exist in the protocol revision supported by the mobile station (MOB_P_REV=P_REV_IN_USE) while on the traffic channel.
- The mobile station receives a message that contains record types that do not exist in the protocol revision supported by the mobile station (MOB_P_REV=P_REV_IN_USE) while on the traffic channel.

11.3.1.2 Traceability (See [4]):

2.6.4: *Mobile Station Control on the Traffic Channel State*

11.3.1.3 Call Flow Example(s)

None

11.3.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 1.

b. Power on the mobile station.

c. Initiate a mobile station voice call.

d. Verify audio in both directions.

e. Instruct the base station to send an existing message (e.g. the In-traffic *System Parameter Message* or General/*Universal Handoff Direction Message*). However set P_REV to MOB_P_REV, and add additional fields at the end the message such that the new message length is greater than the maximum length for the protocol revision specified by MOB_P_REV=P_REV_IN_USE.

f. Verify the mobile station sends a correct response to the base station and ignores the extra parameters.

g. Verify the call does not drop.

h. Instruct the base station to send a message (e.g. MSG_TYPE= ‘11111110’) that does not exist in the protocol revision supported by the mobile station with MOB_P_REV=P_REV _IN_USE.

i. Verify the mobile station rejects the message.

j. Verify the call does not drop.

k. Instruct the base station to send a message containing an information record that is unknown for the protocol revision specified by MOB_P_ REV=P_REV _IN_USE (e.g. sending the *Status Request Message* containing an information record with a record type of ‘11111111’).

l. Verify the mobile station ignores the unknown information record or sends a *Mobile Station Reject Order*.

m. Verify the call does not drop.

n. Release the call.

11.3.1.5 Minimum Requirements

The mobile station shall comply with the requirements in steps d, f, g, i, j, l and m.

11.3.2 Base Station Test

N/A.

11.4 Primary Broadcast Control Channel

11.4.1 Mobile Station Test

11.4.1.1 Definition

This test verifies the mobile station ignores any additional fields at the end of messages or ignore any message types that do not exist in the protocol revision supported by the mobile station on the Primary Broadcast Control Channel and is able to complete a call. This test is only applicable to MOB_P_REV equal to 7.

11.4.1.2 Traceability (See [4]):

2.6.2: *Mobile Station Idle State*
2.6.3: *System Access State*

3.7.2.3.2.26: *Sync Channel Message*

11.4.1.3 Call Flow Example(s)

None

11.4.1.4 Method of Measurement

a. Set up test as shown in Figure Annex A Figure 1.

b. Configure the base station to enable the Broadcast Control Channel and Forward Common Control Channel operation by setting SR1_BCCH_NON_TD_INCL to ‘1’ in the *Sync Channel Message*.

c. Instruct the base station to set P_REV to a value larger than MOB_P_REV, and add additional fields at the end of any one of the the Primary Broadcast Control Channel overhead messages such that the new message length is greater than the maximum length for the protocol revision specified by MOB_P_REV .

d. Power on the mobile station.

e. Initiate a mobile station terminated voice call.

f. Verify audio in both directions.

g. End the call.

h. Instruct the base station to send a new Primary Broadcast Control Channel overhead message (e.g. MSG_ID = ‘111111’) in addition to other existing Primary Broadcast Control Channel overhead messages.

i. Repeat the steps e through g.

11.4.1.5 Minimum Requirements

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

11.4.2 Base Station Test

N/A.

11.5 Forward Common Control Channel

11.5.1 Mobile Station Test

11.5.1.1 Definition

This test verifies that the mobile station ignores any additional fields at the end of messages on the Forward Common Control Channel and ignores/rejects any message types that do not exist in the protocol revision supported by the mobile station (MOB_P_REV=P_REV_IN_USE). This test is only applicable to MOB_P_REV equal to 7.

11.5.1.2 Traceability (See [4]):

2.6.2: *Mobile Station Idle State*

2.6.3: *System Access State*

3.7.2.3.2.26: *Sync Channel Message*

11.5.1.3 Call Flow Example(s)

11.5.1.4 Method of Measurement

a. Set up test as shown in Annex A Figure 1.

b. Configure the base station to enable the Broadcast Control Channel and Forward Common Control Channel operation by setting SR1_BCCH_NON_TD_INCL to '1' in the *Sync Channel Message*.

c. Power on the mobile station.

d. Instruct the base station to send a mobile station-directed message (e.g. the *Status Request Message*) on the Forward Common Control Channel addressed to a different mobile station. Ensure that P_REV is set to a value larger than MOB_P_REV, and add additional fields at the end of any one of the Paging Channel overhead messages such that the new message length is greater than the maximum length for the protocol revision specified by MOB_P_REV message length is greater than the maximum length for the protocol revision specified by MOB_P_REV.

e. Verify the mobile station ignores the message that is addressed to the other mobile station.

f. Initiate a mobile station terminated voice call.

g. Verify audio in both directions.

h. End the call.

i. Instruct the base station to send a mobile station directed message (e.g. the *Status Request Message*) on the Forward Common Control Channel to the mobile station under test. Add additional fields at the end of any one of the Forward Common Control Channel overhead messages such that the new message length is greater than the maximum length for the protocol revision specified by P_REV_IN_USE =MOB_P_REV.

j. Verify the mobile station sends a correct response to the base station and ignores the extra parameters.

k. Repeat the steps f through h.

l. Instruct the base station to send a mobile station directed message containing an information record that is unknown for the protocol revision specified by MOB_P_ REV=P_REV_IN_USE (e.g. sending the *Status Request Message* containing an information record with a record type of '11111111') on the Forward Common Control Channel to the mobile station under test. p.

m. Verify the mobile station ignores the unknown information record or sends a *Mobile Station Reject Order*.

n. Repeat the steps f through h.

o. Instruct the base station to send, on the Forward Common Control Channel to the mobile station under test, a mobile station directed message containing an information record that is known for the protocol revision specified by MOB_P_ REV=P_REV_IN_USE (e.g. sending the *Feature Notification Message* containing an information record with a record type of ‘00000101’) but with a larger length than the expected length.

p. Verify the mobile station processes the message correctly.

q. Repeat the steps f through h.

r. Instruct the base station to send, on the Forward Common Control Channel to the mobile station under test, a mobile station directed message known for the protocol revision specified by MOB_P_ REV=P_REV_IN_USE but containing reserved bits that are set to non zero values.

s. . Verify the mobile station sends a *Mobile Station Reject Order* or processes the message correctly.

t. Repeat the steps f through h.

11.5.1.5 Minimum Requirements

The mobile station shall comply with the requirements in steps e, g, j, m, p and s.

11.5.2 Base Station Test

N/A.

Annex A Reference Figures

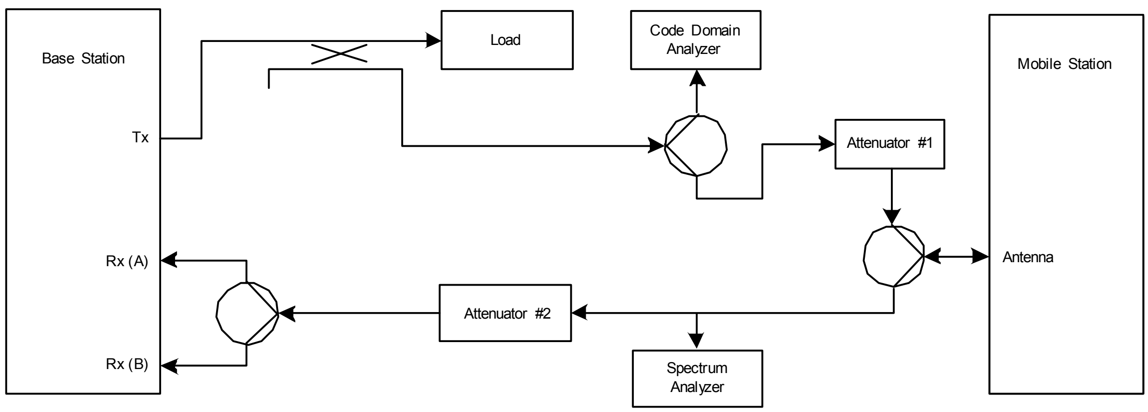


Figure 1

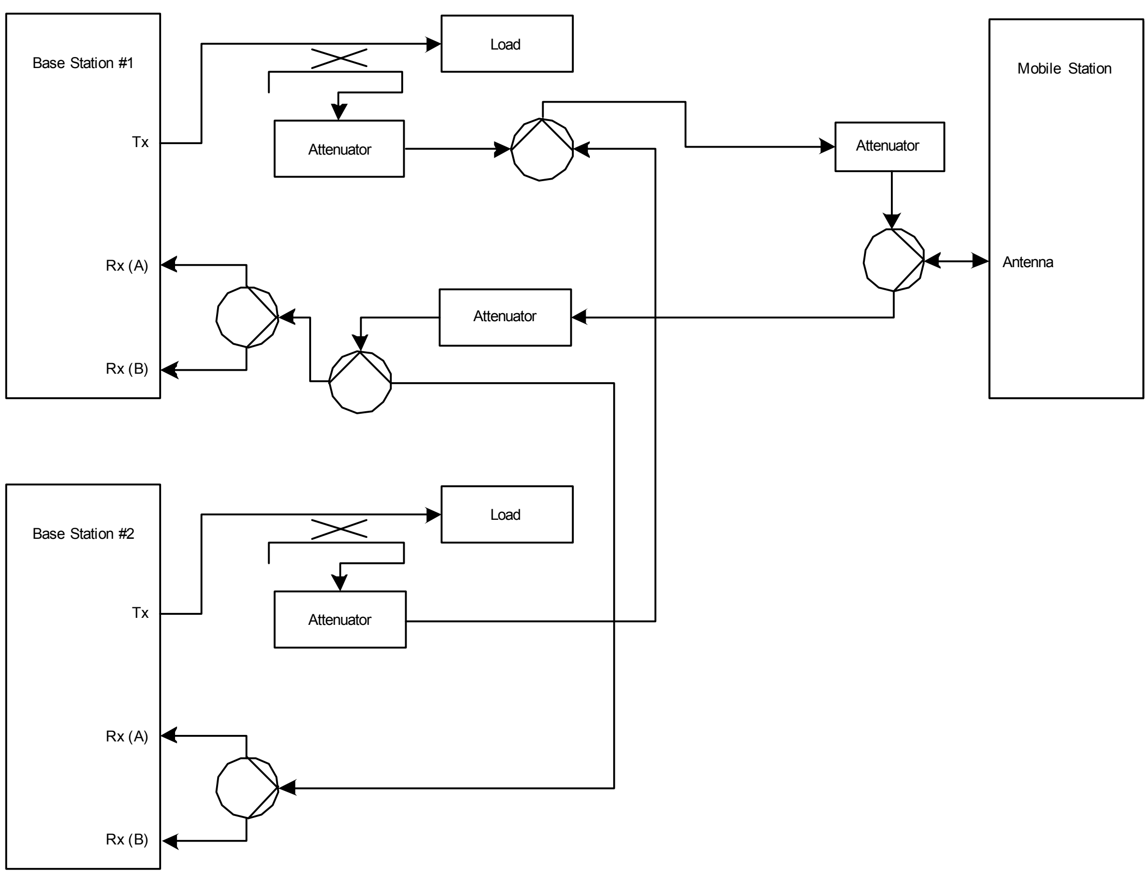


Figure 2

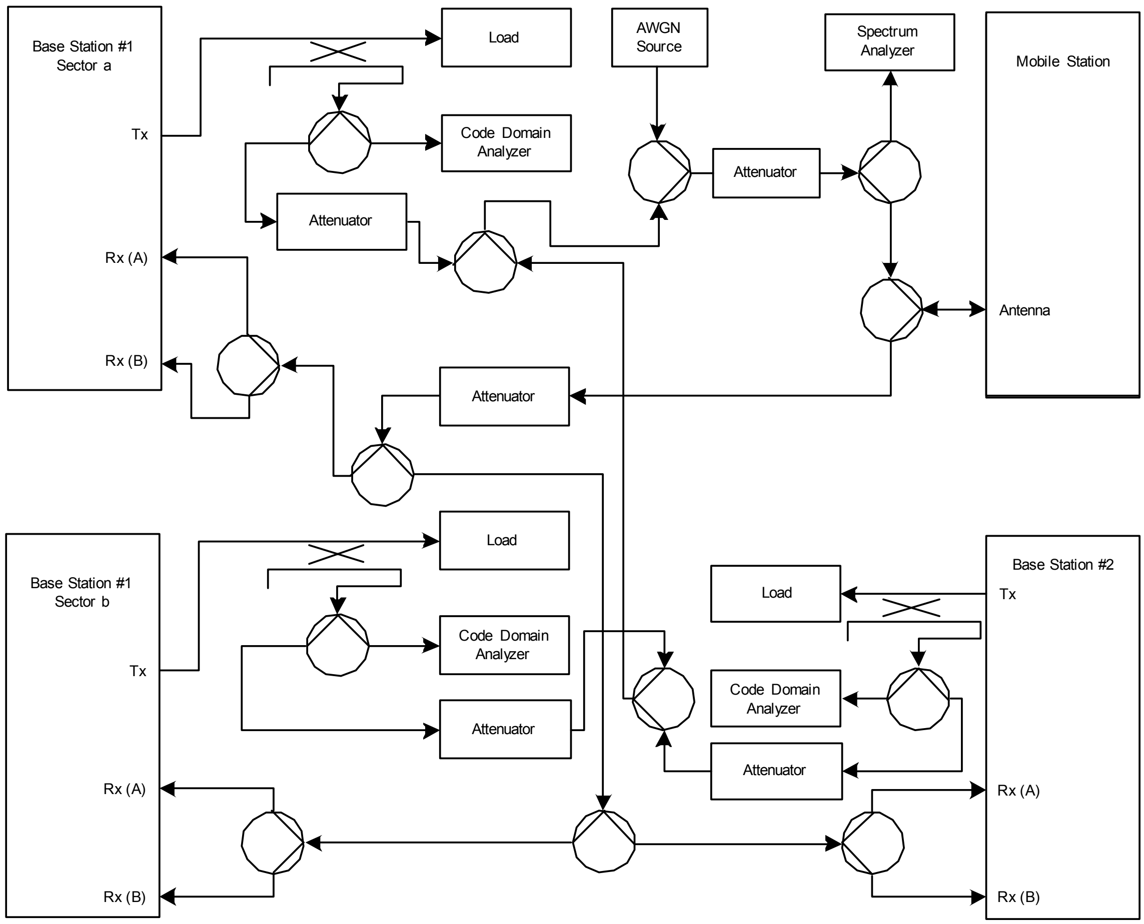


Figure 3

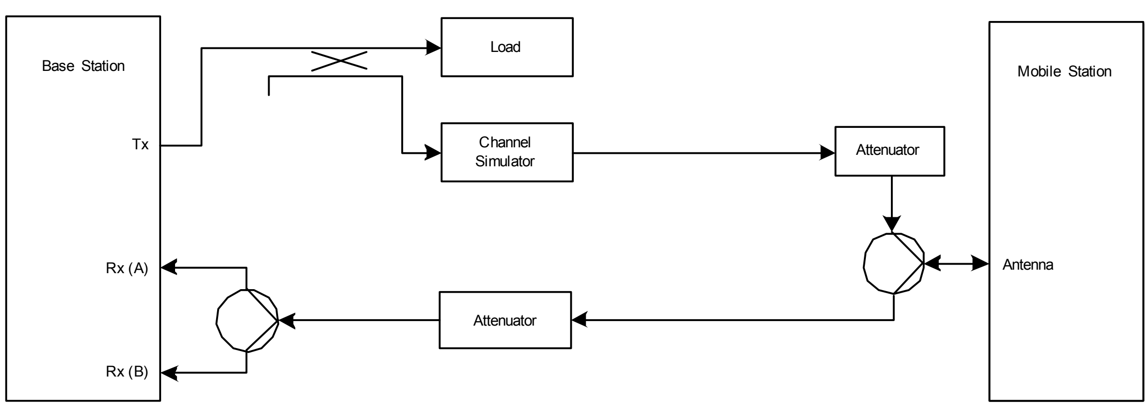


Figure 4

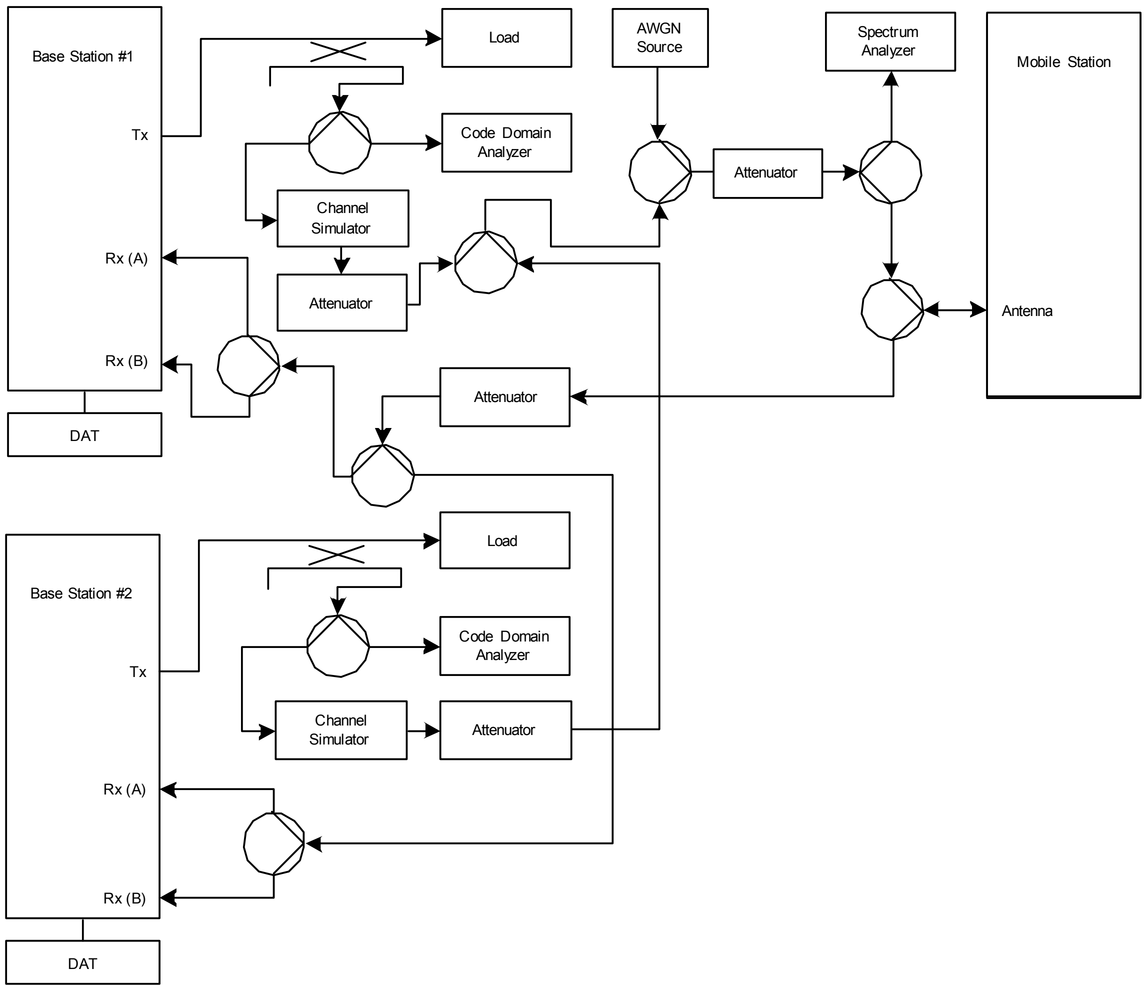


Figure 5

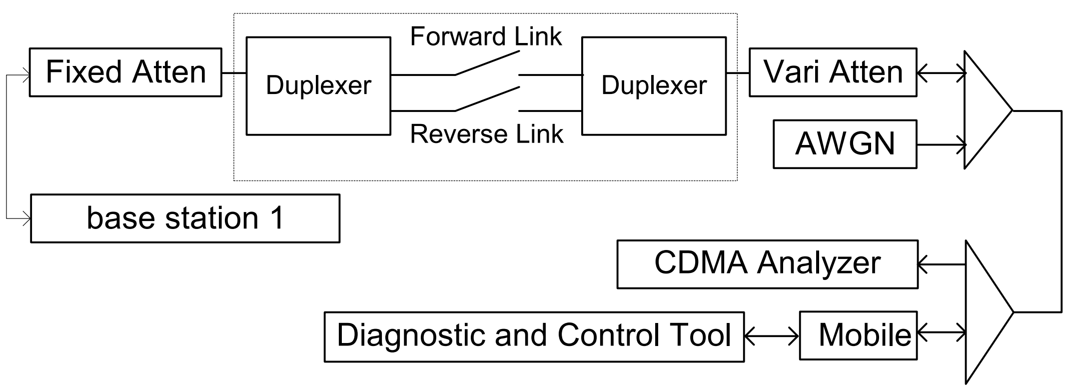


Figure 6

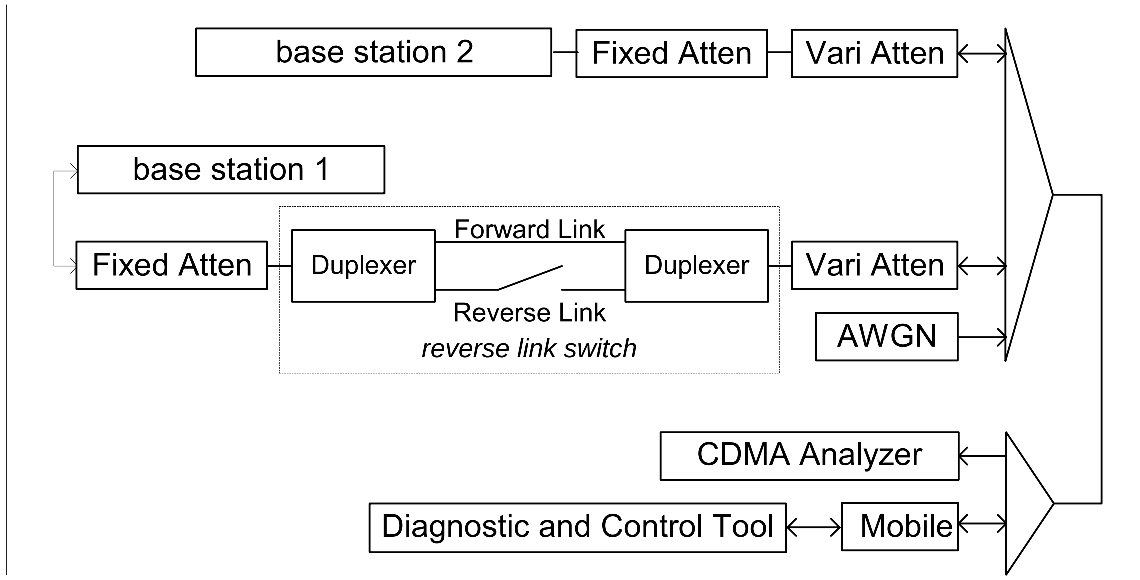

base station 2
Fixed Atten
Vari Atten
base station 1
Fixed Atten
Duplexer
Forward Link
Duplexer
Vari Atten
Reverse Link
reverse link switch
AWGN
CDMA Analyzer
Diagnostic and Control Tool
Mobile

Figure 7

Annex B RF Parameters

B.1 Power Ratios for Common and Traffic Channels

Annex B.1 provides the proper power ratios to perform a test when the power ratios are not specified in the test. The tables below specify power ratios for the Pilot Channel, the Sync Channel, the Paging Channel, the Forward Common Control Channel, the Broadcast Control Channel, the Fundamental Channel, the Dedicated Control Channel, the Supplemental Code Channels and the Supplemental Channels. The traffic channel power ratios are specified to achieve at least 1% FER under AWGN channel conditions. Most channels can be configured for more than one data rate, code rate, or frame size. Not all default configurations are listed in this Annex. However, the power ratios listed in this Annex do provide the most conservative default ratios when only a subset of the values are listed for a particular channel, since the objective of these default ratios is to support signaling conformance tests and not minimum performance tests. All power ratios are valid for Band Classes 0 through 12. Whenever the power ratios are specified in the test, those power ratios should be used in lieu of power ratios provided in this Annex.

Table B.1-1 Power Ratios for Common Channels

Parameter	Units	Value
$\frac{\text{Pilot Ec}}{\text{Ior}}$	dB	-7
$\frac{\text{Sync Ec}}{\text{Ior}}$	dB	-16
$\frac{\text{Paging Ec}}{\text{Ior}}$	dB	-12 (9600 bps)
$\frac{\text{BCCH Ec}}{\text{Ior}}$	dB	-15.2 (9600bps, no TD)
$\frac{\text{FCCCH Ec}}{\text{Ior}}$	dB	-12.8 (19200 bps) -9.5 (38400 bps)
Ioc	dBm/1.23 MHz	-54

Table B.1-2 Test Parameters for Forward Fundamental Channel (RC1, RC3 and RC4)

Parameter	Units	Value
$\frac{\hat{I}\text{or}}{\text{Ioc}}$	dB	-1
$\frac{\text{FCH Ec}}{\text{Ior}}$ (RC1)	dB	-15.6

$\frac{\text{FCH Ec}}{\text{Ior}}$(RC3)	dB	-16.2
$\frac{\text{FCH Ec}}{\text{Ior}}$(RC4)	dB	-15.4
Ioc	dBm/1.23 MHz	-54
Data Rate	bps	9600

Table B.1-3 Test Parameters for Forward Fundamental Channel (RC2 and RC5)

Parameter	Units	Value
$\frac{\hat{\text{I}}\text{or}}{\text{Ioc}}$	dB	-1
$\frac{\text{FCH Ec}}{\text{Ior}}$(RC2)	dB	-12.3
$\frac{\text{FCH Ec}}{\text{Ior}}$(RC5)	dB	-13.8
Ioc	dBm/1.23 MHz	-54
Data Rate	bps	14400

Table B.1-4 Test Parameters for Forward Dedicated Control Channel (RC3 and RC4)

Parameter	Units	Value
$\frac{\hat{\text{I}}\text{or}}{\text{Ioc}}$	dB	-1
$\frac{\text{FCH Ec}}{\text{Ior}}$(RC3)	dB	-16.2
$\frac{\text{FCH Ec}}{\text{Ior}}$(RC4)	dB	-15.4
Ioc	dBm/1.23 MHz	-54
Data Rate	bps	9600

Table B.1-5 Test Parameters for Forward Dedicated Control Channel (RC5)

Parameter	Units	Value
$\frac{\hat{\text{I}}\text{or}}{\text{Ioc}}$	dB	-1
$\frac{\text{FCH Ec}}{\text{Ior}}$	dB	-13.8
Ioc	dBm/1.23 MHz	-54
Data Rate	bps	14400

Table B.1-6 Test Parameters for Forward Supplemental Code Channel (RC1)

Parameter	Units	Value

$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1
$\frac{\text{SCCH } E_c}{I_{or}}$	dB	-16.1
$\frac{\text{FCH } E_c}{I_{or}}$	dB	-12.0
I_{oc}	dBm/1.23 MHz	-54
Data Rate	bps	9600

Table B.1-7 Test Parameters for Forward Supplemental Code Channel (RC2)

Parameter	Units	Value
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1
$\frac{\text{SCCH } E_c}{I_{or}}$	dB	-13.0
$\frac{\text{FCH } E_c}{I_{or}}$	dB	-12.0
I_{oc}	dBm/1.23 MHz	-54
Data Rate	bps	14400

Table B.1-8 Test Parameters for Forward Supplemental Channel (RC3 and RC4)

Parameter	Units	Value			
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1			
$\frac{\text{SCH } E_c}{I_{or}}$ (RC3)	dB	-13.0	-9.7	-6.6	-3.2
$\frac{\text{SCH } E_c}{I_{or}}$ (RC4)	dB	-12.6	-9.3	-6.0	-2.8
$\frac{\text{FCH } E_c}{I_{or}}$	dB	-7.0			
I_{oc}	dBm/1.23 MHz	-54			
Data Rate	bps	19200	38400	76800	153600

Table B.1-9 Test Parameters for Forward Supplemental Channel (RC5)

Parameter	Units	Value			
$\frac{\hat{I}_{or}}{I_{oc}}$	dB	-1			
$\frac{\text{SCH } E_c}{I_{or}}$	dB	-10.9	-7.9	-4.6	-1.4
$\frac{\text{FCH } E_c}{I_{or}}$	dB	-7.0			

Ioc	dBm/1.23 MHz	-54			
Data Rate	bps	28800	57600	115200	230400

B.2 CDMA Equations

The following equations describe the relationship between various test parameters under different conditions. If the Paging Channel is not supported, the Forward Common Control Channel may be substituted.

B.2.1 Transmit Power of the Base Station

$$\frac{\text{Pilot } E_c}{I_{or}} + \frac{\text{TD Pilot } E_c}{I_{or}} + \frac{\text{Sync } E_c}{I_{or}} + \frac{\text{QPCH } E_c}{I_{or}} + \frac{\text{Paging } E_c}{I_{or}} + \frac{\text{FCCCH } E_c}{I_{or}} + \frac{\text{BCCH } E_c}{I_{or}} +$$

$$\frac{\text{CACH } E_c}{I_{or}} + \frac{\text{CPCCH } E_c}{I_{or}} + \frac{\text{FCH } E_c}{I_{or}} + \frac{\text{DCCH } E_c}{I_{or}} + \frac{\text{Power Control } E_c}{I_{or}} + \frac{\text{SCCH } E_c}{I_{or}} +$$

$$\frac{\text{SCH } E_c}{I_{or}} + \frac{\text{OCNS } E_c}{I_{or}} = 1$$

Using the $\frac{E_c}{I_{or}}$ values for the Pilot, Sync and Paging Channels in Table B.1-1,

If $\frac{\text{Dedicated } E_c}{I_{or}}$ = -16 dB at 9600 bps data rate, then

$$\frac{\text{Power Control } E_c}{I_{or}} = -26.41 \text{ dB}$$

$$\frac{\text{OCNS } E_c}{I_{or}} = -1.64 \text{ dB}$$

Otherwise, if $\frac{\text{Dedicated } E_c}{I_{or}}$ = -16 dB at 1200 bps data rate, then

$$\frac{\text{Power Control } E_c}{I_{or}} = -17.38 \text{ dB}$$

$$\frac{\text{OCNS } E_c}{I_{or}} = -1.75 \text{ dB}$$

Where “Dedicated” can represent FCH or DCCH.

B.2.2 Received Signal Strength for Mobile Station Not in Handoff

$$\text{Pilot } \frac{E_c}{I_0} = \frac{\frac{\text{Pilot } E_c}{I_{or}}}{\frac{I_{oc}}{\hat{I}_{or}} + 1}$$

Single-Path Case

$$\text{Common } \frac{E_b}{N_t} = \frac{\frac{\text{Common } E_c}{I_{or}} \times \text{Common\_Chip\_Bit}}{\frac{I_{oc}}{\hat{I}_{or}}}$$

$$\text{Dedicated } \frac{E_b}{N_t} = \frac{\frac{\text{Dedicated } E_c}{I_{or}} \times \text{Dedicated\_Chip\_Bit}}{\frac{I_{oc}}{\hat{I}_{or}}}$$

Where “Common” can be applied to Sync Channel, QCPH, Paging Channel, BCCH, or FCCCH. “Dedicated” can be applied to FCH, DCCH, SCCH, or SCH.

Two-Path Case

According to Channel Simulator Configuration 1 and 2 (see 6.4.1.1), these two paths have the same average power.

$$\text{Dedicated } \frac{E_b}{N_t} = \frac{\text{Dedicated } E_c}{I_{or}} \text{ x Dedicated\_Chip\_Bit x } \frac{1}{\frac{I_{oc}}{\hat{I}_{or}} + \frac{1}{2}}$$

Where “Dedicated” can be applied to FCH, DCCH, SCCH, or SCH.

Three-Path Case

According to Channel Simulator Configuration 4 (see 6.4.1.1), the first two paths have the same average power and the third path has half the average power of the first one.

$$\text{Dedicated } \frac{E_b}{N_t} = \frac{\text{Dedicated } E_c}{I_{or}} \text{ x Dedicated\_Chip\_Bit x} \left(2 \text{ x } \frac{\frac{2}{5}}{\frac{I_{oc}}{\hat{I}_{or}} + \frac{3}{5}} + \frac{\frac{1}{5}}{\frac{I_{oc}}{\hat{I}_{or}} + \frac{4}{5}} \right)$$

Where “Dedicated” can be applied to FCH, DCCH, SCCH, or SCH.

B.2.3 Received Signal Strength for Mobile Station in Two-Way Handoff

According to Channel Simulator Configuration 2 (see 6.4.1.1), which is used in the tests of the Forward Traffic Channel in two-way handoff, there are two paths from each cell and the power received from each cell is $\hat{I}_{or}$.

$$\text{Pilot } \frac{E_c}{I_0} \text{ (for each pilot)} = \frac{\dfrac{\text{Pilot } E_c}{I_{or}}}{\dfrac{I_{oc}}{\hat{I}_{or}} + 2}$$

$$\text{Dedicated } \frac{E_b}{N_t} = \frac{\text{Dedicated } E_c}{I_{or}} \text{ x Dedicated\_Chip\_Bit x } \frac{\dfrac{3}{2}}{\dfrac{I_{oc}}{\hat{I}_{or}} + \dfrac{3}{2}}$$

Where "Dedicated" can be applied to FCH, DCCH, SCCH, or SCH.

Generally, if the power received from cell 1 and cell 2 are $\hat{I}_{or1}$ and $\hat{I}_{or2}$, respectively, then

$$\text{Pilot } \frac{E_c}{I_0}{}_1 = \frac{\dfrac{\text{Pilot } E_{c\,1}}{I_{or}}}{\dfrac{I_{oc}}{\hat{I}_{or1}} + \dfrac{\hat{I}_{or2}}{\hat{I}_{or1}} + 1}$$

$$\text{Pilot } \frac{E_c}{I_0}{}_2 = \frac{\dfrac{\text{Pilot } E_{c\,2}}{I_{or}}}{\dfrac{I_{oc}}{\hat{I}_{or2}} + \dfrac{\hat{I}_{or1}}{\hat{I}_{or2}} + 1}$$

Annex C Base Station and Mobile Station Configurations

a. Whenever common channels and/or traffic channels are required to perform a test, and their power ratios are not specified in the test, the power ratios specified in Annex A should be used. Adjust the Orthogonal Channel Noise Simulator (OCNS) gain such that power ratios (Ec/Ior) of all specified forward channels add up to one. If OCNS is not available, the levels of code channels and attenuators should be adjusted to maintain proper test parameters.

b. During handoff tests between sectors of the same cell, Channel 2 from the beta sector shall have a maximum relative offset of 1 μs from Channel 1 of the alpha sector at the mobile station antenna connector.

c. During soft and intersector handoff tests, the neighbor list of the base station in the test shall include PN offsets of the other base station in the test.

d. Pilot PN sequence offsets are denoted by Pi (i=1, 2, 3, ...). The following are assumed unless otherwise specified:

- 0 <= Pi <= 511
- Pi not equal to Pj if i not equal to j
- Pi mod PILOT_INC = 0

e. Base stations should be configured for normal operation as specified in IS-2000 unless otherwise specified in a specific test.

f. Unless otherwise specified, the Reverse Traffic Channel should be operated at a sufficiently high Eb/No to ensure insignificant (for example, less than 1%) frame error rate (FER).

g. Overhead message fields should be those required for normal operation of the base station unless otherwise specified in the following tables or in a specific test.

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

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

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)

Field	Value (Decimal)
SOFT_SLOPE	0 (0)
RLGAIN_TRAFFIC_PILOT	0 (0 dB)

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)

Constant	Value	Unit
N_{1m}	13	frames
N_{2m}	12	frames
N_{3m}	2	frames
N_{11m}	1	frame
T_{1b}	1.28	seconds
T_{5m}	5	seconds
T_{31m}	600	seconds
T_{40m}	3	seconds
T_{56m}	0.2	seconds
T_{61m}	0.08	seconds

Note: When operating in P_REV less than 6, N1m equal to 9 may be acceptable.