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3RD GENERATION  
PARTNERSHIP  
PROJECT 2  
"3GPP2"

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1 **Analog Signaling Standard for cdma2000**  
2 **Spread Spectrum Systems**

3 **Revision C**

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**FOREWORD**

- 1 **1. General.** This section defines the terms and numeric indications used in this  
2 document.
- 3 **2. Requirements for Mobile Station Analog Operation.** This section describes the  
4 requirements for CDMA-analog dual-mode mobile stations operating in the analog mode.  
5 A mobile station complying with these requirements will be able to operate with analog  
6 base stations complying with this document operating in accordance with this  
7 specification and should be able to operate with analog base stations complying with [26],  
8 [25], [7], and [24] or the latest version of these standards.
- 9 **3. Requirements for Base Station Analog Operation.** This section describes the  
10 requirements for analog base stations. A base station operating in accordance with these  
11 requirements will be able to operate in the analog mode with mobile stations operating in  
12 accordance with this specification and should be able to operate in the analog mode with  
13 mobile stations complying with [26], [25], [7], and [24] or the latest version of these  
14 standards.
- 15 **4. Requirements for Mobile Station Analog Options.** This section describes the  
16 requirements for CDMA-analog dual-mode mobile stations on the reverse analog control  
17 channel. This section describes CDMA-analog dual-mode mobile station requirements for  
18 use of the optional extended protocol.
- 19 **5. Requirements for Base Station Analog Options.** This section describes the base  
20 station requirements for the reverse analog control channel. This section describes  
21 base station requirements for use of the optional extended protocol.
- 22 **Annex A.** Reserved.
- 23 **Annex B. Mobile Station Database.** This informative annex describes a database model  
24 that can be used for dual-mode mobile stations complying with this document.

**NOTES**

- 1        1. Compatibility, as used in connection with this standard, is understood to mean:  
2        Any cdma2000<sup>®1</sup> mobile station is able to place and receive calls in cdma2000 or IS-  
3        95 systems. Conversely, any cdma2000 system is able to place and receive calls for  
4        cdma2000 and IS-95 mobile stations. In a subscriber's home system, all call  
5        placement must be automatic. Call placement preferably should be automatic  
6        when a mobile station is in roam status.
- 7        2. The term "dual-mode mobile station" indicates a mobile station capable of both  
8        analog (FM) and spread spectrum (CDMA) operation. The term "spread spectrum  
9        dual-mode mobile station" is used when a confusion might arise between a dual-  
10       dual-mode mobile station complying with this document and other standards such as  
11       [24] or [25].
- 12       3. This compatibility specification is based upon the specific spectrum allocations  
13       defined by various governmental administrations.
- 14       4. Technical details are included for the operation of two cellular systems in a  
15       geographic area, System A and System B, each with a separate set of control  
16       channels.
- 17       5. EIA/IS-19-B (May 1988) and [28] provide specifications and measurement methods  
18       for cellular equipment.
- 19       6. Each system is identified by a unique 15-bit digital code, the SID code. The  
20       responsibility for assignment of SID rests with the cognizant government authority  
21       of the respective country. Applicants, licensees, manufacturers or operators are  
22       encouraged to contact the responsible government agency. [31] recommends SID  
23       range for countries. Cognizant government authorities should refer to [31] when  
24       allowing SID codes.
- 25       7. Each mobile station is assigned a single unique 32-bit binary serial number (ESN)  
26       which cannot be changed by the subscriber without rendering the mobile station  
27       inoperative (see 2.3.2 of [5]).
- 28       8. Those wishing to deploy systems compliant with this standard should also take  
29       notice of the requirement to be compliant with the applicable rules and regulations  
30       of local administrations.
- 31       9. Those wishing to deploy systems compliant with this Standard should also take  
32       notice of the electromagnetic exposure criteria for the general public and for radio  
33       frequency carriers with low frequency amplitude modulation.

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<sup>1</sup> cdma2000<sup>®</sup> is the trademark for the technical nomenclature for certain specifications and standards of the Organizational Partners (OPs) of 3GPP2 Geographically (and as of the date of publication), cdma2000<sup>®</sup> is a registered trademark of the Telecommunications Industry Association (TIA-USA) in the United States.

**NOTES**

- 1 10. For the optional analog extended protocol feature (see 4.1 and 5.1), the assignment  
2 of message type codes (MST words) will be made using procedures described in  
3 [32]. This will ensure that the feature will be implemented in an orderly manner.
- 4 11. "Base station" refers to the functions performed on the land side, which are  
5 typically distributed among a cell, a sector of a cell, and a mobile switching center.
- 6 12. This standard uses the following verbal forms: "Shall" and "shall not" identify  
7 requirements to be followed strictly to conform to the standard and from which no  
8 deviation is permitted. "Should" and "should not" indicate that one of several  
9 possibilities is recommended as particularly suitable, without mentioning or  
10 excluding others; that a certain course of action is preferred but not necessarily  
11 required; or that (in the negative form) a certain possibility or course of action is  
12 discouraged but not prohibited. "May" and "need not" indicate a course of action  
13 permissible within the limits of the standard. "Can" and "cannot" are used for  
14 statements of possibility and capability, whether material, physical, or causal. The  
15 use of "must" and "must not" is equivalent to the use of "shall" and "shall not."
- 16 13. Unless indicated otherwise, this document presents numbers in decimal form.  
17 Binary numbers are distinguished in the text by the use of single quotation marks.
- 18 14. A potential compatibility problem between [26] and this standard exists as a result  
19 of differences in access channel boundary determination procedures supported in  
20 these two standards. Recommended solutions to this potential compatibility  
21 problem are the following:

**Preferred Solution**

22  
23 Section 2.3.7 of [26] (First Paging Channel) specifies the first paging channels  
24 (FIRSTCHP<sub>p</sub>) which must be stored in a mobile station compliant to this standard  
25 and used to identify the first paging channel in paging channel scans when the  
26 mobile station is operating in its home system. Defaulting this value to the  
27 preferred system's (i.e., A or B band) first dedicated control channel (834.990  
28 MHz/879.990 MHz and 835.020 MHz/880.020 MHz respectively) will prevent  
29 paging/access channels from being calculated differently when the mobile station,  
30 compliant to this standard, operates on a [26] based home system. This solution is  
31 used today and should continue to be used to ensure full interoperability of [26]  
32 and mobile stations compliant to this standard on both [26] and cdma2000 type  
33 systems. This solution does, however, require that both home and roaming mobile  
34 stations, compliant to this standard, use the same paging channel set (i.e., no split  
35 home-roam paging channels).

**Alternate (Non-Preferred) Solution**

36  
37 If a second portion of the existing spectrum is allocated for control channel use  
38 (over and above the dedicated control channels), then split home-roam paging can  
39 still be achieved for both [25] and [26] mobile stations. This second portion of  
40 spectrum could be managed as follows:

- 41 • Used exclusively by home mobile stations, compliant to this standard, having  
42 appropriate NAM programming, for both paging and access functions or,

**NOTES**

- 1           • Used by home mobile stations, compliant to this standard, having appropriate  
2           NAM programming, that includes both paging and access functions and by  
3           home [26] mobile stations, having appropriate NAM programming, for paging  
4           functions only. Home [26] mobile stations would continue to use the existing  
5           dedicated control channels for access functions.
- 6       15. Forward control channel mobile station control messages of greater than five words  
7       in length have been shown to yield compatibility problems in some mobile stations.  
8       Implementers of systems are advised that the functions performed by these  
9       optional messages may be achieved on assigned voice channels without causing  
10      compatibility issues. Mobile station manufacturers are advised that the length of  
11      forward control channel messages defined in future standards may be different  
12      from that defined in this standard.
- 13     16. The NOTES section of [26] contains technical recommendations regarding analog  
14     mode operation. These recommendations also apply to mobile station(s) operating  
15     in accordance with this standard while operating in the analog mode. See the  
16     NOTES section of [26], [7], and [24] for further details.

**REFERENCES**

1 The following standards and other references contain provisions, which, through reference  
2 in this text, constitute provisions of this Standard. At the time of publication, the editions  
3 indicated were valid. All standards are subject to revision, and parties to agreements  
4 based upon this Standard are encouraged to investigate the possibility of applying the  
5 most recent editions of the standards indicated below. ANSI and TIA maintain registers of  
6 their own currently valid national published standards.

- 7 1. Reserved.
- 8 2. Reserved.
- 9 3. Reserved.
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- 17 8. ANSI T1.607-1990, *Integrated Services Digital Network (ISDN)-Layer 3 Signaling*  
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- 26 12. ANSI TIA/EIA-97-B, *Recommended Minimum Standards for 800 MHz Cellular Base*  
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- 30 14. *Common Cryptographic Algorithms, Revision C*, 1997. A TIA document subject to  
31 restricted distribution. Contact the Telecommunications Industry Association,  
32 Arlington, VA.
- 33 15. CCITT Recommendation E.163, *Numbering Plan for the International Telephone*  
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- 21 28. C.S0010-A, Recommended Minimum Performance Standards for Base Stations  
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10

## 1. GENERAL

### 1.1. Terms and Numeric Information

#### 1.1.1. Terms

**Access Attempt.** The entire process of sending one message and receiving (or failing to receive) an acknowledgment for that message, consisting of one or more access sub-attempts.

**AC.** See Authentication Center

**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.

**Analog Access Channel.** An analog control channel used by a mobile station to access a system to obtain service.

**Analog Color Code.** An analog signal (see Supervisory Audio Tone) transmitted by a base station on an analog voice channel and used to detect the capture of a mobile station by an interfering base station or the capture of a base station by an interfering mobile station.

**Analog Control Channel.** An analog channel used for the transmission of digital control information from a base station to a mobile station or from a mobile station to a base station.

**Analog Paging Channel.** A forward analog control channel that is used to page mobile stations and to send orders.

**Analog Voice Channel.** An analog channel on which a voice conversation occurs and on which brief digital messages may be sent from a base station to a mobile station or from a mobile station to a base station.

**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.

**AUTHBS.** See Base Station Authentication Response

**AUTHR.** See Authentication Response

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

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

- 1 **Base Station.** A fixed station used for communicating with mobile stations. Depending  
2 upon the context, the term base station may refer to a cell, a sector within a cell, an MSC,  
3 or other part of the wireless system. See also MSC.
- 4 **Base Station Authentication Response (AUTHBS).** An 18-bit pattern generated by the  
5 authentication algorithm. AUTHBS is used to confirm the validity of base station orders to  
6 update the Shared Secret Data.
- 7 **Base Station Random Variable (RANDBS).** A 32-bit random number generated by the  
8 mobile station for authenticating base station orders to update the Shared Secret Data.
- 9 **BCH Code.** See Bose-Chaudhuri-Hocquenghem Code.
- 10 **Bose-Chaudhuri-Hocquenghem Code (BCH Code).** A large class of error-correcting cyclic  
11 codes. For any positive integers  $m$ ,  $m \geq 3$ , and  $t < 2^{m-1}$ , there is a binary BCH code with a  
12 block length  $n$  equal to  $2^m - 1$  and  $n - k \leq mt$  parity check bits, where  $k$  is the number of  
13 information bits. The BCH code has a minimum distance of at least  $2t + 1$ .
- 14 **bps.** Bits per second.
- 15 **Call Disconnect.** The process that releases the resources handling a particular call. The  
16 disconnect process begins either when the mobile station user indicates the end of the call  
17 by generating an on-hook condition or other call release mechanism, or when the base  
18 station initiates a release.
- 19 **Calling Number I.D. (CNI)** A display to the called party, indicating unique calling party  
20 information .**CDMA.** See Code Division Multiple Access.
- 21 **CDMA Channel.** The set of channels transmitted between the base station and the mobile  
22 stations within a given CDMA frequency assignment. See also Forward CDMA Channel  
23 and Reverse CDMA Channel.
- 24 **CDMA Channel Number.** An 11-bit number corresponding to the center of the CDMA  
25 frequency assignment.
- 26 **CDMA Frequency Assignment.** An assigned 1.23 MHz segment of spectrum. For CDMA  
27 cellular systems, the channel is centered on one of the 30 kHz channels of the existing  
28 analog cellular system. For PCS band CDMA systems, the channel is centered on one of  
29 the 50 kHz channels.
- 30 **Code Division Multiple Access (CDMA).** A technique for spread-spectrum multiple-  
31 access digital communications that creates channels through the use of unique code  
32 sequences.
- 33 **CRC.** See Cyclic Redundancy Code
- 34 **Cyclic Redundancy Code (CRC).** A class of linear error detecting codes which generate  
35 parity check bits by finding the remainder of a polynomial division.
- 36 **dBm.** A measure of power expressed in terms of its ratio (in dB) to one milliwatt.
- 37 **DCC.** See Digital Color Code.
- 38 **Dedicated Control Channel.** An analog control channel used for the transmission of  
39 digital control information from either a base station or a mobile station.

- 1 **Digital Color Code (DCC).** A digital signal transmitted by a base station on a forward  
2 analog control channel that is used to detect the capture of a base station by an interfering  
3 mobile station.
- 4 **Discontinuous Transmission (DTX).** A mode of operation in which a mobile station  
5 transmitter autonomously switches between two transmitter power levels while the mobile  
6 station is in the conversation state on an analog voice channel.
- 7 **DTMF.** See Dual-Tone Multifrequency.
- 8 **DTX.** See Discontinuous Transmission.
- 9 **Dual-Tone Multifrequency (DTMF).** Signaling by the simultaneous transmission of two  
10 tones, one from a group of low frequencies and another from a group of high frequencies.  
11 Each group of frequencies consists of four frequencies.
- 12 **Electronic Serial Number (ESN).** A 32-bit number assigned by the mobile station  
13 manufacturer, uniquely identifying the mobile station equipment.
- 14 **ESN.** See Electronic Serial Number.
- 15 **Extended Protocol.** An optional expansion of the signaling messages between the base  
16 station and mobile station to allow for the addition of new system features and operational  
17 capabilities.
- 18 **Fade Timer.** A timer kept by the mobile station as a measure of Forward Traffic Channel  
19 continuity. If the fade timer expires, the mobile station drops the call.
- 20 **Flash.** An indication sent on an analog voice channel or CDMA Traffic Channel indicating  
21 that the user directed the mobile station to invoke special processing.
- 22 **FOCC.** See Forward Analog Control Channel.
- 23 **Forward Analog Control Channel (FOCC).** An analog control channel used from a base  
24 station to a mobile station.
- 25 **Forward Analog Voice Channel (FVC).** An analog voice channel used from a base station  
26 to a mobile station.
- 27 **GHz.** Gigahertz ( $10^9$  Hertz).
- 28 **Handoff.** The act of transferring communication with a mobile station from one base  
29 station to another.
- 30 **HLR.** See Home Location Register.
- 31 **Home Location Register (HLR).** The location register to which a MIN/IMSI is assigned for  
32 record purposes such as subscriber information.
- 33 **Home System.** The wireless system in which the mobile station subscribes for service.
- 34 **IRA.** International Reference Alphabet. Text character encoding as defined in [39].
- 35 **IMSI.** See International Mobile Station Identity.
- 36 **IMSI\_M.** MIN-based IMSI using the lower 10 digits to store the MIN.

- 1 **IMSI\_O.** Operational value of IMSI used by the mobile station for operation with the base  
2 station.
- 3 **Interleaving.** The process of permuting a sequence of symbols.
- 4 **International Mobile Station Identity (IMSI).** A method of identifying stations in the  
5 land mobile service as specified in [17].
- 6 **kHz.** Kilohertz ( $10^3$  Hertz).
- 7 **Local Control.** The local control order is used by a base station to initial local control  
8 action in the mobile station.
- 9 **Message.** A data structure that conveys control information or application information. A  
10 message consists of a length field (MSG\_LENGTH), a message body (the part conveying the  
11 information), and a CRC.
- 12 **Message CRC.** The CRC check associated with a message. See also Cyclic Redundancy  
13 Code.
- 14 **Message Field.** A basic named element in a message. A message field may consist of zero  
15 or more bits.
- 16 **MHz.** Megahertz ( $10^6$  Hertz).
- 17 **MIN.** See Mobile Identification Number.
- 18 **Mobile Identification Number (MIN).** The 34-bit number that is a digital representation  
19 of the 10-digit number assigned to a mobile station.
- 20 **Mobile Protocol Capability Indicator (MPCI).** A 2-bit field used to indicate the mobile  
21 station's capabilities.
- 22 **Mobile Station.** A station in the Public Wireless Radio Telecommunications Service  
23 intended to be used while in motion or during halts at unspecified points. Mobile stations  
24 include portable units (e.g., hand-held personal units) and units installed in vehicles.
- 25 **Mobile Station Class.** Mobile station classes define mobile station characteristics such as  
26 transmission power. See Table 2.3.3-1 of [26] and Table 2.3.3-1 of [5].
- 27 **Mobile Station Identification Number (MSIN).** A part of the E.212 IMSI identifying the  
28 mobile station within its home network. See [17].
- 29 **Mobile Station Originated Call.** A call originating from a mobile station.
- 30 **Mobile Station Terminated Call.** A call received by a mobile station (not to be confused  
31 with a disconnect or call release).
- 32 **Mobile Switching Center (MSC).** A configuration of equipment that provides wireless  
33 radiotelephone service. Also called the Mobile Telephone Switching Office (MTSO).
- 34 **MPCI.** See Mobile Protocol Capability Indicator
- 35 **ms.** Millisecond ( $10^{-3}$  second).
- 36 **MSB.** Most significant bit.
- 37 **MSC.** See Mobile Switching Center.

- 1 **MSIN.** See Mobile Station Identification Number.
- 2 **NAM.** See Number Assignment Module.
- 3 **Narrow Analog.** A type of voice channel that uses 10 kHz channel spacing and uses  
4 subaudible signaling.
- 5 **National Mobile Station Identity (NMSI).** A part of the E.212 IMSI identifying the mobile  
6 station within its home country. The NMSI consists of the NMC and the MSIN. See [17].
- 7 **Network.** A network is a subset of a wireless system, such as an area-wide wireless  
8 network, a private group of base stations, or a group of base stations set up to handle a  
9 special requirement. A network can be as small or as large as needed, as long as it is fully  
10 contained within a system. See also System.
- 11 **Network Directed System Selection (NDSS).** A feature that allows the mobile station to  
12 automatically register with a preferred system while roaming, or to be automatically  
13 directed by a service provider, typically the home service provider, to a suggested system,  
14 regardless of the frequency band class, or cellular band.
- 15 **NMSI.** See National Mobile Station Identity.
- 16 **Non-Autonomous Registration.** A registration method in which the base station initiates  
17 registration. See also Autonomous Registration.
- 18 **ns.** Nanosecond ( $10^{-9}$  second).
- 19 **Number Assignment Module (NAM).** A set of MIN/IMSI-related parameters stored in the  
20 mobile station.
- 21 **Numeric Information.** Numeric information consists of parameters that appear as  
22 numeric fields in messages exchanged by the base station and the mobile station and  
23 information used to describe the operation of the mobile station.
- 24 **OLC.** See Overload Control (analog).
- 25 **Optional Field.** A field defined within a message structure that is optionally transmitted  
26 to the message recipient.
- 27 **Order.** A type of message that contains control codes for either the mobile station or the  
28 base station. See Table 3.7.1.1-1.
- 29 **Overhead Message.** A message sent by the base station on the Paging Channel to  
30 communicate base-station-specific, network-wide and system-wide, information to mobile  
31 stations.
- 32 **Overload Control (OLC).** A means to restrict reverse analog control channel accesses by  
33 mobile stations. Mobile stations are assigned one (or more) of sixteen control levels.  
34 Access is selectively restricted by a base station setting one or more OLC bits in *the*  
35 *Overload Control Global Action Message*.
- 36 **PACA.** Priority Access and Channel Assignment. See PACA Call.
- 37 **PACA Call.** A priority mobile station originated call for which no traffic channel or voice  
38 channel was immediately available, and which has been queued for a priority access  
39 channel assignment.

- 1 **Paging.** The act of seeking a mobile station when a call has been placed to that mobile  
2 station.
- 3 **Paging Channel (Analog).** See Analog Paging Channel.
- 4 **Parity Check Bits.** Bits added to a sequence of information bits to provide error detection,  
5 correction, or both.
- 6 **Power-Down Registration.** An autonomous registration method in which the mobile  
7 station registers on power-down.
- 8 **RECC.** See Reverse Analog Control Channel
- 9 **RANDBS.** See Base Station Random Variable
- 10 **Receive Objective Loudness Rating (ROLR).** A perceptually weighted transducer gain of  
11 telephone receivers relating electrical excitation from a reference generator to sound  
12 pressure at the earphone. The receive objective loudness rating is normally specified in dB  
13 relative to one Pascal per millivolt. See [36], [22], [37], and [38].
- 14 **Registration.** The process by which a mobile station identifies its location and parameters  
15 to a base station.
- 16 **Release.** A process that the mobile station and base station use to inform each other of  
17 call disconnect.
- 18 **Reverse Analog Control Channel (RECC).** The analog control channel used from a  
19 mobile station to a base station.
- 20 **Reverse Analog Voice Channel (RVC).** The analog voice channel used from a mobile  
21 station to a base station.
- 22 **Roamer.** A mobile station operating in a wireless system (or network) other than the one  
23 from which service was subscribed.
- 24 **ROLR.** See Receive Objective Loudness Rating.
- 25 **SAT.** See Supervisory Audio Tone.
- 26 **Scan of Channels.** The procedure by which a mobile station examines the signal strength  
27 of each forward analog control channel.
- 28 **SDCC1, SDCC2.** See Supplementary Digital Color Code.
- 29 **Seizure Precursor.** The initial digital sequence transmitted by a mobile station to a base  
30 station on a reverse analog control channel.
- 31 **Shared Secret Data (SSD).** A 128-bit pattern stored in the mobile station (in semi-  
32 permanent memory) and known by the base station. SSD is a concatenation of two 64-bit  
33 subsets: SSD\_A, which is used to support the authentication procedures, and SSD\_B,  
34 which serves as one of the inputs to the process generating the encryption mask and  
35 private long code.
- 36 **Short Message Services (SMS).** A suite of services such as SMS Text Delivery, Digital  
37 Paging (i.e., Call Back Number - CBN), and Voice Mail Notification (VMN).
- 38 **SID.** See System Identification.

1 **Signaling Tone.** A 10 kHz tone transmitted by a mobile station on an analog voice  
2 channel to: 1) confirm orders, 2) signal flash requests, and 3) signal release requests.

3 **SSD.** See Shared Secret Data.

4 **sps.** Symbols per second.

5 **Station Class Mark (SCM).** An identification of certain characteristics of a mobile station.  
6 Classes are defined in Table 2.3.3-1 of [26] and Table 2.3.3-1 of [5].

7 **Status Information.** The following status information is used to describe mobile station  
8 operation when using the analog system:

- 9 • **Fade Timing Status.** Indicates whether the mobile station's fade timer has expired.
- 10 • **First Idle ID Status.** A status variable used by the mobile station in association  
11 with its processing of the Idle Task.
- 12 • **First Location Area ID Status.** A status variable used by the mobile station in  
13 association with its processing of received Location Area ID messages.
- 14 • **First Registration ID Status.** A status variable used by the mobile station in  
15 association with its processing of received Registration ID messages.
- 16 • **Local Control Status.** Indicates whether a mobile station must respond to local  
17 control messages.
- 18 • **Location Registration ID Status.** A status variable used by the mobile station in  
19 association with its processing of power-up registrations and location-based  
20 registrations.
- 21 • **Roam Status.** Indicates whether a mobile station is in its home system.
- 22 • **Serving-System Status.** Indicates whether a mobile station is tuned to channels  
23 associated with System A or System B.
- 24 • **Termination Status.** Indicates whether a mobile station must terminate the call  
25 when it is on an analog voice channel.
- 26 • **Update Protocol Capability ID Status.** Indicates whether the mobile station should  
27 report its protocol capability to the serving system.

28 **Supervisory Audio Tone (SAT).** One of three tones in the 6 kHz region that is transmitted  
29 on the forward analog voice channel by a base station and transponded on the reverse  
30 analog voice channel by a mobile station.

31 **Supplementary Digital Color Code (SDCC1, SDCC2).** Additional bits assigned to  
32 increase the number of color codes from four to sixty-four, transmitted on the forward  
33 analog control channel.

34 **System.** A system is a wireless communications service that covers a geographic area  
35 such as a city, metropolitan region, county, or group of counties. See also Network.

36 **System Identification (SID).** A number uniquely identifying a wireless system.

37 **TOLR.** See Transmit Objective Loudness Rating.

1 **Transmit Objective Loudness Rating (TOLR).** A perceptually weighted transducer gain  
2 of telephone transmitters relating sound pressure at the microphone to voltage at a  
3 reference electrical termination. It is normally specified in dB relative to one millivolt per  
4 Pascal. See [36], [22], [37], and [38].

5 **Unique Challenge Authentication Response (AUTHR).** An 18-bit pattern generated by  
6 the authentication algorithm. AUTHU is used to support the Unique Challenge-Response  
7 procedure.

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

13 **Unique Random Variable (RANDU).** A 24-bit random number generated by the base  
14 station in support of the Unique Challenge-Response procedure.

15 **Universal Coordinated Time (UTC).** An internationally agreed-upon time scale  
16 maintained by the Bureau International de l'Heure (BIH), used as the time reference by  
17 nearly all commonly available time and frequency distribution systems (e.g., WWV, WWVH,  
18 LORAN-C, Transit, Omega, and GPS).

19 **VMAC.** See Voice Mobile Attenuation Code.

20 **Voice Channel.** See Analog Voice Channel.

21 **Voice Mobile Attenuation Code (VMAC).** Indicates the mobile station power level  
22 associated with the designated analog voice channel.

23 **μs.** Microsecond ( $10^{-6}$  second).

#### 24 1.1.2. Numeric Information

25 Numeric information is used to describe the operation of the mobile station. The following  
26 subscripts are used to clarify the use of the numeric information:

- 27 • "s" indicates a value stored in a mobile station's temporary memory.
- 28 • "sv" indicates a stored value that varies as a mobile station processes various tasks.
- 29 • "sl" indicates the stored limits on values that vary.
- 30 • "r" indicates a value received by a mobile station over a forward analog control  
31 channel or a CDMA Forward Channel.
- 32 • "p" indicates a value set in a mobile station's permanent security and identification  
33 memory.
- 34 • "s-p" indicates a value stored in a mobile station's semi-permanent security and  
35 identification memory.

1 1.1.2.1. Analog Numeric Information

2 **ACCOLC<sub>p</sub>** – A four-bit number used to identify which overload class field controls access  
3 attempts.

4 **BIS<sub>s</sub>** – Identifies whether a mobile station must check for an idle-to-busy transition on a  
5 reverse analog control channel when accessing a system.

6 **BSCAP<sub>s</sub>** – The base station core analog roaming protocol received in the Access Type  
7 parameters *Global Action Overhead Message*. Indicates the version of the core analog  
8 roaming standard supported by the system.

9 **BSPC<sub>s</sub>** – The base station protocol capability received in the Access Type parameters  
10 *Global Action Overhead Message*. Indicates the analog air interface protocol, such as [26],  
11 supported by the system.

12 **CCLIST<sub>s</sub>** – The list of analog control channels to be scanned by a mobile station  
13 processing the Directed Retry Task (see 2.6.3.14).

14 **CDMA\_MODE<sub>s</sub>** – Indicates whether the mobile station entered the analog mode of  
15 operation.

16 **CMAX<sub>s</sub>** – The maximum number of channels to be scanned by a mobile station when  
17 accessing a system.

18 **COUNT<sub>s-p</sub>** – A modulo-64 event counter maintained by the mobile station and  
19 Authentication Center that is used for clone detection. COUNT<sub>s-p</sub> is maintained during  
20 power off.

21 **CPA<sub>s</sub>** – Identifies whether the access functions are combined with the paging functions on  
22 the same set of analog control channels.

23 **DCC<sub>s</sub>** – A DCC value stored in a mobile station's temporary memory.

24 **DTX<sub>s</sub>** – Identifies in which manner the mobile station is permitted to use the  
25 discontinuous transmission mode on the analog voice channel.

26 **E<sub>s</sub>** – The stored value of the E field sent on the forward analog control channel. E<sub>s</sub>  
27 identifies whether a home mobile station must send only MIN1<sub>p</sub> or both MIN1<sub>p</sub> and MIN2<sub>p</sub>  
28 when accessing the system.

29 **FIRSTCHA<sub>s</sub>** – The number of the first analog control channel used for accessing a system.

30 **FIRSTCHD<sub>s</sub>** – The number for the first channel used as a dedicated control channel.

31 **FIRSTCHP<sub>p</sub>** – The number of the first paging channel used as a paging channel in the  
32 mobile station's "home" system.

33 **FIRSTCHP<sub>s</sub>** – The number of the first analog control channel used for paging mobile  
34 stations.

35 **HOME\_SID<sub>p</sub>** – Home System Identification. A 15-bit value that identifies the home system  
36 for a MIN supported by the mobile station.

37 **IDHO<sub>s</sub>** – Idle handoff indicator. Set to enabled to indicate the loss of analog control  
38 channel radio coverage during a PACA call.

- 1 **LASTCHA<sub>s</sub>** – The number of the last analog control channel used for accessing a system.
- 2 **LASTCHD<sub>s</sub>** – The number for the last channel used as a dedicated control channel.
- 3 **LASTCHP<sub>s</sub>**– The number of the last analog control channel used for paging mobile  
4 stations.
- 5 **LOCAID<sub>s</sub>** – The received location area identity.
- 6 **LOCAID<sub>s-p</sub>** – Identifies the current location area.
- 7 **LRCC<sub>s</sub>** – The last registration control channel used by a mobile station.
- 8 **LREG<sub>s</sub>** – The stored value of the LREG field received in the most recent *Location Area*  
9 *Global Action Message*.
- 10 **LT<sub>s</sub>** – Identifies whether the next access attempt is required to be the last try.
- 11 **MAXBUSY<sub>s1</sub>** – The maximum number of busy occurrences allowed on a reverse analog  
12 control channel.
- 13 **MAX\_REDIRECT\_DELAY<sub>s</sub>** – Indicates the maximum delay interval used when a mobile  
14 station is redirected from CDMA to analog, in units of 8 seconds.
- 15 **MAXSZTR<sub>s1</sub>** – The maximum number of seizure attempts allowed on a reverse analog  
16 control channel.
- 17 **MIN1<sub>p</sub>** – The 24 least significant bits of the 34-bit MIN.
- 18 **MIN2<sub>p</sub>** – The ten most significant bits of the 34-bit MIN.
- 19 **MSCAP<sub>p</sub>** – The mobile station core analog roaming protocol specifies the version of the  
20 core analog roaming standard supported by the mobile station.
- 21 **MSPC<sub>p</sub>** – The mobile station protocol capability identifies the analog air interface protocol,  
22 such as [26], supported by the mobile station.
- 23 **N<sub>s</sub>** – The number of analog paging channels that a mobile station must scan.
- 24 **NBUSY<sub>sv</sub>** – The number of times a mobile station attempts to seize a reverse analog control  
25 channel and finds the reverse control channel busy.
- 26 **NSZTR<sub>sv</sub>** – The number of times a mobile station attempts to seize a reverse analog control  
27 channel and fails.
- 28 **NXTREG<sub>s-p</sub>** – Identifies when a mobile station must make its next registration to a system.
- 29 **PACA<sub>s</sub>** – PACA call indicator. Set to enabled to indicate that the mobile station is waiting  
30 for a priority access channel assignment; otherwise set to disabled.  $PACA_s = 0$  is  
31 equivalent to setting PACA<sub>s</sub> to disabled and  $PACA_s = 1$  is equivalent to setting PACA<sub>s</sub> to  
32 enabled.
- 33 **PACA\_CANCEL** – PACA call cancel indicator. Set to '1' when the mobile station is directed  
34 by the user to cancel the PACA call; otherwise, set to '0'.
- 35 **PACA\_SID<sub>s</sub>** – PACA system identifier. Equal to the SID of the system on which the mobile  
36 station originated a PACA call.

- 1 **PACA\_TIMEOUT<sub>s</sub>** – PACA state timer duration. Specifies how long the mobile station  
2 should wait for a *PACA Message* from the base station.
- 3 **PCI\_HOME<sub>s</sub>** – Home mobile protocol capability flag. Indicates to the home mobile station  
4 whether it shall report its protocol capability when receiving the *Access Type Parameters*  
5 *Global Action Overhead Message*.
- 6 **PCI\_ROAM<sub>s</sub>** – Roaming mobile protocol capability flag. Indicates to the roaming mobile  
7 station whether it shall report its protocol capability when receiving the *Access Type*  
8 *Parameters Global Action Overhead Message*.
- 9 **PCSID<sub>s</sub>** – The stored value of the most recent SID to which the mobile station transmitted  
10 the protocol capability registration message.
- 11 **PDREG<sub>s</sub>** – The stored value of the PDREG field received in the most recent *Location Area*  
12 *Global Action Message*.
- 13 **PL<sub>s</sub>** – The mobile station RF power level.
- 14 **PUREG<sub>s</sub>** – The stored value of the PUREG field received in the most recent *Location Area*  
15 *Global Action Message*.
- 16 **PUREG<sub>s-p</sub>** – The semi-permanent value of PUREG<sub>s</sub>.
- 17 **R<sub>s</sub>** – Indicates whether registration is enabled or not.
- 18 **RAND<sub>s</sub>** – The stored value of RAND. See 2.3.12.1.2 of [26].
- 19 **RCF<sub>s</sub>** – Identifies whether the mobile station must read a *Control Filler Message* before  
20 accessing a system on a reverse analog control channel.
- 21 **REGID<sub>s</sub>** – The stored value of the last registration number (REGID<sub>r</sub>) received on a forward  
22 analog control channel.
- 23 **REGINCR<sub>s</sub>** – Identifies increments between registrations by a mobile station.
- 24 **S<sub>s</sub>** – Identifies whether the mobile station must send its serial number when accessing a  
25 system.
- 26 **SCC<sub>s</sub>** – A digital number that is stored and used to identify which SAT frequency a mobile  
27 station should be receiving.
- 28 **SDCC1<sub>s</sub>** – The SDCC value stored in a mobile station's temporary memory.
- 29 **SDCC2<sub>s</sub>** – The SDCC value stored in a mobile station's temporary memory.
- 30 **SID<sub>p</sub>** – The home system identification stored in the mobile station's permanent security  
31 and identification memory.
- 32 **SID<sub>r</sub>** – The system identification received on a paging or access channel.
- 33 **SID<sub>s</sub>** – The system identification received on a dedicated control channel.
- 34 **SID<sub>s-p</sub>** – Identifies the system of current (last successful) registration.
- 35 **UPDATE NEXTREG<sub>s</sub>**. Indicates whether the mobile station must update NEXTREG<sub>s-p</sub> after  
36 it successfully registers on a new paging channel.

1 **WFOM<sub>s</sub>** – Identifies whether a mobile station must wait for an Overhead Message train  
2 before accessing a system on a reverse analog control channel.

### 3 1.1.2.2. CDMA Numeric Information

4 The following are numeric indicators stored by the mobile station in temporary memory.  
5 These numeric indicators are primarily used when operating in the CDMA mode; however,  
6 they are also used in some manner (e.g., are set) when operating in the analog mode.

7 **ANALOG\_CHAN<sub>s</sub>** – Analog channel number for CDMA to analog handoff.

8 **REDIRECT\_REC<sub>s</sub>** – Holds the service redirection criteria specified in the redirection record  
9 of the most recently received *Global Service Redirection Message* or *Service Redirection*  
10 *Message*.

11 **REDIRECTION<sub>s</sub>** – Service redirection indicator. Set to enabled to indicate that service  
12 redirection is currently in effect; otherwise set to disabled.

13 **REGISTERED<sub>s</sub>** – Mobile station registered indicator.

14 **SID\_NID\_LIST<sub>s</sub>** – Registration SID, NID list. The SID, NID pairs in which the mobile  
15 station has registered.

16 **ZONE\_LIST<sub>s</sub>** – Registration zone list. List of zones in which the mobile station has  
17 registered.

## 18 1.2. Analog System Tolerances

19 Unless otherwise specified, all call-processing timers and call-processing timing values  
20 have a tolerance of  $\pm 10\%$ . Refer to [21] and [28] for the analog performance standards,  
21 definitions, tolerances, and performance measurement methods.

## 22 1.3. Message Forward Compatibility Rules

23 In the message formats used between the mobile stations and the base stations, some bits  
24 are marked as reserved (RSVD). Some or all of these reserved bits may be used in the  
25 future for additional messages. Therefore, all mobile stations and base stations shall set  
26 all bits that they are programmed to treat as reserved bits to '0' (zero) in all messages that  
27 they transmit. All mobile stations and base stations shall ignore the state of all bits that  
28 they are programmed to treat as reserved bits in all messages that they receive.

29 If a message body contains additional bits following the bits specified by the formatting  
30 requirements of the message, the additional bits shall be ignored.

31 In the specific case of overhead messages on the Forward Control Channel, if the mobile  
32 station receives a BCH-code-correct but unrecognizable overhead message (including  
33 Global Action Message types), the mobile station shall count the message as part of the  
34 train for NAWC-counting purposes, but shall not attempt to execute the message. All  
35 other messages and fields of an overhead message train that carries a message type herein  
36 indicated as "Reserved" shall be decoded and used as appropriate.

1 Implementers of mobile stations are cautioned that many other functions and features are  
2 deployed on the FOCC than those described in this standard. These functions frequently  
3 employ bits indicated herein as “Reserved”. Reference may be made to the current version  
4 of [35] for details.



## 2. REQUIREMENTS FOR MOBILE STATION ANALOG OPERATION

This section references [26] to describe core analog mode operation. Only those analog capabilities that support CDMA dual-mode operation are described in detail within this document. Subsection numbers in Section 2 of this standard correspond to subsection numbers in [26]. A reference in this standard to a particular subsection in [26] applies to that subsection and all subsequent subsections beneath it; however, text in Section 2 of this standard shall take precedence over any corresponding text in [26].

Mobile stations optionally implementing PACA service in analog mode shall support *PACA Message* and *PACA Cancel* delivery (see 2.6.2, 2.6.3 and 2.7.1) on the control channel.

Mobile stations optionally implementing Short Message Service in the analog mode shall support *Alert With Info SMS* delivery (see 2.6.4 and 2.7.2.1) on the voice channel. In addition, they shall support extended protocol enhanced services operation as defined in Sections 2 and 3 of [7], on the control channel and on the voice channel for messages less than or equal to 32 digits or 14 characters.

### 2.1. Transmitter

In addition to the requirements in this section, see the corresponding section of [26].

#### 2.1.1. Frequency Parameters

See the corresponding section of [26].

#### 2.1.2. Power Output Characteristics

See the corresponding section of [26].

#### 2.1.3. Modulation Characteristics

In addition to the requirements in this section, see the corresponding section of [26].

##### 2.1.3.1. Voice Signals

The modulator is preceded by the following five voice-processing stages (in the order listed):

1. Transmit Audio Level Adjustment

2. Compressor

3. Pre-emphasis

4. Deviation Limiter

5. Post Deviation-Limiter Filter

1 Pending the generation of a complete speech transmission plan for dual-mode cellular  
2 systems, the requirements of 2.1.3.1.1 through 2.1.3.1.5 shall be met to ensure  
3 compatibility with the transmission plan for fixed digital speech networks.

4 2.1.3.1.1. Compressor

5 See the corresponding section of [26].

6 2.1.3.1.2. Pre-Emphasis

7 See the corresponding section of [26].

8 2.1.3.1.3. Deviation Limiter

9 See the corresponding section of [26].

10 2.1.3.1.4. Post Deviation-Limiter Filter

11 See the corresponding section of [26].

12 2.1.3.1.5. Transmit Audio Level Adjustment

13 The mobile station shall have a transmit objective loudness rating (TOLR) equal to -46 dB,  
14 when transmitting to a reference base station (see 3.2.2.1). The loudness ratings are  
15 described in [22]. Measurement techniques are described in [21].

16 2.1.3.2. Wideband Data Signals

17 See the corresponding section of [26].

18 2.1.4. Limitations on Emissions

19 In addition to the requirements in this section, see the corresponding section of [26].

20 2.1.4.1. Bandwidth Occupied

21 See the corresponding section of [26]. Measurement techniques are defined in [21].

22 2.1.4.2. Conducted Spurious Emissions

23 2.1.4.2.1. Suppression Inside Cellular Band

24 See the corresponding section of [26].

25 2.1.4.2.2. Suppression Outside Cellular Band

26 Current FCC rules shall apply.

1 2.1.4.3. Radiated Spurious Emissions

2 Refer to [21].

3 **2.2. Receiver**

4 In addition to the requirements in this section, see the corresponding section of [26].

5 2.2.1. Frequency Parameters

6 See the corresponding section of [26].

7 2.2.2. Demodulation Characteristics

8 In addition to the requirements in this section, see the corresponding section of [26].

9 2.2.2.1. Voice Signals

10 The demodulator is followed by the following three voice-signal processing stages:

- 11 • De-emphasis
- 12 • Expander
- 13 • Receive Audio Level Adjustment

14 Pending the generation of a complete speech transmission plan for dual-mode cellular  
15 systems, the requirements of 2.2.2.1.1 through 2.2.2.1.3 shall be met to ensure  
16 compatibility with the transmission plan for fixed digital speech networks:

17 2.2.2.1.1. De-Emphasis

18 See the corresponding section of [26].

19 2.2.2.1.2. Expander

20 See the corresponding section of [26].

21 2.2.2.1.3. Receive Audio Level Adjustment

22 The mobile station shall have a nominal receive objective loudness rating (ROLR) equal to  
23 51 dB when receiving from a reference base station (see 3.1.3.1). The loudness ratings are  
24 described in [22]. Measurement techniques are described in [21].

25 2.2.3. Limitations on Emissions

26 In addition to the requirements in this section, see the corresponding section of [26].

27 2.2.3.1. Conducted Spurious Emissions

28 See the corresponding section of [26].

1 2.2.3.1.1. Suppression Inside Cellular Band

2 See the corresponding section of [26].

3 2.2.3.1.2. Suppression Outside Cellular Band

4 Current FCC rules shall apply.

5 2.2.3.2. Radiated Spurious Emissions

6 Current FCC rules shall apply.

7 2.2.4. Other Receiver Parameters

8 System performance is predicated upon receivers meeting [21].

9 **2.3. Security and Identification**

10 In addition to the requirements in this section, see the corresponding section of [26].

11 2.3.1. Mobile Identification Number

12 Mobile stations operating in the analog mode use the mobile identification number (MIN).  
13 Mobile stations operating in the CDMA mode use the International Mobile Station Identity  
14 (IMSI). Mobile stations shall have two different identifiers, IMSI\_T and IMSI\_M (see 2.3.1 of  
15 [5]).

16 The MIN is a 10-digit (34-bit) number. The MIN consists of a 3-digit (10-bit) part called  
17 MIN2, and a 7-digit (24-bit) part called MIN1. MIN2 corresponds to the most significant  
18 three digits of MIN, and MIN1 corresponds to the least significant seven digits of MIN. The  
19 MIN shall be equal to IMSI\_M\_S (see 2.1.1.3 of [4]).

20 The mobile station shall have memory to store a MIN. The 10-bit MIN2 shall be equal to  
21 IMSI\_M\_S2<sub>p</sub> and the 24-bit MIN1 shall be equal to IMSI\_M\_S1<sub>p</sub>.

22 2.3.2. Electronic Serial Number (ESN)

23 See 2.3.2 of [5].

24 2.3.3. Station Class Mark

25 See the corresponding section of [26]. See 2.3.3 of [5] for information regarding SCM when  
26 operating in the CDMA mode.

27 2.3.4. Registration Memory

28 In addition to the requirements in this section, see the corresponding section of [26]. See  
29 2.3.4 of [5] for operation in the CDMA mode.

1 2.3.5. Access Overload Class

2 In addition to the requirements in this section, see the corresponding section of [26]. See  
3 2.3.5 of [5] for operation in the CDMA mode.

4 2.3.6. Extended Address Method

5 See the corresponding section of [26].

6 2.3.7. First Paging Channel

7 See the corresponding section of [26].

8 2.3.8. Home System Identification

9 In addition to the requirements in this section, see the corresponding section of [26].

10 Note: the indicator HOME\_SID<sub>p</sub> is used to identify the home system during analog  
11 operation, and is equivalent to the indicator SID<sub>p</sub> defined in [26]. The requirements in [26]  
12 for SID<sub>p</sub> apply to HOME\_SID<sub>p</sub> for operation in the analog mode.

13 2.3.9. Local Control Option

14 See the corresponding section of [26].

15 2.3.10. Preferred Operation Selection

16 See 2.3.10 of [5].

17 2.3.11. Discontinuous Transmission

18 See the corresponding section of [26].

19 2.3.12. Authentication, Encryption of Signaling Information/User Data

20 In addition to the requirements in this section, see the corresponding section of [26].

21 2.3.12.1. Authentication

22 In addition to the requirements in this section, see the corresponding section of [26].

23 2.3.12.1.1. Shared Secret Data (SSD)

24 See 2.3.12.1.1 of [5].

25 2.3.12.1.2. Random Challenge Memory (RAND)

26 See the corresponding section of [26].

1 2.3.12.1.3. Call History Parameter (COUNT<sub>S-P</sub>)

2 In addition to the requirements in this section, see the corresponding section of [26].  
3 See 2.3.12.1.3 for information regarding COUNT<sub>S-P</sub> when operating in the CDMA mode.

4 2.3.12.1.4. Authentication of Mobile Station Registrations

5 See the corresponding section of [26].

6 2.3.12.1.5. Unique Challenge-Response Procedure

7 See the corresponding section of [26].

8 2.3.12.1.6. Authentication of Mobile Station Originations

9 See the corresponding section of [26].

10 2.3.12.1.7. Authentication of Mobile Station Terminations

11 See the corresponding section of [26].

12 2.3.12.1.8. Updating the Shared Secret Data (SSD)

13 See the corresponding section of [26].

14 2.3.12.1.9. Authentication Procedures

15 See the corresponding section of [26].

16 2.3.12.2. Signaling Message Encryption

17 In an effort to enhance the authentication process, and to protect sensitive subscriber  
18 information (e.g., PINs), provisions have been made to allow for the encryption of a select  
19 subset of FVC and RVC signaling messages. For messages defined in this standard, see  
20 2.7.2.1 and 3.7.2.1 for the list of messages and fields to be encrypted. For optional  
21 enhanced protocol messages and narrow analog mode messages, see Annex A of [7] for the  
22 list of messages and fields to be encrypted.

23 Consult [23] section 2.5 for a description of how the algorithm is initialized and applied.

24 2.3.12.2.1. Signaling Message Encryption Control

25 Signaling message encryption is controlled on a per-call basis. The default value is “off.”  
26 Signaling message encryption is deactivated at the beginning of each call. The mobile  
27 station support for a signaling message encryption algorithm is reported to the base  
28 station in the ENCRYPTION\_SUPPORTED field of the PCI Report Word of the Reverse  
29 Analog Control Channel message (See 2.7.1.1). To activate signaling message encryption  
30 for a mobile station assigned to an analog voice channel, the base station must send a  
31 *Message Encryption Mode Order* with the Order Qualifier field set to ‘001’ for the basic

1 encryption or to '010' for the enhanced encryption. Signaling message encryption can also  
2 be activated during CDMA-to-analog handoff by the base station sending an *Analog*  
3 *Handoff Direction Message* with the MEM field set equal to '1', if the encryption algorithm  
4 to be used on the Analog Voice Channel is the same as was used on the CDMA Traffic  
5 Channel. Alternatively, if a different algorithm is to be used after the CDMA-to-analog  
6 handoff, signaling message encryption shall be deactivated by the base station prior to the  
7 handoff, and activated again on the Analog Voice Channel by sending *the Message*  
8 *Encryption Mode Order*.

9 The data used to initialize the algorithm is computed based upon parameters in effect at  
10 the time the AUTHR appended to the origination/page response message was computed  
11 (see 2.3.12.1.6 and 2.3.12.1.7 of [26]). For a call initiated via the CDMA Access Channel,  
12 the data used to initialize the algorithm is computed based upon parameters in effect at  
13 the time the AUTHR was computed for the *Origination Message* or *Page Response Message*  
14 (see 2.1.1.1.2.2 of [4]).

15 Once activated, signaling message encryption can be deactivated by the base station by  
16 sending a *Message Encryption Mode Order* with the Order Qualifier field set to '000'.

17 In all cases both the base station and mobile station shall continue to operate in their  
18 present mode until the message sent to the mobile station has been properly  
19 acknowledged.

#### 20 **2.4. Supervision**

21 See the corresponding section of [26].

#### 22 **2.5. Malfunction Detection**

23 See the corresponding section of [26].

#### 24 **2.6. Call Processing**

25 In addition to the requirements in this section, see the corresponding section of [26].

26 The following sections describe mobile station operation as controlled by a base station.  
27 Frequent references are made to the corresponding sections in the base station section  
28 and to the messages that flow between a base station and a mobile station. It is helpful to  
29 read 2.6 and 3.6 in parallel and examine the message formats in 2.7 and 3.7 at the same  
30 time.

31 When power is applied to a mobile station, it shall enter the *System Determination*  
32 *Substate of the Mobile Station Initialization State* with a power-up indication (see 2.6.1.1 of  
33 [5]).

1 2.6.1. Initialization

2 2.6.1.1. Retrieve System Parameters

3 If the First-Idle ID status is enabled (see 2.6.1.1 of [5]), the mobile station must:

- 4 • Set the Location-Registration ID status to enabled.
- 5 • Set the first-registration ID status to enabled.
- 6 • Set the first-location-area ID status to enabled.
- 7 • Set the Update Protocol Capability ID status to disabled.
- 8 • Set  $PUREG_S = 0$ ,  $PDREG_S = 0$ ,  $LREG_S = 0$ ,  $LRCC_S = 0$ ,  $RAND_S = 0$ ,  $IDHO_S = 0$ ,  
9  $PACA_S = \text{disabled}$ ,  $PCSID_S = 0$ ,  $BSPC_S = 0$ ,  $BSCAP_S = 0$ ,  $PCI\_HOME_S = 0$ ,  
10  $PCI\_ROAM_S = 0$ ,  $SID_S = 0$ , and  $SID_R = 0$ .

11 If the First-Idle ID status is disabled (see 2.6.1.1 of [5]),  $PACA_S = \text{enabled}$ , and this task is  
12 entered as a result of loss of Control Channel Radio Link or as a result of the mobile  
13 station selecting a different Control Channel, the mobile station must set  $IDHO_S = 1$ .

14 The mobile station must then set the serving-system status according to the following  
15 algorithm:

- 16 • If  $SERVSYS_S = SYS\_A$ , set the serving-system status to enabled.
- 17 • If  $SERVSYS_S = SYS\_B$ , set the serving-system status to disabled.

18 The mobile station must then enter the Scan Dedicated Control Channels Task  
19 (see 2.6.1.1.1).

20 2.6.1.1.1. Scan Dedicated Control Channels

21 If  $SID_R$  is not equal to  $SID_S$ , the mobile station shall set registration increment ( $REGINCR_S$ )  
22 to its default value of 450, set the first-location-area ID status to enabled, set  $LRCC_S = 0$   
23 and set  $RAND_S = 0$ .

24 If the serving-system status is enabled, a mobile station must:

- 25 • Set  $FIRSTCHD_S$  to the first dedicated control channel for System A  
26 (834.990 MHz/879.990 MHz).
- 27 • Set  $LASTCHD_S = FIRSTCHD_S - 21 + 1$ .

28 If the serving-system status is disabled, a mobile station must:

- 29 • Set  $FIRSTCHD_S$  to the first dedicated control channel for System B  
30 (835.020 MHz/880.020 MHz).
- 31 • Set  $LASTCHD_S = FIRSTCHD_S + 21 - 1$ .

32 The mobile station must examine the signal strength on each of the channels  $FIRSTCHD_S$   
33 to  $LASTCHD_S$ .

34 The mobile station must then enter the Update Overhead Information Task (see 2.6.1.1.2).

### 2.6.1.1.2. Update Overhead Information

Overhead messages are sent in a group called an overhead message train (see 3.7.1.2). The mobile station must use the value given in the number of additional words coming (NAWC) field of the *System Parameter Overhead Message* in the train to determine that all messages of the train have been received. The END field must be used as a cross-check. For NAWC counting purposes, inserted control filler messages (see 3.7.1) must not be counted as part of the overhead message train.

If the mobile station receives a BCH-code-correct but unrecognizable *System Parameter Overhead Message*, the mobile station must count that message as part of the train for NAWC counting purposes, but must not attempt to execute the message.

The mobile station must tune to the strongest dedicated control channel and, within 3 seconds, receive a *System Parameter Overhead Message* (see 3.7.1.2) and update the following numeric information:

- System identification ( $SID_S$ ). Set the 14 most significant bits of  $SID_S$  to the value of the SID 1 field. Set the least significant bit of  $SID_S$  to '1', if the serving-system status is enabled; otherwise, set the bit to '0'.
- Number of paging channels ( $N_S$ ). Set  $N_S$  to 1 plus the value of the N - 1 field.
- First paging channel ( $FIRSTCHP_S$ ). Set  $FIRSTCHP_S$  according to the following algorithm:
  - If  $SID_S = HOME\_SID_p$ ,  $FIRSTCHP_S = FIRSTCHP_p$
  - If  $SID_S$  is not equal to  $HOME\_SID_p$ ,  $FIRSTCHP_S = FIRSTCHD_S$
- Last paging channel ( $LASTCHP_S$ ). Set  $LASTCHP_S$  according to the following algorithm:
  - If the serving-system status is enabled,  $LASTCHP_S = FIRSTCHP_S - N_S + 1$ .
  - If the serving-system status is disabled,  $LASTCHP_S = FIRSTCHP_S + N_S - 1$ .

If  $REDIRECTION_S = \text{enabled}$ , and if the  $EXPECTED\_SID$  field of  $REDIRECT\_REC_S$  is not equal to 0, and if  $SID_S$  is not equal to  $EXPECTED\_SID$ , the mobile station must enter the *System Determination Substate* of the *Mobile Station Initialization State* with a wrong system indication (see 2.6.1.1 of [5]). Otherwise, if  $SID_r$  is not equal to  $SID_S$ , the mobile station shall set registration increment ( $REGINCR_S$ ) to its default value of 450, set the first-registration ID status to enabled, set the first-location-area ID status to enabled, set  $LRCC_S = 0$ , set  $PACA_S = \text{disabled}$ , and set  $RAND_S = 0$ . If  $SID_r$  is not equal to  $SID_S$  and  $PACA_S = \text{enabled}$ , the mobile station must set  $PACA_S = \text{disabled}$ , and must indicate to the user that the PACA call has been canceled.

The mobile station must then enter the Paging Channel Selection Task (see 2.6.1.2).

If the mobile station cannot complete this task on the strongest dedicated control channel, it shall tune to the second strongest dedicated control channel and attempt to complete this task within a second 3-second interval. If it cannot complete this task on either of the two strongest control channels, the mobile station must enter the *System Determination*

1 *Substate of the Mobile Station Initialization State* with an acquisition failure indication (see  
2 2.6.1.1 of [5]).

### 3 2.6.1.2. Paging Channel Selection

#### 4 2.6.1.2.1. Scan Paging Channels

5 See the corresponding section of [26].

#### 6 2.6.1.2.2. Verify Overhead Information

7 The mobile station must set the Wait-for-Overhead-Message bit (WFOM<sub>S</sub>) to '0'; the mobile  
8 station must then tune to the strongest paging channel and, within 3 seconds, receive an  
9 overhead message train (see 3.7.1.2) and update the following:

- 10 • System identification: Set the 14 most significant bits of SID<sub>R</sub> to the value of the  
11 SID1 field. Set the least significant bit of SID<sub>R</sub> to '1', if the serving-system status is  
12 enabled; otherwise, set the bit to '0'.
- 13 • ROAM status: The mobile station must compare the received system identification  
14 (SID<sub>R</sub>) with the stored system identification (SID<sub>S</sub>). If SID<sub>R</sub> = SID<sub>S</sub>, the mobile  
15 station must compare SID<sub>S</sub> with HOME\_SID<sub>P</sub>. If HOME\_SID<sub>P</sub> = SID<sub>S</sub>, the mobile  
16 station must set the ROAM status to disabled. If HOME\_SID<sub>P</sub> is not equal to SID<sub>S</sub>,  
17 the mobile station must set the ROAM status to enabled. If SID<sub>R</sub> is not equal to  
18 SID<sub>S</sub> and PACA<sub>S</sub> = enabled, the mobile station must set PACA<sub>S</sub> = disabled, and  
19 must indicate to the user that the PACA call has been canceled. If SID<sub>R</sub> is not equal  
20 to SID<sub>S</sub>, the mobile station must enter the *System Determination Substate* of the  
21 *Mobile Station Initialization State* with a new system indication (see 2.6.1.1 of [5]).
- 22 • Local control status: If the local control option is enabled within the mobile station  
23 (see 2.3.9) and the bits of the home system identification (HOME\_SID<sub>P</sub>) that  
24 comprise the group identification match the corresponding bits of SID<sub>S</sub>, then the  
25 local control status must be enabled; otherwise, the local control status must be  
26 disabled.
- 27 • Power-Up Registration: If SID<sub>R</sub> ≠ SID<sub>S-P</sub> the mobile station shall set PUREG<sub>S-P</sub> to '0'.

28 If the Initialization Task was entered with an origination or page response indication, the  
29 mobile station must also update the following numeric values:

- 30 • Serial number bit (S<sub>S</sub>): Set S<sub>S</sub> to the value in the S field.
- 31 • Registration bit (R<sub>S</sub>): If the roam status is disabled, set R<sub>S</sub> to the value of the REGH  
32 field; if the roam status is enabled, set R<sub>S</sub> to the value of the REGR field.
- 33 • Extended address bit (E<sub>S</sub>): Set E<sub>S</sub> to the value in the E field.
- 34 • Authentication bit (AUTH<sub>S</sub>): Set AUTH<sub>S</sub> to the value in the AUTH field.
- 35 • Discontinuous transmission bit (DTX<sub>S</sub>): Set DTX<sub>S</sub> to the value of the DTX field.
- 36 • Number of paging channels (N<sub>S</sub>): Set N<sub>S</sub> to 1 plus the value of the N-1 field.

- 1 • Read-control-filler bit ( $RCF_S$ ): Set  $RCF_S$  to the value of the RCF field.
- 2 • Combined paging/access bit ( $CPA_S$ ): Set  $CPA_S$  to the value of the CPA field.
- 3 • Number of access channels ( $CMA_X_S$ ): Set  $CMA_X_S$  to 1 plus the value of the CMAX-
- 4 1 field.
- 5 • Determine control channel boundaries for accessing the system ( $FIRSTCHA_S$  and
- 6  $LASTCHA_S$ ) by using the following algorithm:
  - 7 – If the serving-system status is enabled,
    - 8 + If  $CPA_S = 1$ , set  $FIRSTCHA_S$  to  $FIRSTCHP_S$  for System A.
    - 9 + If  $CPA_S = 0$ , set  $FIRSTCHA_S$  to  $FIRSTCHP_S$  for System A minus  $N_S$ .
    - 10 +  $LASTCHA_S = FIRSTCHA_S - CMA_X_S + 1$ .
  - 11 – If the serving-system status is disabled,
    - 12 + If  $CPA_S = 1$ , set  $FIRSTCHA_S$  to  $FIRSTCHP_S$  for System B.
    - 13 + If  $CPA_S = 0$ , set  $FIRSTCHA_S$  to  $FIRSTCHP_S$  for System B plus  $N_S$ .
    - 14 +  $LASTCHA_S = FIRSTCHA_S + CMA_X_S - 1$ .

15 If the Initialization Task was entered with an origination indication, the mobile station  
16 must enter the System Access Task with an origination indication (see 2.6.3).

17 If the Initialization Task was entered with a page response indication, the mobile station  
18 must enter the System Access Task with a page response indication (see 2.6.3).

19 If the Initialization Task was entered with a wait-for-page indication, the mobile station  
20 must enter the Idle Task with a wait-for-page indication (see 2.6.2).

21 Otherwise, the mobile station must enter Idle at the Response to Overhead Information  
22 Task (see 2.6.2.1).

23 If the mobile station cannot complete this task on the strongest paging channel, it may  
24 tune to the second strongest paging channel and attempt to complete this task within a  
25 second 3-second interval. If it cannot complete this task on either of the two strongest  
26 control channels, the mobile station must enter the *System Determination Substate* of the  
27 *Mobile Station Initialization State* with an acquisition failure indication (see 2.6.1.1 [5]).

## 2.6.2. Idle

During the Idle Task, a mobile station must execute each of the following (sub)tasks (see 2.6.2.1, 2.6.2.2, 2.6.2.3, 2.6.2.4, 2.6.2.5, and 2.6.2.5) at least every 46.3 ms, the periodicity of word blocks on the forward control channel. If the Idle Task was entered with a wait-for-page indication, the mobile station must not enter the *System Determination Substate* of the *Mobile Station Initialization State* (see 2.6.1.1 of [5]) for at least 6 seconds after entering the Idle Task. If at any time during the Idle Task the redirect delay timer expires, the mobile station must exit this task and enter the System Access Task with a registration indication (see 2.6.3). Otherwise, if the mobile station is not listening to a control channel of the preferred system and REDIRECTION<sub>S</sub> = disabled and PACA<sub>S</sub> = disabled, it may exit this task and enter the *System Determination Substate* of the *Mobile Station Initialization State* with a reselection indication (see 2.6.1.1 of [5]).

### 2.6.2.1. Response to Overhead Information

Whenever a mobile station receives an overhead message train (see 3.7.1.2), the mobile station compare SID<sub>S</sub> with SID<sub>R</sub>. If SID<sub>R</sub> is not equal to SID<sub>S</sub> and PACA<sub>S</sub> = enabled, the mobile station must set PACA<sub>S</sub> = disabled, and must indicate to the user that the PACA call has been canceled. If SID<sub>S</sub> is not equal to SID<sub>R</sub>, the mobile station must exit the Idle Task and enter the *System Determination Substate* of the *Mobile Station Initialization State* with a new system indication (see 2.6.1.1 of [5]).

If SID<sub>S</sub> = SID<sub>R</sub>, the mobile station shall update the following numeric values using information contained in the *System Parameter Overhead Message*:

- Extended Protocol Indicator: If the mobile station is equipped for the optional Extended Protocol, set EP<sub>S</sub> to the value of the EP field.
- Serial number bit (S<sub>S</sub>): Set S<sub>S</sub> to the value in the S field.
- Registration bit (R<sub>S</sub>): If the roam status is disabled, set R<sub>S</sub> to the value of the REGH field; if the roam status is enabled, set R<sub>S</sub> to the value of the REGR field.
- Extended address bit (E<sub>S</sub>): Set E<sub>S</sub> to the value in the E field.
- Authentication bit (AUTH<sub>S</sub>): Set AUTH<sub>S</sub> to the value in the AUTH field.
- Discontinuous transmission bit (DTX<sub>S</sub>): Set DTX<sub>S</sub> to the value of the DTX field.
- Number of paging channels (N<sub>S</sub>): Set N<sub>S</sub> to 1 plus the value of the N - 1 field.
- Read-control-filler bit (RCF<sub>S</sub>): Set RCF<sub>S</sub> to the value of the RCF field.
- Combined paging/access bit (CPA<sub>S</sub>): Set CPA<sub>S</sub> to the value of the CPA field.
- Number of access channels (CMAX<sub>S</sub>): Set CMAX<sub>S</sub> to 1 plus the value of the CMAX - 1 field.
- Determine control channel boundaries for accessing the system (FIRSTCHA<sub>S</sub> and LASTCHA<sub>S</sub>) by using the following algorithm:
  - If the serving-system status is enabled,

- 1           + If  $CPA_S = 1$ , set  $FIRSTCHA_S$  to  $FIRSTCHP_S$  for System A.  
 2           + If  $CPA_S = 0$ , set  $FIRSTCHA_S$  to  $FIRSTCHP_S$  for System A minus  $N_S$ .  
 3           +  $LASTCHA_S = FIRSTCHA_S - CMAX_S + 1$ .  
 4       – If the serving-system status is disabled,  
 5           + If  $CPA_S = 1$ , set  $FIRSTCHA_S$  to  $FIRSTCHP_S$  for System B.  
 6           + If  $CPA_S = 0$ , set  $FIRSTCHA_S$  to  $FIRSTCHP_S$  for System B plus  $N_S$ .  
 7           +  $LASTCHA_S = FIRSTCHA_S + CMAX_S - 1$ .

8 If  $SID_S = SID_{S-p}$ ,  $PUREG_{S-p} = 1$ , and if the First-Idle ID status is enabled, the mobile  
 9 station shall initiate an autonomous registration by entering the System Access Task (see  
 10 2.6.3) with a registration indication.

11 If  $SID_S = SID_{S-p}$ ,  $PACA_S = \text{enabled}$ , and if  $IDHO_S = 1$ , the mobile station must enter the  
 12 System Access Task (see 2.6.3) with a PACA response indication to re-originate the PACA  
 13 call.

14 If the Update Protocol Capability ID status is enabled, and if  $PCSID_S = SID_S$ , the mobile  
 15 station shall initiate protocol capability registration by entering the System Access Task  
 16 (see 2.6.3) with a capability registration indication.

17 The mobile station must then respond as indicated to each of the following messages, if  
 18 received in the overhead message train. The order in which the mobile station must  
 19 respond to the messages, if two or more are received, is given by their order in the  
 20 following list:

- 21 1. *Local Control Messages*: See the corresponding section of [26].
- 22 2. *Access Type Parameters Message*: See the corresponding section of [26].
- 23 3. *New Access Channel Set Message*: See the corresponding section of [26].
- 24 4. *Registration Increment Message*: See the corresponding section of [26].
- 25 5. *Location Area Message*: See the corresponding section of [26].
- 26 6. *Random Challenge A Message*: See the corresponding section of [26].
- 27 7. *Random Challenge B Message*: See the corresponding section of [26].
- 28 8. *Registration ID Message*: If  $R_S = 1$ , the mobile station must perform the following:
  - 29 • If this message is received while first-idle ID status is disabled, and if location-  
 30 registration ID status is disabled, and if first-registration ID status is enabled,  
 31 and if first-location-area ID status is enabled, and if the mobile station is tuned  
 32 to a control channel different from  $LRCC_S$ , then the mobile station shall set  
 33 first-registration ID status to disabled.

- 1           • The mobile station must set  $REGID_S$  to the value of the REGID field of the  
2 received message. If the first-registration ID status is enabled, and if the  
3 location-registration ID status is disabled,  $SID_S = SID_{S-p}$ ,  $DIGITAL\_REG_{S-p} =$   
4 '00000000', and  $CDMA\_MODE_p = '0'$ , the mobile station must perform the  
5 following:
- 6           – Set the first-registration ID status to disabled (see 2.6.1.1.2).
  - 7           – If autonomous registration is enabled, the mobile station must enter the  
8 Autonomous Registration Update Task (see 2.6.3.11), supplying a success  
9 indication.
  - 10          – The mobile station shall continue to process information in the overhead  
11 message stream.
- 12          Otherwise, the mobile station shall set the first-registration ID status to  
13 disabled (see 2.6.1.1.2) and proceed as follows:
- 14          • If  $DIGITAL\_REG_{S-p} = '00000001'$ , the mobile station must perform the following:
    - 15           – Set  $DIGITAL\_REG_{S-p} = '00000000'$
    - 16           – If autonomous registration is enabled, the mobile station shall set the first-  
17 registration ID status to disabled (see 2.6.1.1.2) and then enter the System  
18 Access Task with a registration indication (see 2.6.3)
  - 19          • If  $SID_S$  equals the  $SID_{S-p}$  value stored in the registration memory or if  
20  $CDMA\_MODE_S = 1$ , the mobile station must perform the following:
    - 21           – If  $CDMA\_MODE_S = 1$ , the mobile station must perform the following:
      - 22           + Set  $CDMA\_MODE_S = 0$ .
      - 23           + Generate a random number distributed uniformly in the interval 0 to  
24  $8 \times MAX\_REDIRECT\_DELAY_S$  seconds, and if quantized, with granularity  
25 no greater than 1 ms. The mobile station must set its redirect delay  
26 timer to this random number and must continue to process messages in  
27 the overhead message train.
    - 28           – Otherwise, if the redirect delay timer is inactive, the mobile station must  
29 perform the following:
      - 30           – The mobile station must use the following (or an equivalent) algorithm to  
31 review the  $NXTREG_{S-p}$  associated with the  $SID_{S-p}$  to determine if  $REGID_S$   
32 has cycled through zero:
        - 33           + If  $UPDATE\_NEXTREG_S = 1$ , set  $NXTREG_{S-p}$  to  $REGID_S + REGINCR_S$  and  
34 reset  $UPDATE\_NEXTREG_S$  to 0.
        - 35           + If  $NXTREG_{S-p}$  is greater than or equal to  $REGID_S + REGINCR_S + 5$ , then  
36  $NXTREG_{S-p}$  must be replaced by the greater of 0 or  $NXTREG_{S-p} - 2^{20}$ .
        - 37           + Otherwise do not change  $NXTREG_{S-p}$ .

- 1                   – The mobile station must then compare REGID<sub>S</sub> with the NXTREG<sub>S-p</sub>  
2 associated with the SID<sub>S-p</sub>.
- 3                   + If REGID<sub>S</sub> is greater than or equal to NXTREG<sub>S-p</sub> and if autonomous  
4 registration is enabled, the mobile station must set the first-registration  
5 ID status to disabled (see 2.6.1.1.2) and then enter the System Access  
6 Task with a registration indication (see 2.6.3).
- 7                   + If REGID<sub>S</sub> is greater than or equal to NXTREG<sub>S-p</sub> and if autonomous  
8 registration is not enabled, then set NXTREG<sub>S-p</sub> equal to REGID<sub>S</sub>.
- 9                   + Otherwise, the mobile station must ignore the message and continue to  
10 process messages in the overhead message train.
- 11                  • If SID<sub>S</sub> is not equal to the SID<sub>S-p</sub> value stored in the registration memory, the  
12 mobile station must perform the following:
- 13                   – If autonomous registration is enabled, the mobile station shall set the first-  
14 registration ID status to disabled (see 2.6.1.1.2). The mobile station shall  
15 then enter the System Access Task with a registration indication supplied  
16 (see 2.6.3).
- 17                   – Otherwise, the mobile station must ignore the message and continue to  
18 process messages in the overhead message train.
- 19                  9. *CDMA Capability Message*: The mobile station must perform the following:
- 20                   • If PACA<sub>S</sub> = enabled or the mobile station entered this task with a wait-for-page  
21 indication, the mobile station should ignore the *CDMA Capability Message* and  
22 continue to process messages in the overhead message train.
- 23                   • If CDMA\_AVAIL equals '1', and if REDIRECTION<sub>S</sub> equals disabled, and if the  
24 preferred mode of operation is CDMA, the mobile station may exit this task and  
25 enter the *System Determination Substate* of the *Mobile Station Initialization State*  
26 with a CDMA available indication (see 2.6.1.1 of [5]).
- 27                   • If CDMA\_AVAIL equals '1', and if REDIRECTION<sub>S</sub> equals enabled, and if the  
28 IGNORE\_CDMA field of REDIRECT\_REC<sub>S</sub> equals '0', and if the preferred mode of  
29 operation is CDMA, the mobile station may exit this task and enter the *System*  
30 *Determination Substate* of the *Mobile Station Initialization State* with a CDMA  
31 available indication (see 2.6.1.1 of [5]).
- 32                   • If ADD\_CDMA\_AVAIL equals '1', and if REDIRECTION<sub>S</sub> equals disabled, and if  
33 the preferred mode of operation is CDMA, the mobile station may exit this task  
34 and enter the System Access Task with a CDMA query indication (see 2.6.3).
- 35                   • If ADD\_CDMA\_AVAIL equals '1', and if REDIRECTION<sub>S</sub> equals enabled, the  
36 IGNORE\_CDMA field of REDIRECT\_REC<sub>S</sub> equals '0', and if the preferred mode of  
37 operation is CDMA, the mobile station may exit this task and enter the System  
38 Access Task with a CDMA query indication (see 2.6.3).

- 1 • If the mobile station has previously attempted and failed to acquire a CDMA  
2 system five consecutive times as a result of receiving a *CDMA Capability*  
3 *Message*, the mobile station shall ignore the *CDMA Capability Message* until  
4 immediately before the next autonomous registration attempt or until the next  
5 mobile station power-up.
- 6 • If REDIRECTION<sub>S</sub> equals enabled, and if the IGNORE\_CDMA field of  
7 REDIRECT\_REC<sub>S</sub> equals '1', the mobile station shall ignore the *CDMA*  
8 *Capability Message*.

9 10. *Rescan Message*: See the corresponding section of [26].

10 11. Any Other Message (including messages and global action types herein defined as  
11 "Reserved"): Use the message for NAWC-counting, but do not attempt to execute  
12 the message.

### 13 2.6.2.2. Page Match

14 The mobile station must monitor mobile station control messages for page messages (see  
15 3.7.1.1).

- 16 • If the ROAM status is disabled, the mobile station must attempt to match MIN1<sub>p</sub> to  
17 MIN1<sub>r</sub> for one-word messages and both MIN1<sub>p</sub> and MIN2<sub>p</sub> to MIN1<sub>r</sub> and MIN2<sub>r</sub>,  
18 respectively, for two-word messages. All decoded MIN bits must match to cause the  
19 mobile station to respond to the message.
- 20 • If the ROAM status is enabled, the mobile station must attempt to match both  
21 MIN1<sub>p</sub> and MIN2<sub>p</sub> to MIN1<sub>r</sub> and MIN2<sub>r</sub>, respectively. All decoded MIN bits must  
22 match to cause the mobile station to respond to the order.

23 When a match occurs,

- 24 • If PACA<sub>S</sub> = enabled, the mobile station must set PACA<sub>S</sub> = disabled and must  
25 indicate to the user that the PACA call has been canceled.
- 26 • The mobile station must enter the System Access Task with a page response  
27 indication (see 2.6.3).

### 28 2.6.2.3. Order

29 In addition to the requirements described in the corresponding section of [26], the mobile  
30 station must respond to the following order as described below:

- 31 • *PACA Message*: If PACA<sub>S</sub> = disabled, the mobile station must ignore the message.  
32 If PACA<sub>S</sub> = enabled, the mobile station must perform the following:
  - 33 – If the message is a response to an *Origination Order* (PURPOSE<sub>r</sub> = '0000'), the  
34 mobile station must ignore the message.
  - 35 – If the message is to provide the queue position of the PACA call (PURPOSE<sub>r</sub> =  
36 '0001'), the mobile station must indicate to the user that the PACA call is still  
37 queued, and must indicate the current queue position (Q\_POS<sub>r</sub>) of the call. The  
38 mobile station shall remain in the current task.

- 1           – If the message is to instruct the mobile station to re-originate the PACA call  
2           (PURPOSE<sub>R</sub> = '0010'), the mobile station must enter the System Access Task  
3           (see 2.6.3) with a PACA response indication and re-originate the PACA call.
- 4           – If the message is to cancel the PACA call (PURPOSE<sub>R</sub> = '0011'), the mobile  
5           station must set PACA<sub>S</sub> = disabled, indicate to the user that the PACA call has  
6           been canceled, and enter the Serving System Determination Task (see 2.6.3.12).

#### 7   2.6.2.4.   Call Initiation

8   When the user initiates a call, the mobile station must perform the following:

- 9           • If PACA<sub>S</sub> = enabled, the mobile station must set PACA<sub>S</sub> = disabled and must  
10          indicate to the user that the PACA call has been canceled.
- 11          • The System Access Task (see 2.6.3) must be entered with an origination indication.

#### 12   2.6.2.5.   Power Down

13   See the corresponding section of [26].

#### 14   2.6.2.6.   Reserved

15

#### 16   2.6.2.7.   PACA Cancellation

17   The mobile station PACA Cancel Operation is performed when the user directs the mobile  
18   station to cancel the PACA call.

19   If PACA<sub>S</sub> = enabled, the mobile station must perform the following:

- 20          • Set PACA<sub>S</sub> = disabled,
- 21          • Indicate to the user that the PACA call has been canceled,
- 22          • Enter the System Access Task (see 2.6.3) with a PACA cancel indication.

#### 23   2.6.3.   System Access

##### 24   2.6.3.1.   Set Access Parameters

25   If a mobile station powers down occurs during a system access, and if PDREG<sub>S</sub> = 1, the  
26   mobile station must terminate its access procedures and initiate an autonomous  
27   registration by continuing this task (see 2.6.3) with a power down registration indication.

28   When the System Access Task is started, a timer, called the access timer, must be set as  
29   follows:

- 30          • If this is an origination or PACA response, set to a maximum of 12 seconds.
- 31          • If this is a page response or PACA cancel, set to a maximum of 6 seconds.

- 1 • If this is an order response, set to a maximum of 6 seconds.
- 2 • If this is a registration other than power down registration, set to a maximum of 6
- 3 seconds.
- 4 • If this is a power down registration, set to a maximum of 3 seconds.
- 5 • If this is a Base Station Challenge, set to a maximum of 12 seconds.
- 6 • If this is a CDMA query, set to a maximum of 6 seconds.

7 The mobile station must set  $IDHO_S = 0$ , and set the last-try code ( $LT_S$ ) to '0', set  
8  $UPDATE\_NEXTREG_S$  to '0', and then enter the Scan Access Channels Task (see 2.6.3.2).

### 9 2.6.3.2. Scan Access Channels

10 See the corresponding section of [26].

### 11 2.6.3.3. Retrieve Access Attempt Parameters

12 The mobile station must set the maximum number of seizure attempts allowed  
13 ( $MAXSZTR_S$ ) to a maximum of 10, and the maximum number of busy occurrences  
14 ( $MAXBUSY_S$ ) to a maximum of 10.

15 The mobile station must then initialize the following variables to zero:

- 16 • Number of busy occurrences ( $NBUSY_{SV}$ )
- 17 • Number of unsuccessful seizure attempts ( $NSZTR_{SV}$ )

18 The mobile station must then examine the read control-filler bit ( $RCF_S$ ).

- 19 • If  $RCF_S = 0$ , the mobile station must then within 400 ms (+100 ms, -0 ms) set  $DCC_S$   
20 to the value in the DCC field of a received message, set  $SDCC1_S$  and  $SDCC2_S$  to 0,  
21 and set the power level ( $PL_S$ ) to 0.
- 22 • If  $RCF_S = 1$ , the mobile station must then, within 1000 ms (+100 ms, -0 ms), read a  
23 *Control-Filler Message*, set  $DCC_S$ ,  $WFOM_S$ ,  $SDCC1_S$  and  $SDCC2_S$  to the values in  
24 the DCC, WFOM, SDCC1 and SDCC2 fields of the message, respectively, and set  
25  $PL_S$  to the power level given by Table 2.1.2-1 of [26] for the value of the CMAC field  
26 of the message and the mobile station power class (see 2.3.3 of [5]).

27 If the DCC field or the *Control-Filler Message* is not received within the time allowed, then  
28 the mobile station must examine the access timer. If the access timer has expired, the  
29 mobile station must enter the Serving-System Determination Task (see 2.6.3.12). If the  
30 access timer has not expired, the mobile station must enter the Alternate Access Channel  
31 Task (see 2.6.3.13).

32 The mobile station must then set  $BIS_S$  to '1' and examine the  $WFOM_S$  bit.

- 33 • If  $PACA_S = \text{enabled}$  or if  $WFOM_S = 1$ , the mobile station must enter the Update  
34 Overhead Information Task (see 2.6.3.4).

- If  $WFOM_S = 0$ , the mobile station must wait for a random delay. Each time it waits for a random delay, a random delay must be generated with the time uniformly distributed in the interval 0 to  $92 \pm 1$  ms and, if quantized, with granularity no more than 1 ms. The mobile station must then enter the Seize Reverse Control Channel Task (see 2.6.3.5).

#### 2.6.3.4. Update Overhead Information

If this task is not completed within 1.5 seconds, the mobile station must exit this task and enter the Serving-System Determination Task (see 2.6.3.12). If the Update Overhead Information Task is completed, the mobile station must enter the Seize Reverse Control Channel Task (see 2.6.3.5).

The mobile station must receive an overhead message train (see 3.7.1.2).

- Authentication bit ( $AUTH_S$ ): Set  $AUTH_S$  to the value in the AUTH field.
- Extended Protocol bit ( $EP_S$ ): If the mobile station is capable of supporting Extended Protocol, set  $EP_S$  to the value in the EP field.

If the access is a registration, an origination, a PACA response, or a page response, the mobile station shall perform the following:

- Update System Identification ( $SID_R$ ). Set the 14 most significant bits of  $SID_R$  to the value of the SID1 field. Set the least significant bit of  $SID_R$  to '1' if the serving-system status is enabled; otherwise, set the bit to '0'.
- If the access is a registration, the mobile station must compare  $SID_R$  with  $SID_S$ . If  $SID_R$  is not equal to  $SID_S$ , the mobile station must exit the Update Overhead Information Task and enter the Serving System Determination Task (see 2.6.3.12). Otherwise, the mobile station shall continue to process this task.
- If this access is an origination or a page response, the mobile station must compare  $SID_R$  with  $SID_{S-p}$ . If  $SID_R$  does not equal  $SID_{S-p}$ , the mobile station must set  $RAND_S$  equal to zero.
- If the access is a PACA response and if  $SID_R$  is not equal to  $SID_S$  and if  $PACA_S =$  enabled, the mobile station must set  $PACA_S =$  disabled and must indicate to the user that the PACA call has been canceled. The mobile station must enter the Serving System Determination Task (see 2.6.3.12).

The mobile station must act as indicated below in response to the following global action messages, if received in the message train:

- *Overload Control Message:*
  - If this access is an origination, the mobile station must examine the value of the overload class field (OLC) identified by  $ACCOLC_p$ . If the identified OLC field is set to '0', the mobile station must exit this task and enter the Serving-System Determination Task (see 2.6.3.12); if the identified OLC field is set to '1', the mobile station must continue to respond to messages in the overhead message train.

- 1           – Otherwise, the mobile station must continue to respond to messages in the  
2           overhead message train.
- 3       • *Access Type Parameters Message:*
- 4           – The mobile station must set the busy-idle status bit (BIS<sub>S</sub>) to the value of the  
5           BIS field of the received message.
- 6           – The mobile station must set PCI\_HOME<sub>S</sub> to the value of the PCI\_HOME field of  
7           the received message.
- 8           – The mobile station must set PCI\_ROAM<sub>S</sub> to the value of the PCI\_ROAM field of  
9           the received message.
- 10          – The mobile station must set BSPC<sub>S</sub> to the value of the BSPC field of the received  
11          message.
- 12          – The mobile station must set BSCAP<sub>S</sub> to the value of the BSCAP field of the  
13          received message.
- 14          – If BSCAP<sub>S</sub> indicates that the system supports [26] or later revisions of the core  
15          analog air interface standard, then:
- 16           + If PCSID ≠ SID<sub>S</sub>, then:
- 17               o If Roam status is enabled, and if PCI\_ROAM<sub>S</sub> = 1, or  
18               o If Roam status is disabled, and if PCI\_HOME<sub>S</sub> = 1,
- 19           + then, the mobile station shall Update Protocol Capability ID status to  
20           enabled and set PCSID<sub>S</sub> = SID<sub>S</sub>.
- 21       • *Random Challenge A Message:* The mobile station must set the corresponding  
22       portion of its internal RAND1<sub>S</sub> to the value of the RAND1\_A field in the *Global*  
23       *Action Message* (see 2.3.12.1.2 for updating of RAND).
- 24       • *Random Challenge B Message:* The mobile station must set the corresponding  
25       portion of its internal RAND1<sub>S</sub> to the value of the RAND1\_B field in the *Global*  
26       *Action Message* (see 2.3.12.1.2 for updating of RAND).
- 27       • *Access Attempt Parameters Message:* The mobile station must update the following  
28       parameters:
- 29           – If this access is a page response,
- 30               + Maximum number of seizure tries allowed (MAXSZTR<sub>S1</sub>) must be set to the  
31               value of the MAXSZTR-PGR field of the received message.
- 32               + Maximum number of busy occurrences allowed (MAXBUSY<sub>S1</sub>) must be set to  
33               the value of the MAXBUSY-PGR field of the received message.
- 34           – Otherwise,
- 35               + Maximum number of seizure tries allowed (MAXSZTR<sub>S1</sub>) must be set to the  
36               value of the MAXSZTR-OTHER field of the received message.

1           + Maximum number of busy occurrences allowed ( $MAXBUSY_S$ ) must be set to  
2           the value of the  $MAXBUSY-OTHER$  field of the received message.

3 If the access is a registration access, the mobile station must respond as indicated to the  
4 registration identification message, if received in the overhead message train:

5           The mobile station must set  $REGID_S$  to the value of the  $REGID$  field in the message.

6 After the overhead message train is received and processed as required above, the mobile  
7 station must wait a random time. Each time this task is executed, a different random  
8 delay must be generated, distributed uniformly in the interval 0 to 750 ms, and if  
9 quantized, with granularity no greater than 1 ms. At the end of the delay, the mobile  
10 station must enter the Seize Reverse Control Channel Task (see 2.6.3.5).

#### 11 2.6.3.5. Seize Reverse Control Channel

12 See the corresponding section of [26].

#### 13 2.6.3.6. Delay After Failure

14 See the corresponding section of [26].

#### 15 2.6.3.7. Service Request

16 The mobile station must continue to send its message to the base station. The information  
17 that must be sent is as follows (with the formats given in 2.7.1):

- 18       • Word A must always be sent.
- 19       • Word B must be sent if any of the following conditions hold.
  - 20           –  $E_S = 1$
  - 21           –  $LT_S = 1$
  - 22           –  $AUTH_S = 1$
  - 23           – the ROAM status is enabled
  - 24           – the ROAM status is disabled and  $Exp = 1$
  - 25           – the access is an order confirmation
  - 26           – the access is an autonomous registration
  - 27           – the access is a capability registration
  - 28           – the access is a power down registration
  - 29           – the access is a CDMA query
  - 30           – the access is a base station challenge
  - 31           – the mobile station was paged with a two-word *Mobile Station Control Message*
  - 32           –  $RCF = 1$

- Word C must be sent as shown in the following table:

<b>S<sub>s</sub> Bit</b>	<b>Type of System Access</b>			
	<b>Registration, Origination, PACA Cancel, PACA Response, or Page Response where AUTH<sub>s</sub> = 0, Order Confirmation*</b>	<b>Registration, Origination, PACA Cancel, PACA Response, or Page Response where AUTH<sub>s</sub> = 1</b>	<b>Unique Challenge Order Confirmation</b>	<b>Base Station Challenge</b>
0	Do Not Send Word C	Send Authentication Word C	Send Unique Challenge Order Confirmation Word C	Send Base Station Challenge Word C
1	Send Serial Number Word C	Send Serial Number Word C and Authentication Word C	Send Serial Number Word C and Unique Challenge Order Confirmation Word C	Send Serial Number Word C and Base Station Challenge Word C

\* Order Confirmation other than Unique Challenge

- If the access is a capability registration and if update-protocol-capability ID status is enabled, Protocol Capability Indicator Word C must be sent.
- If the access is a registration and if Update Protocol Capability ID status is enabled, Protocol Capability Indicator Word C must be sent.
- If the access is a protocol capability indicator order confirmation, then Protocol Capability Indicator Word C shall be sent.
- If the access is an origination or PACA response, word D must be sent.
- If the access is an origination or a PACA response, and if 9 or more digits were dialed, word E must be sent.
- If the access is an origination or a PACA response, and if 17 or more digits were dialed, word F must be sent.
- If the access is an origination or PACA response, and if 25 to 32 digits were dialed, then word G must be sent.

When the mobile station has sent its complete message, it must continue to send unmodulated carrier signal for a nominal duration of 25 ms and must then turn off the transmitter.

The next task to be entered depends upon the type of access by the mobile station:

- If the access is an order confirmation or a PACA cancel, the mobile station must enter the Serving-System Determination Task (see 2.6.3.12).

- 1 • If the access is an origination, the mobile station must enter the Await Message  
2 Task (see 2.6.3.8).
- 3 • If the access is a page response, the mobile station must enter the Await Message  
4 Task (see 2.6.3.8).
- 5 • If the access is a registration request (including capability information) other than a  
6 power down registration, the mobile station must enter the Await Registration  
7 Confirmation Task (see 2.6.3.9). If the registration is a power down registration, the  
8 mobile station shall power down.
- 9 • If the access is a base station challenge, the mobile station must enter the Await  
10 Message Task (see 2.6.3.8).
- 11 • If the access is a PACA response or a PCI order confirmation, the mobile station  
12 must enter the Await Message Task (see 2.6.3.8).
- 13 • If the access is a CDMA query, the mobile station must enter the Await Message  
14 Task (see 2.6.3.8).

#### 15 2.6.3.8. Await Message

16 If this task is not completed within 10 seconds for a Base Station Challenge, or if it is not  
17 completed within 5 seconds for all other messages and orders, the mobile station must exit  
18 this task and enter the Serving System Determination Task (see 2.6.3.12).

19 The mobile station must monitor mobile station control messages (see 3.7.1.1). If the  
20 mobile station sent Word B as part of the Service Request (see 2.6.3.7), then the mobile  
21 station must attempt to match  $MIN1_p$  and  $MIN2_p$  to  $MIN1_r$  and  $MIN2_r$ , respectively;  
22 otherwise, the mobile station must attempt to match  $MIN1_p$  to  $MIN1_r$  only.

23 The mobile station must respond as indicated to any of the following messages if all  
24 decoded MIN bits match.

25 If the access is an origination, PACA response, or page response:

- 26 • *Initial Voice Channel Designation Message* (see 3.7.1.1): The mobile station must  
27 update the parameters as set in the message, delete all entries from  $SID\_NID\_LIST_s$ ,  
28  $ZONE\_LIST_s$ ,  $SID\_NID\_LIST_{s-p}$ , and  $ZONE\_LIST_{s-p}$ , and set  $REGISTERED_s$  to NO.  
29 If  $R_s = 1$ , the mobile station must enter the Autonomous Registration Update Task  
30 (see 2.6.3.11), supplying a success indication. If  $R_s = 0$ , the mobile station shall  
31 enter the Confirm Initial Voice Channel Task (see 2.6.4.2). If  $PACA_s = \text{enabled}$ , the  
32 mobile station must set  $PACA_s = \text{disabled}$  and must indicate to the user that the  
33 PACA call is in process.
- 34 • *PACA Message* (see 3.7.1.1): If  $PACA_s = \text{disabled}$ , the mobile station must perform  
35 the following:
  - 36 – If the message is in response to an origination ( $PURPOSE_r = '0000'$ ), the mobile  
37 station must set  $PACA_s$  to enabled and indicate to the user that the call has  
38 been queued as a PACA call. Also, the mobile station must indicate to the user  
39 the current queue position ( $Q\_POS_r$ ) of the PACA call, and must then enter the  
40 Idle Task (see 2.6.2).

- 1       – If the message is not in response to an origination, the mobile station must  
2       ignore the message. If PACA<sub>S</sub> = enabled, the mobile station must perform the  
3       following:
- 4       – If the message is in response to an origination (PURPOSE<sub>R</sub> = '0000'), the mobile  
5       station must ignore the message.
- 6       – If the message is to provide the queue position of the PACA call (PURPOSE<sub>R</sub> =  
7       '0001'), the mobile station must indicate to the user that the PACA call is still  
8       queued, indicate the current queue position (Q\_POS<sub>T</sub>) of the call, and remain in  
9       the current task.
- 10      – If the message is to instruct the mobile station to re-originate the PACA call  
11      (PURPOSE<sub>R</sub> = '0010'), the mobile station must enter the System Access Task  
12      (see 2.6.3) with an PACA response indication and re-originate the PACA call.
- 13      – If the message is to cancel the PACA call (PURPOSE<sub>R</sub> = '0011'), the mobile  
14      station must set PACA<sub>S</sub> = disabled, indicate to the user that the PACA call has  
15      been canceled, and enter the Serving-System Determination Task (see 2.6.3.12).

- 16      • *Directed-Retry Message* (see 3.7.1.1): If the mobile station is equipped for directed  
17      retry, it must respond to the *Directed-Retry Message* as follows:

18      If the mobile station encounters the start of a new message before it receives all  
19      four words of the *Directed-Retry Message*, it must exit this task and enter the  
20      Serving-System Determination Task (see 2.6.3.12).

21      The mobile station must set the last-try code (LT<sub>S</sub>) according to the ORDQ field of  
22      the message:

- 23      – If ORDQ = '000', set LT<sub>S</sub> to '0'.
- 24      – If ORDQ = '001', set LT<sub>S</sub> to '1'.

25      The mobile station must then clear CCLIST<sub>S</sub> and must examine each CHANPOS  
26      field in Words 3 and 4 of the message. For each nonzero CHANPOS field, the  
27      mobile station must calculate a corresponding channel number according to the  
28      following algorithm:

- 29      – If LOCAL/MSG\_TYPE = '00000' , and if the serving-system status is enabled,  
30      subtract CHANPOS from FIRSTCHA<sub>S</sub> + 1.
- 31      – If LOCAL/MSG\_TYPE = '00000' and, if the serving-system status is disabled,  
32      add CHANPOS to FIRSTCHA<sub>S</sub> - 1.
- 33      – If LOCAL/MSG\_TYPE = '00001', and if the serving-system status is enabled, set  
34      FIRSTCHA<sub>S</sub> to the first dedicated control channel for System A (834.990  
35      MHz/879.990 MHz) and subtract CHANPOS from FIRSTCHA<sub>S</sub> + 1. The mobile  
36      must also set AUTH<sub>S</sub> to '0'.
- 37      – If LOCAL/MSG\_TYPE = '00001', and if the serving-system status is disabled, set  
38      FIRSTCHA<sub>S</sub> to the first dedicated control channel for System B (835.020  
39      MHz/880.020 MHz) and add CHANPOS to FIRSTCHA<sub>S</sub> - 1. The mobile must  
40      also set AUTH<sub>S</sub> to '0'.

- 1           – If LOCAL/MSG\_TYPE = '00010', and if the serving-system status is enabled, set  
2           FIRSTCHA<sub>S</sub> to the first dedicated control channel for System A (834.990  
3           MHz/879.990 MHz) and subtract CHANPOS from FIRSTCHA<sub>S</sub> + 1. The mobile  
4           must also set AUTH<sub>S</sub> to '1'.
- 5           – If LOCAL/MSG\_TYPE = '00010', and if the serving-system status is disabled,  
6           set FIRSTCHA<sub>S</sub> to the first dedicated control channel for System B (835.020  
7           MHz/880.020 MHz) and add CHANPOS to FIRSTCHA<sub>S</sub> - 1. The mobile must  
8           also set AUTH<sub>S</sub> to '1'.

9           The mobile station must then determine whether each channel number is within  
10          the set allocated to cellular systems; and, if so, must list the channel number in  
11          CCLIST<sub>S</sub>.

12          After completing its response to the *Directed-Retry Message*, the mobile station  
13          must examine the access timer. If the access timer has expired, the mobile station  
14          must enter the Serving-System Determination Task (see 2.6.3.12). If the access  
15          timer has not expired, the mobile station must enter the Directed-Retry Task (see  
16          2.6.3.14).

17          If the access is an origination or PACA response:

- 18           • *Intercept*: If PACA<sub>S</sub> = enabled, the mobile station must set PACA<sub>S</sub> = disabled, must  
19           indicate to the user that the PACA call has been canceled, and must enter the  
20           Serving-System Determination Task (see 2.6.3.12); otherwise, the mobile station  
21           must enter the Serving-System Determination Task (see 2.6.3.12).
- 22           • *Reorder*: If PACA<sub>S</sub> = enabled, the mobile station must set PACA<sub>S</sub> = disabled, must  
23           indicate to the user that the PACA call has been canceled, and must enter the  
24           Serving-System Determination Task (see 2.6.3.12). Otherwise, the mobile station  
25           must enter the Serving-System Determination Task (see 2.6.3.12).

26          If the access is a page response:

- 27           • *Release*: The mobile station must enter the Serving-System Determination Task  
28           (see 2.6.3.12).

29          If the access is a PCI order confirmation:

- 30           • *Release*: The mobile station must enter the Serving-System Determination Task  
31           (see 2.6.3.12).
- 32           • *Message Waiting Order*: If the mobile station is capable of performing Message  
33           Waiting Notification, the mobile station shall indicate the presence of messages  
34           waiting based upon the information contained in the message type field of the  
35           Message Waiting order (*i.e.*, 0 for clear or no messages, other non-zero values  
36           indicate the number of messages waiting). The mobile station then enters the  
37           System Access Task (see 2.6.3) with an order confirmation indication.

38          If the access is a CDMA Query:

- 39           • *CDMA Info Order*: The mobile station should exit this task and enter the *System*  
40           *Determination Substate* of the *Mobile Station Initialization State* with an additional  
41           CDMA available indication (see 2.6.1.1 of [5]).

1 If the access is a Base Station Challenge:

- 2 • *Base Station Challenge Order Confirmation*: The mobile station compares the  
3 AUTHBS received in the *Base Station Challenge Order Confirmation Message* to that  
4 computed internally. The mobile station must then acknowledge receipt of the *SSD*  
5 *Update Order* by the *SSD Update Order Confirmation Message* with a success or  
6 failure indication as described in 2.3.12.1.8 by entering the System Access Task  
7 (see 2.6.3) with an order response indication (see 2.6.3.1). If the mobile station fails  
8 to receive the *Base Station Challenge Order Confirmation* within 10 seconds of the  
9 time when the *Base Station Challenge Order* was transmitted, terminate the SSD  
10 update process.

11 If the access is an origination, and if the user terminates a call during this task, the  
12 termination status must be enabled so that the call can be released on a voice channel (see  
13 2.6.4.4) instead of on a control channel.

#### 14 2.6.3.9. Await Registration Confirmation

15 If the mobile station receives an *Order Confirmation Message* (see 3.7.1.1), it shall delete all  
16 entries from  $SID\_NID\_LIST_S$ ,  $ZONE\_LIST_S$ ,  $SID\_NID\_LIST_{S-p}$ , and  $ZONE\_LIST_{S-p}$  and shall  
17 set  $REGISTERED_S$  to NO as the first action it takes.

18 In addition to the requirements in this section, see the corresponding section of [26].

#### 19 2.6.3.10. Action on Registration Failure

20 The mobile station shall delete all entries from  $SID\_NID\_LIST_S$ ,  $ZONE\_LIST_S$ ,  
21  $SID\_NID\_LIST_{S-p}$ , and  $ZONE\_LIST_{S-p}$ , and shall set  $REGISTERED_S$  to NO as the first action  
22 it takes.

23 In addition to the requirements in this section, see the corresponding section of [26].

#### 24 2.6.3.11. Autonomous Registration Update

25 The mobile station shall set  $CDMA\_MODE_S = 0$  and  $DIGITAL\_REG_{S-p} = '00000000'$  as the  
26 first action it takes.

27 In addition to the requirements in this section, see the corresponding section of [26].

#### 28 2.6.3.12. Serving-System Determination

29 If this task is entered as a result of a power down registration attempt, the mobile station  
30 must immediately power down. Otherwise, the mobile station shall proceed as follows:

- 31 • If  $REDIRECTION_S$  equals disabled, and if either the preferred mode of operation is  
32 CDMA or the serving-system status does not correspond to the preferred system,  
33 the mobile station may enter the *System Determination Substate* of the *Mobile*  
34 *Station Initialization State* with a reselection indication (see 2.6.1.1 of [5]); otherwise,  
35 it must enter the Paging Channel Selection Task (see 2.6.1.2).

1 2.6.3.13. Alternate Access Channel

2 See the corresponding section of [26].

3 2.6.3.14. Directed Retry

4 See the corresponding section of [26].

5 2.6.4. Mobile Station Control on the Analog Voice Channel

6 In addition to the requirements in this section, see the corresponding section of [26].

7 2.6.4.1. Loss of Radio-Link Continuity

8 See the corresponding section of [26].

9 2.6.4.2. Confirm Initial Voice Channel

10 In addition to the requirements in this section, see the corresponding section of [26].

11 Within 100 ms of the receipt of a *Channel Assignment Message* (see 3.7.2.3.2.8 of [5])  
12 containing ASSIGN\_MODE = '011' and AN\_CHAN\_TYPE = '00', or an *Extended Channel*  
13 *Assignment Message* (see 3.7.2.3.2.21 of [5]) containing ASSIGN\_MODE = '011' and  
14 AN\_CHAN\_TYPE = '00', the mobile station must execute the procedures in the  
15 corresponding section of [26].

16 2.6.4.3. Alerting

17 In addition to the requirements in this section, see the corresponding section of [26].

18 2.6.4.3.1. Waiting for Order

19 In addition to the requirements in this section, see the corresponding section of [26].

20 When this task is entered, in addition to the actions described in the corresponding  
21 section of [26], the following may occur:

- 22 • If this task is entered as a result of receiving an *Analog Handoff Direction Message*  
23 (see 3.7.3.3.2.6 of [5]), the mobile station must use the VMAC, ANALOG\_CHAN, and  
24 SCC values obtained from the *Analog Handoff Direction Message* to perform the  
25 following operations: Adjust power level, tune to new channel, adjust to new SAT,  
26 and set SCC<sub>s</sub> to the value of the SCC field of the message (see 2.4.1 of [26]). The  
27 mobile station must then turn on the transmitter, and reset the fade timer. The  
28 mobile station must set the message encryption mode to that indicated by the MEM  
29 value obtained from the *Analog Handoff Direction Message*. The mobile station may  
30 compare the SID value obtained from the *Analog Handoff Direction Message* with  
31 HOME\_SID<sub>p</sub>. If SID<sub>r</sub> = HOME\_SID<sub>p</sub>, the mobile station may set the ROAM status  
32 to disabled. If SID<sub>r</sub> is not equal to HOME\_SID<sub>p</sub>, the mobile station may set the  
33 ROAM status to enabled. The mobile station must remain in the Waiting for Order  
34 Task.

- 1       • Within 100 ms of the receipt of any of the orders listed either below (see 3.7.2) or in  
2       the corresponding section of [26], the mobile station must compare  $SCC_S$  to the  
3       present SAT color code (PSCC) field in the received message. If  $SCC_S$  is not equal to  
4       PSCC, the order must be ignored. If  $SCC_S = PSCC$ , the action to be taken for each  
5       order is as follows:

- 6       – *Alert With Info SMS*: Within 750 ms, the mobile station must send an *Alert With*  
7       *Info SMS Order Confirmation Message*, and remain in the Waiting for Order  
8       Task. If the value of the TASK\_TM field of the received message is '0', reset the  
9       order timer to 10 seconds; otherwise reset the order timer to 600 ms.

10       Process the *Alert With Info SMS Message* as follows:

- 11       + If the value of the B/F field of the received message is '11', and if the  
12       INFO\_DATA field of the received message contains an unsegmented SMS  
13       teleservice message, the mobile station may discard any incomplete SMS  
14       teleservice message being reassembled and should pass the INFO\_DATA  
15       field of the received message to the SMS teleservice. Set the B/F field of the  
16       *Alert With Info SMS Order Confirmation Message* to '1'. If the teleservice  
17       reports an error, set the ERROR\_CLASS and CAUSE\_CODE fields of the  
18       *Alert With Info SMS Order Confirmation Message* to report the teleservice  
19       error.
- 20       + If the value of the B/F field of the received message is '10', the mobile  
21       station may discard any incomplete SMS teleservice message being  
22       reassembled, and must store the INFO\_DATA field of the received message  
23       as the first segment of an SMS teleservice message being reassembled. Set  
24        $SEQ_{NO}_S$  to  $SEQ_{NO}_R$ . Set the B/F field of the *Alert With Info SMS Order*  
25       *Confirmation Message* to '0'.
- 26       + If the value of the B/F field of the received message is '00', and if a  
27       segmented SMS teleservice message is being reassembled, compare the  
28       value of the SEQ\_NO field of the received message to  $SEQ_{NO}_S$ . Set the B/F  
29       field of the *Alert With Info SMS Order Confirmation Message* to '0'. The  
30       mobile station shall perform the following actions:
- 31       o If  $(SEQ_{NO}_S + 1)$  modulo 8 is equal to the value of the SEQ\_NO field of  
32       the received message, store the INFO\_DATA field of the received message  
33       as the next segment of the SMS teleservice message being reassembled,  
34       and increment  $SEQ_{NO}_S$ , modulo 8.
- 35       o If  $SEQ_{NO}_S$  is equal to the value of the SEQ\_NO field of the received  
36       message, the mobile station may discard the INFO\_DATA field of the  
37       received message.
- 38       o If neither  $SEQ_{NO}_S$  nor  $(SEQ_{NO}_S + 1)$  modulo 8 is equal to the value of  
39       the SEQ\_NO field of the received message, the mobile station may  
40       discard the INFO\_DATA field of the received message and may discard  
41       the incomplete SMS teleservice message being reassembled.

- 1           + If the value of the B/F field of the received message is '00', and if no  
2 segmented SMS teleservice message is being reassembled, the mobile  
3 station may discard the INFO\_DATA field of the received message. Set the  
4 B/F field of the *Alert With Info SMS Order Confirmation Message* to '0'.
- 5           + If the value of the B/F field of the received message is '01', and if a  
6 segmented SMS teleservice message is being reassembled, store the  
7 INFO\_DATA field of the received message as the last segment of the SMS  
8 teleservice message and pass the complete SMS teleservice message to the  
9 SMS teleservice. Set the B/F field of the *Alert With Info SMS Order*  
10 *Confirmation Message* to '1'. If the teleservice reports an error, set the  
11 ERROR\_CLASS and CAUSE\_CODE fields of the *Alert With Info SMS Order*  
12 *Confirmation Message* to report the teleservice error.
- 13           + If the value of the B/F field of the received message is '01', and if no  
14 segmented SMS teleservice message is being reassembled, the mobile  
15 station may discard the INFO\_DATA field of the received message. Set the  
16 ERROR\_CLASS and CAUSE\_CODE fields of the *Alert With Info SMS Order*  
17 *Confirmation Message* to report an error due to reception of an incomplete  
18 message. Set the B/F field of the *Alert With Info SMS Order Confirmation*  
19 *Message* to '0'.
- 20           – *Message Encryption Mode Order*: The base station is activating/deactivating  
21 signaling message encryption. If the order qualifier field in the received  
22 message is set to '001', activate basic signaling message encryption. If the  
23 order qualifier field in the received message is set to '010', activate enhanced  
24 signaling message encryption. If the order qualifier field in the received  
25 message is set to '000', deactivate signaling message encryption. In any  
26 case, send an "order confirmation" message to the base station (see 2.7.2),  
27 remain in the Waiting for Order Task and reset the order timer to 10  
28 seconds if the mobile station is waiting for a response to a Base Station  
29 Challenge order, or to 5 seconds if waiting for any other response.

#### 30 2.6.4.3.2. Waiting for Answer

31 In addition to the requirements in this section, see the corresponding section of [26].

32 When this task is entered, in addition to the actions described in the corresponding  
33 section of [26], the following may occur:

- 34 • If this task is entered as a result of receiving an *Analog Handoff Direction Message*  
35 (see [5]), the mobile station must use the VMAC, ANALOG\_CHAN, and SCC values  
36 obtained from the *Analog Handoff Direction Message* to perform the following  
37 operations: adjust power level, tune to new channel, adjust to new SAT, and set  
38 SCC<sub>s</sub> to the value of the SCC field of the message (see 2.4.1). The mobile station  
39 must then turn on the transmitter, reset the fade timer, and turn on the signaling  
40 tone. The mobile station must set the message encryption mode to that indicated  
41 by the MEM value obtained from the *Analog Handoff Direction Message*. The  
42 mobile station may compare the SID value obtained from the *Analog Handoff*

1        *Direction Message* with HOME\_SID<sub>p</sub>. If SID<sub>r</sub> = HOME\_SID<sub>p</sub>, the mobile station may  
 2        set the ROAM status to disabled. If SID<sub>r</sub> is not equal to HOME\_SID<sub>p</sub>, the mobile  
 3        station may set the ROAM status to enabled. The mobile station must remain in  
 4        the Waiting for Answer Task.

- 5        • Within 100 ms of the receipt of any of the orders listed, either below or in the  
 6        corresponding section of [26], the mobile station must compare SCC<sub>s</sub> to the PSCC  
 7        field in the received message. If SCC<sub>s</sub> is not equal to PSCC, the order must be  
 8        ignored. If SCC<sub>s</sub> = PSCC, the action to be taken for each order is as follows:

- 9        – *Alert With Info SMS*: Within 750 ms the mobile station must send an *Alert With*  
 10        *Info SMS Order Confirmation Message*, and remain in the Waiting for Answer  
 11        Task.

12        Process the *Alert With Info SMS Message* as follows:

- 13        + If the value of the B/F field of the received message is '11', and if the  
 14        INFO\_DATA field of the received message contains an unsegmented SMS  
 15        teleservice message, the mobile station may discard any incomplete SMS  
 16        teleservice message being reassembled and should pass the INFO\_DATA  
 17        field of the received message to the SMS teleservice. Set the B/F field of the  
 18        *Alert With Info SMS Order Confirmation Message* to '1'. If the teleservice  
 19        reports an error, set the ERROR\_CLASS and CAUSE\_CODE fields of the  
 20        *Alert With Info SMS Order Confirmation Message* to report the teleservice  
 21        error.
- 22        + If the value of the B/F field of the received message is '10', the mobile  
 23        station may discard any incomplete SMS teleservice message being  
 24        reassembled and must store the INFO\_DATA field of the received message as  
 25        the first segment of an SMS teleservice message being reassembled. Set  
 26        SEQ\_NO<sub>s</sub> to SEQ\_NO<sub>r</sub>. Set the B/F field of the *Alert With Info SMS Order*  
 27        *Confirmation Message* to '0'.
- 28        + If the value of the B/F field of the received message is '00', and if a  
 29        segmented SMS teleservice message is being reassembled, compare the  
 30        value of the SEQ\_NO field of the received message to SEQ\_NO<sub>s</sub>. Set the B/F  
 31        field of the *Alert With Info SMS Order Confirmation Message* to '0'. Take  
 32        action as follows:
  - 33        o If (SEQ\_NO<sub>s</sub> + 1) modulo 8 is equal to the value of the SEQ\_NO field of  
 34        the received message, store the INFO\_DATA field of the received message  
 35        as the next segment of the SMS teleservice message being reassembled  
 36        and increment SEQ\_NO<sub>s</sub>, modulo 8.
  - 37        o If SEQ\_NO<sub>s</sub> is equal to the value of the SEQ\_NO field of the received  
 38        message, the mobile station may discard the INFO\_DATA field of the  
 39        received message.

- 1           o If neither SEQ\_NO<sub>S</sub> nor (SEQ\_NO<sub>S</sub> + 1) modulo 8 is equal to the value of  
2           the SEQ\_NO field of the received message, the mobile station may  
3           discard the INFO\_DATA field of the received message and may discard  
4           the incomplete SMS teleservice message being reassembled.
- 5           + If the value of the B/F field of the received message is '00', and if no  
6           segmented SMS teleservice message is being reassembled, the mobile  
7           station may discard the INFO\_DATA field of the received message. Set the  
8           B/F field of the *Alert With Info SMS Order Confirmation Message* to '0'.
- 9           + If the value of the B/F field of the received message is '01', and if a  
10          segmented SMS teleservice message is being reassembled, store the  
11          INFO\_DATA field of the received message as the last segment of the SMS  
12          teleservice message and pass the complete SMS teleservice message to the  
13          SMS teleservice. Set the B/F field of the *Alert With Info SMS Order*  
14          *Confirmation Message* to '1'. If the teleservice reports an error, set the  
15          ERROR\_CLASS and CAUSE\_CODE fields of the *Alert With Info SMS Order*  
16          *Confirmation Message* to report the teleservice error.
- 17          + If the value of the B/F field of the received message is '01', and if no  
18          segmented SMS teleservice message is being reassembled, the mobile  
19          station may discard the INFO\_DATA field of the received message. Set the  
20          ERROR\_CLASS and CAUSE\_CODE fields of the *Alert With Info SMS Order*  
21          *Confirmation Message* to report an error due to reception of an incomplete  
22          message. Set the B/F field of the *Alert With Info SMS Order Confirmation*  
23          *Message* to '0'.
- 24          – *Message Encryption Mode Order*: The base station is activating/deactivating  
25          signaling message encryption. If the order qualifier field in the received  
26          message is set to '001', activate basic signaling message encryption. If the order  
27          qualifier field in the received message is set to '010', activate enhanced signaling  
28          message encryption. If the order qualifier field in the received message is set to  
29          '000', deactivate signaling message encryption. In any case, send an "order  
30          confirmation" message to the base station (see 2.7.2), remain in the Waiting for  
31          Order Task and reset the order timer to 10 seconds if the mobile station is  
32          waiting for a response to a Base Station Challenge order, or to 5 seconds if  
33          waiting for any other response.

#### 2.6.4.4. Conversation

In addition to the requirements in this section, see the corresponding section of [26].

When this task is entered, in addition to the actions described in the corresponding section of [26], the following may occur:

- If this task is entered as a result of receiving an *Analog Handoff Direction Message* (see 3.7.3.3.2.6 of [5]), the mobile station must use the VMAC, ANALOG\_CHAN, and SCC values obtained from the *Analog Handoff Direction Message* to perform the following operations: Adjust power level, tune to new channel, adjust to new SAT, and set SCC<sub>S</sub> to the value of the SCC field of the message (see 2.4.1). The mobile station must then turn on the transmitter and reset the fade timer. The mobile station must set the message encryption mode to that indicated by the MEM value obtained from the *Analog Handoff Direction Message*. The mobile station may compare the SID value obtained from the *Analog Handoff Direction Message* with HOME\_SID<sub>P</sub>. If SID<sub>R</sub> = HOME\_SID<sub>P</sub>, the mobile station may set the ROAM status to disabled. If SID<sub>R</sub> is not equal to HOME\_SID<sub>P</sub>, the mobile station may set the ROAM status to enabled. The mobile station must remain in the Conversation Task.
- Within 100 ms of the receipt of any of the orders listed either below or in the corresponding section of [26], the mobile station must compare SCC<sub>S</sub> to the PSCC field in the received message. If SCC<sub>S</sub> is not equal to PSCC, the order must be ignored. If SCC<sub>S</sub> = PSCC, the mobile station must take the following steps. Except for the audit order, mobile stations capable of discontinuous-transmission operation (see 2.3.11) must inhibit discontinuous transmission for 1.5 seconds; that is, for a period of at least 1.5 seconds, the mobile station must remain in the DTX-high state. Upon receipt of the audit order, mobile stations capable of discontinuous transmission must inhibit discontinuous transmission for at least 5 seconds. Immediately after determining that SCC<sub>S</sub> = PSCC, a mobile station that is not capable of discontinuous transmission or a mobile station capable of discontinuous transmission but in the DTX-high state must take the actions specified below for each order.

If the mobile station is capable of discontinuous transmission and is in the DTX-low state or the transition state when the order arrives, the mobile station must enter the DTX-high state and wait 200 ms. Then it must take the actions specified below for each order.

– *Send Called-Address:*

- + If received within 10 seconds of the completion of the last valid flash, send the called-address to the base station (see 2.7.2) and remain in the Conversation Task. The contents of the called address field may depend on the desired action to be taken by the network, such as:
  - o If the flash was a result of the user indicating User Selective Call Forwarding, the called-address should indicate either the:

- 1                   ◇ feature code for User Selective Call Forwarding to pre-registered
- 2                   number, or
- 3                   ◇ feature code for User Selective Call Forwarding followed by the
- 4                   desired forwarding to number, or
- 5                   ◇ feature code for User Selective Call Forwarding to voice mail.
- 6                   o If the flash was a result of the user activation or deactivation of Answer
- 7                   Holding, the called-address should indicate the feature code for Answer
- 8                   Holding.
- 9                   + Otherwise, ignore the order and remain in the Conversation Task.
- 10                  – *Alert With Info SMS*: Within 750 ms the mobile station must send an *Alert With*
- 11                  *Info SMS Order Confirmation Message*, and remain in the Conversation Task.

12                  Process the *Alert With Info SMS* message as follows:

- 13                  + If the value of the B/F field of the received message is '11', the INFO\_DATA
- 14                  field of the received message contains an unsegmented SMS teleservice
- 15                  message. The mobile station may discard any incomplete SMS teleservice
- 16                  message being reassembled, and should pass the INFO\_DATA field of the
- 17                  received message to the SMS teleservice. Set the B/F field of the *Alert With*
- 18                  *Info SMS Order Confirmation Message* to '1'. If the teleservice reports an
- 19                  error, set the ERROR\_CLASS and CAUSE\_CODE fields of the *Alert With Info*
- 20                  *SMS Order Confirmation Message* to report the teleservice error.
- 21                  + If the value of the B/F field of the received message is '10', the mobile
- 22                  station may discard any incomplete SMS teleservice message being
- 23                  reassembled, and must store the INFO\_DATA field of the received message
- 24                  as the first segment of an SMS teleservice message being reassembled.
- 25                  Store the value of the SEQ\_NO field of the received message in SEQ\_NO<sub>S</sub>.
- 26                  Set the B/F field of the *Alert With Info SMS Order Confirmation Message* to
- 27                  '0'.
- 28                  + If the value of the B/F field of the received message is '00', and if a
- 29                  segmented SMS teleservice message is being reassembled, compare the
- 30                  value of the SEQ\_NO field of the received message to SEQ\_NO<sub>S</sub>. Set the B/F
- 31                  field of the *Alert With Info SMS Order Confirmation Message* to '0'. Take
- 32                  action as follows:
- 33                  o If (SEQ\_NO<sub>S</sub> + 1) modulo 8 is equal to the value of the SEQ\_NO field of
- 34                  the received message, store the INFO\_DATA field of the received message
- 35                  as the next segment of the SMS teleservice message being reassembled,
- 36                  and increment SEQ\_NO<sub>S</sub>, modulo 8.
- 37                  o If SEQ\_NO<sub>S</sub> is equal to the value of the SEQ\_NO field of the received
- 38                  message, the mobile station may discard the INFO\_DATA field of the
- 39                  received message.

- 1           o If neither SEQ\_NO<sub>S</sub> nor (SEQ\_NO<sub>S</sub> + 1) modulo 8 is equal to the value of  
2           the SEQ\_NO field of the received message, the mobile station may  
3           discard the INFO\_DATA field of the received message and may discard  
4           the incomplete SMS teleservice message being reassembled.
- 5           + If the value of the B/F field of the received message is '00', and if no  
6           segmented SMS teleservice message is being reassembled, the mobile  
7           station may discard the INFO\_DATA field of the received message. Set the  
8           B/F field of the *Alert With Info SMS Order Confirmation Message* to '0'.
- 9           + If the value of the B/F field of the received message is '01', and if a  
10          segmented SMS teleservice message is being reassembled, store the  
11          INFO\_DATA field of the received message as the last segment of the SMS  
12          teleservice message and pass the complete SMS teleservice message to the  
13          SMS teleservice. Set the B/F field of the *Alert With Info SMS Order*  
14          *Confirmation Message* to '1'. If the teleservice reports an error, set the  
15          ERROR\_CLASS and CAUSE\_CODE fields of the *Alert With Info SMS Order*  
16          *Confirmation Message* to report the teleservice error.
- 17          + If the value of the B/F field of the received message is '01', and if no  
18          segmented SMS teleservice message is being reassembled, the mobile  
19          station may discard the INFO\_DATA field of the received message. Set the  
20          ERROR\_CLASS and CAUSE\_CODE fields of the *Alert With Info SMS Order*  
21          *Confirmation Message* to report an error due to reception of an incomplete  
22          message. Set the B/F field of the *Alert With Info SMS Order Confirmation*  
23          *Message* to '0'.
- 24          – *Message Encryption Mode Order*: The base station is activating/deactivating  
25          signaling message encryption. If the order qualifier field in the received  
26          message is set to '001', activate basic signaling message encryption. If the order  
27          qualifier field in the received message is set to '010', activate enhanced signaling  
28          message encryption. If the order qualifier field in the received message is set to  
29          '000', deactivate signaling message encryption. In any case, send an "order  
30          confirmation" message to the base station (see 2.7.2), remain in the Waiting for  
31          Order Task and reset the order timer to 10 seconds if the mobile station is  
32          waiting for a response to a Base Station Challenge order, or to 5 seconds if  
33          waiting for any other response.

#### 34 2.6.4.5. Release

35 See the corresponding section of [26].

#### 36 2.6.4.6. Power Down

37 See the corresponding section of [26].

### 38 2.7. Signaling Formats

39 In addition to the requirements in this section, see the corresponding section of [26].

## 1 2.7.1. Reverse Analog Control Channel (RECC)

2 In addition to the requirements in this section, see the corresponding section of [26].

## 3 2.7.1.1. Reverse Analog Control Channel (RECC) Messages

4 In addition to the requirements in this section, see the corresponding section of [26].

5 In addition to the message formats shown in the corresponding section of [26], the  
6 following word(s) may be transmitted over the reverse control channel:

## 7 Word C - PCI Report Word

<b>Information Element</b>	<b>Length (bits)</b>
F = 0	1
NAWC	3
MSPC	4
MSCAP	3
CLIC	1
MWNC	1
SMSC	2
PACAC	1
ENCRYPTION_SUPPORTED	4
RSVD = 000...000	16
P	12

8

1 The interpretation of the data fields (not already defined in the corresponding section of  
2 [26]) is as follows:

3 CLIC — Calling Line Identification Capability. Set to '0' to indicate  
4 not EP (Extended Protocol) CLI-capable. Set to '1' to indicate  
5 EP-CLI-capable.

6 MWNC — Message Waiting Notification Capability. Set to '0' to indicate  
7 not EP-Voice Mail capable. Set to '1' to indicate EP-Voice  
8 Mail Status-capable.

9 SMSC — Short Message Service Capability.

10 00 - Not SMS-capable,

11 01 - AWI SMS order-capable,

12 10 - EP-SMS-capable,

13 11 - AWI SMS and EP-SMS-capable.

14 PACAC — PACA Capability. Set to '0' to indicate not PACA-capable. Set  
15 to '1' to indicate PACA capable.

16 ENCRYPTION\_-

17 SUPPORTED — Encryption algorithms supported by the mobile station.

18 If AUTH is equal to '0', the mobile station shall set this field to  
19 '0000'. Otherwise, the mobile station shall set this field as  
20 specified in [5].

### 21 2.7.2. Reverse Analog Voice Channel (RVC)

22 In addition to the requirements in this section, see the corresponding section of [26].

#### 23 2.7.2.1. Reverse Analog Voice Channel (RVC) Messages

24 In addition to the requirements in this section, see the corresponding section of [26].

25 Selected Control Messages (see 2.7.2.1.1) are enciphered using the Cellular Message  
26 Encryption Algorithm (see 2.5.1 [14]) or the Enhanced Cellular Message Encryption  
27 Algorithm (see 2.5.2[14]). For each message, the enciphered fields are designated. The  
28 messages are grouped by channel designation.

29 In addition to the RVC messages listed in the corresponding section of [26], formats are  
30 shown for the following RVC message types:

- 31 • Alert With Info SMS Order Confirmation Message
- 32 • PCI Report Message

## 1 Alert With Info SMS Order Confirmation Message

<b>Information Element</b>	<b>Length (bits)</b>
F = 1	1
NAWC = 00	2
T = 1	1
LOCAL/MSG_TYPE = 00001	5
ORDQ = 000	3
ORDER = 10001	5
B/F	1
ERROR_CLASS	2
CAUSE_CODE	8
SEQ_NO	3
RSVD = 00000	5
P	12

2

## 3 PCI Report Message

<b>Information Element</b>	<b>Length (bits)</b>
F = 1	1
NAWC = 00	2
T = 1	1
MSG_TYPE	5
ORDQ = 100	3
ORDER = 11010	5
MSPC	4
MSCAP	3
CLIC	1
MWNC	1
SMSC	2
PACAC	1
RSVD = 0000000	7
P	12

4

1 The interpretation of the data fields (not already defined in the corresponding section of  
2 [26]) is as follows:

- 3           B/F     — Begin/Final. This field is used to indicate whether the  
4                    ERROR\_CLASS and CAUSE\_CODE fields include the  
5                    teleservice processing result for an SMS teleservice message.  
6                    If no teleservice processing result is included, this field shall  
7                    be set to '0'. If a teleservice processing result is included, this  
8                    field shall be set to '1'.
- 9           ERROR\_CLASS     — Error report class.  
10                            If there is no error, this field shall be set to '00'.  
11                            If the error is caused by a temporary condition, this field shall  
12                            be set to '10'. If the error is caused by a permanent  
13                            condition, this field shall be set to '11'.
- 14           CAUSE\_CODE     — Cause code. This field provides the delivery status of SMS  
15                            user data (see [27]).
- 16           SEQ\_NO         — Sequence number. This field contains the SEQ\_NO of the  
17                            Alert With Info SMS message that is being acknowledged by  
18                            the mobile station.
- 19           CLIC         — Calling Line Identification Capability. Set to '0' to indicate  
20                            not EP (Extended Protocol) CLI-capable. Set to '1' to indicate  
21                            EP-CLI-capable.
- 22           MWNC         — Message Waiting Notification Capability. Set to '0' to indicate  
23                            not EP-Voice Mail capable. Set to '1' to indicate EP-Voice  
24                            Mail Status-capable.
- 25           SMSC         — Short Message Service Capability.  
26                            00 - Not SMS-capable,  
27                            01 - AWI SMS order-capable,  
28                            10 - EP-SMS-capable,  
29                            11 - AWI SMS and EP-SMS-capable.
- 30           PACAC         — PACA Capability. Set to '0' to indicate not PACA-capable. Set  
31                            to '1' to indicate PACA-capable.

#### 32 2.7.2.1.1. Encrypted Control Messages

33 The 32 bits in Word 1 – First Word of the *Called Address Message* which comprise digits 1  
34 – 8 are encrypted. These 32 bits are treated by the encryption procedure as a new single  
35 message. No additional fields in Word 1 are encrypted.

36 The 32 bits in each Word 2 (and in Word 3 and in Word 4 when sent for 32-Digit Dialing) of  
37 the *Called Address Message* which comprise further dialed digits are encrypted. These 32  
38 bits are treated by the encryption procedure as a new single message. No additional fields  
39 in these words are encrypted.

40 If the Enhanced Cellular Message Encryption Algorithm (see 2.5.2[14]) is used, the input  
41 parameters shall be set as follows:

- 1 • SYNC[0] = 0x01
- 2 • SYNC[1] = 0x00
- 3 • DATA\_TYPE= 0



### 3. REQUIREMENTS FOR BASE STATION ANALOG OPERATION

Section 3 references [26] to describe core analog mode operation. Only those analog capabilities that support the CDMA dual-mode of operation are described in detail in this section. Subsection numbers in Section 3 of this standard correspond to subsection numbers in [26]. A reference in this standard to a particular subsection in [26] applies to that subsection and to all subsequent subsections; however, text in a subsection of Section 3 of this standard shall take precedence over any text in the corresponding subsection text in [26].

Base stations optionally implementing PACA service in the analog mode shall support *PACA Message* and *PACA Cancel* delivery (see 3.6.2, 3.6.3, 3.6.4 and 3.7.1) on the control channel. Base stations optionally implementing Extended Protocol enhanced features should refer to [7] for additional information.

#### 3.1. Transmitter

In addition to the requirements in this section, see the corresponding section of [26].

##### 3.1.1. Frequency Parameters

See the corresponding section of [26].

##### 3.1.2. Power Output Characteristics

See the corresponding section of [26].

##### 3.1.3. Modulation Characteristics

See the corresponding section of [26].

##### 3.1.3.1. Analog Voice Signals

The (FM) modulator is preceded by the following five voice-processing stages (in the order listed):

1. Transmit Audio Level Adjustment
2. Compressor
3. Pre-Emphasis
4. Deviation Limiter
5. Post Deviation-Limiter Filter

Pending the generation of a complete speech transmission plan for dual-mode cellular systems, the following requirements shall be met to ensure compatibility with the transmission plan for fixed digital speech networks.

1 3.1.3.1.1. Compressor

2 See the corresponding section of [26].

3 3.1.3.1.2. Pre-emphasis

4 See the corresponding section of [26].

5 3.1.3.1.3. Deviation Limiter

6 See the corresponding section of [26].

7 3.1.3.1.4. Post Deviation-Limiter Filter

8 See the corresponding section of [26].

9 3.1.3.1.5. Transmit Level Adjustment

10 The base station shall set the transmit level so that a 1004 Hz tone at a level of -18 dBm<sub>0</sub>  
11 at the network interface produces a  $\pm 2.9$  kHz peak frequency deviation of the transmitted  
12 carrier. Measurement techniques are described in [28].

13 3.1.3.2. Wideband Data Signals

14 See the corresponding section of [26].

15 3.1.4. Limitations on Emissions

16 3.1.4.1. Bandwidth Occupied

17 See the corresponding section of [26]. Measurement techniques are defined in [28].

18 3.1.4.2. Conducted Spurious Emissions

19 Refer to [28].

20 3.1.4.3. Radiated Spurious Emissions

21 Refer to [28].

22 3.1.4.4. Intermodulation

23 Radiated products from co-located transmitters shall not exceed FCC spurious and  
24 harmonic level requirements that would apply to any of the transmitters operated singly.

25 **3.2. Receiver**

26 In addition to the requirements in this section, see the corresponding section of [26].

### 3.2.1. Frequency Parameters

See the corresponding section of [26].

### 3.2.2. Demodulation Characteristics

See the corresponding section of [26].

#### 3.2.2.1. Analog Voice Signals

The demodulator is followed by the following three voice-signal processing stages:

- De-emphasis
- Expander
- Receive Audio Level Adjustment

Pending the generation of a complete speech transmission plan for dual-mode cellular systems, the following requirements shall be met to ensure compatibility with the transmission plan for fixed digital speech networks.

##### 3.2.2.1.1. De-emphasis

See the corresponding section of [26].

##### 3.2.2.1.2. Expander

See the corresponding section of [26].

##### 3.2.2.1.3. Audio Level Adjustment

The base station shall set the audio level so that a received 1004 Hz tone with a  $\pm 2.9$  kHz peak frequency deviation produces a level of -18 dBm0 at the network interface. Measurement techniques are described in [28].

### 3.2.3. Limitations on Emissions

Refer to [28].

### 3.2.4. Other Receiver Parameters

System performance is predicated upon receivers meeting [28].

## **3.3. Security and Identification**

In addition to the requirements in this section, see the corresponding section of [26].

### 3.3.1. Authentication

See the corresponding section of [26].

1 3.3.2. Encryption

2 If the base station supports mobile station authentication (see 3.3.1), it may also support  
3 message encryption by providing the capability to send encrypted control messages and to  
4 perform the operations of encryption and decryption as specified in 2.3.12.2.

5 **3.4. Supervision**

6 See the corresponding section of [26].

7 **3.5. Malfunction Detection**

8 Reserved.

9 **3.6. Call Processing**

10 In addition to the requirements in this section, see the corresponding section of [26].

11 3.6.1. Overhead Functions for Mobile Station Initiation

12 See the corresponding section of [26].

13 3.6.2. Mobile Station Control on the Control Channel

14 3.6.2.1. Overhead Information

15 In addition to the overhead information defined in the corresponding section of [26], the  
16 following overhead information is sent as required in messages appended to a *System*  
17 *Parameter Overhead Message* (see 3.7.1.2 for message formats):

- 18 • *CDMA Capability*. A system may indicate that it is capable of CDMA operation by  
19 sending the *CDMA Capability Global Action Message* with the CDMA\_AVAIL field set  
20 to '1'. If CDMA\_AVAIL is set to '1', the base station must set the CDMA\_FREQ field  
21 to the channel number of the CDMA frequency assignment that the mobile station  
22 is to acquire. A system may also indicate the availability of additional CDMA  
23 systems by sending the *CDMA Capability Global Action Message* with the  
24 ADD\_CDMA\_AVAIL field set to '1'.

25 3.6.2.2. Page

26 See the corresponding section of [26].

27 3.6.2.3. Order

28 In addition to the orders and order confirmations defined in the corresponding section of  
29 [26], the following orders and order confirmations may be transmitted:

- 30 • *PACA Message*.
- 31 • *CDMA Info Order*.

1 3.6.2.4. Local Control

2 See the corresponding section of [26].

3 3.6.3. Base Station Support of System Access by Mobile Stations

4 3.6.3.1. Overhead Information

5 See the corresponding section of [26].

6 3.6.3.2. Reverse Control Channel Seizure by Mobile Stations

7 See the corresponding section of [26].

8 3.6.3.3. Response to Mobile Station Messages

9 In addition to the mobile station message responses defined in the corresponding section  
10 of [26], the following response to mobile station messages may be sent:

- 11 • *PACA Response*. Send one of the following:
  - 12 – *Initial Voice Channel Designation*,
  - 13 – *PACA Message*
  - 14 – *Directed Retry*,
  - 15 – *Intercept*,
  - 16 – *Reorder*.
- 17 • *Order Message*. When the base station receives a *Base Station Challenge Order*  
18 from the mobile station, it should perform the authentication procedure as defined  
19 in 2.3.12.1.9. The base station must then send the order confirmation to the  
20 mobile station containing the algorithm output. When the base station receives a  
21 *CDMA Query Order* from the mobile station, it must send the *CDMA Info Order* to  
22 the mobile station. For all other orders, the base station should send one of the  
23 following orders:
  - 24 – *Order Confirmation*
  - 25 – *Release*

26 3.6.4. Mobile Station Control on Voice Channel

27 See the corresponding section of [26].

28 3.6.4.1. Loss of Radio-Link Continuity

29 Reserved.

### 3.6.4.2. Initial Voice Channel Confirmation

See the corresponding section of [26].

### 3.6.4.3. Alerting

#### 3.6.4.3.1. Waiting for Order

When the mobile station confirms the initial voice channel designation after having been paged, it enters this task. In addition to the orders listed in the corresponding section of [26], the following orders can be sent to the mobile station, with the resultant confirmation and action to be taken as follows:

- *Handoff (to Digital Traffic Channel)*. Requires further study.
- *Alert with Info SMS*. Within 750 ms, the mobile station confirms the order by sending an *Alert With Info SMS Order Confirmation Message*. The SEQ\_NO received in the *Alert With Info SMS Order Confirmation Message*, SEQ\_NO<sub>r</sub>, is compared to the SEQ\_NO transmitted in the last *Alert With Info SMS Message*, SEQ\_NO<sub>s</sub>. If the comparison results in a match, the base station may transmit the next pending *Alert With Info SMS Message*. If the comparison results in a mismatch, the base station must not transmit any new Alert With Info SMS messages and may re-transmit the unacknowledged *Alert With Info SMS Message* until the unacknowledged outstanding *Alert With Info SMS Message* is received as indicated by a match of SEQ\_NO<sub>r</sub> and SEQ\_NO<sub>s</sub>. Then, if the channel was allocated to deliver SMS messages, the base station should send a *Release Order*. Otherwise the base station must remain in the Waiting for Order Task.

#### 3.6.4.3.2. Waiting for Answer

When this task is entered, an alert timer may be set. In addition to the orders listed in the corresponding section of [26], the following orders can be sent with the confirmation and action to be taken as follows:

- *Handoff (to Digital Traffic Channel)*. Requires further study.
- *Alert with Info SMS*. Within 750 ms, the mobile station confirms the order by sending an *Alert With Info SMS Order Confirmation Message*. The SEQ\_NO received in the *Alert With Info SMS Order Confirmation Message*, SEQ\_NO<sub>r</sub>, is compared to the SEQ\_NO transmitted in the last *Alert With Info SMS Message*, SEQ\_NO<sub>s</sub>. If the comparison results in a match, the base station may transmit the next pending *Alert With Info SMS Message*. If the comparison results in a mismatch, the base station must not transmit any new Alert With Info SMS messages and may re-transmit the unacknowledged *Alert With Info SMS Message* until that outstanding *Alert With Info SMS Message* is received as indicated by a match of SEQ\_NO<sub>r</sub> and SEQ\_NO<sub>s</sub>. Then, if the channel was allocated to deliver SMS messages, the base station should send a *Release Order*. Otherwise the base station must remain in the Waiting for Answer Task.

#### 3.6.4.4. Conversation

While the base station is in the Conversation Task, in addition to the orders listed in the corresponding section of [26], the following orders can be sent to the mobile station, with confirmation and action to be taken as follows:

- *Alert with Info SMS*. Within 750 ms, the mobile station confirms the order by sending an *Alert With Info SMS Order Confirmation Message*. The SEQ\_NO received in the *Alert With Info SMS Order Confirmation Message*, SEQ\_NO<sub>r</sub>, is compared to the SEQ\_NO transmitted in the last *Alert With Info SMS Message*, SEQ\_NO<sub>s</sub>. If the comparison results in a match, the base station may transmit the next pending *Alert With Info SMS* message. If the comparison results in a mismatch, the base station must not transmit any new *Alert With Info SMS* messages and may re-transmit the unacknowledged *Alert With Info SMS Message* until that outstanding *Alert With Info SMS Message* is received as indicated by a match of SEQ\_NO<sub>r</sub> and SEQ\_NO<sub>s</sub>. The base station must remain in the Conversation Task.

If the call is mobile station originated, and if the mobile station re-originated the call based on receiving a *PACA Message* (PURPOSE<sub>r</sub> = '0010'), the base station should send an *Alert With Information Message*.

#### 3.6.5. Delivery of Character Information

Character information is delivered to a mobile station via the Mobile Station Control Message over the forward voice channel. The *Alert With Info* and *Flash With Info* orders are designated in the Mobile Station Control Message.

Whenever two sets of character information need to be delivered to a mobile station, the base station shall transmit the second set of character information using the *Flash With Info* order. This allows for PI and SI information to be uniquely specified for each instance of CNI.

1

2 **3.7. Signaling Formats**

3 In addition to the requirements in this section, see the corresponding section of [26] for  
4 operation in the analog mode.

5 3.7.1. Forward Analog Control Channel

6 See the corresponding section of [26].

7 3.7.1.1. Mobile Station Control Message

8 In addition to the message formats defined in the corresponding section of [26], the *Mobile*  
9 *Station Control Message* may contain the following words:

## 1 Word 3 - PACA Word

<b>Information Element</b>	<b>Length (bits)</b>
T <sub>1</sub> T <sub>2</sub> = 10	2
SCC = 11	2
PURPOSE	4
Q_POS	8
RSVD = 000...000	12
P	12

## 2 Word 3 - First CDMA Info Word

<b>Information Element</b>	<b>Length (bits)</b>
T <sub>1</sub> T <sub>2</sub> = 10	2
SCC = 11	2
BAND_CLASS	5
CDMA_FREQ	11
RSVD = 00000000	8
P	12

## 3 Word 4 - Second CDMA Info Word

<b>Information Element</b>	<b>Length (bits)</b>
T <sub>1</sub> T <sub>2</sub> = 10	2
SCC = 11	2
SID	15
RSVD = 000...000	9
P	12

4 The interpretation of the data fields (not already defined in the corresponding section of  
5 [26]) is as follows:



1

**Table 3.7.1.1-2. PACA PURPOSE Codes**

<b>PURPOSE Code</b>	<b>Function</b>
0000	Indicates that the purpose of the PACA message is to respond to an <i>Origination Message</i> .
0001	Indicates that the purpose of the PACA message is to provide the queue position of the PACA call.
0010	Indicates that the purpose of the PACA message is to instruct the mobile station to re-originate the PACA call.
0011	Indicates that the purpose of the PACA message is to cancel the PACA call.

2

## 3 3.7.1.2. Overhead Message

4 See the corresponding section of [26].

## 5 3.7.1.2.1. System Parameter Overhead Message

6 In addition to the requirements in this section, see the corresponding section of [26] for  
7 operation in the analog mode.8 Note: The base station shall set EP = '0' in Word 1 of the *System Parameter Overhead*  
9 *Message*, except when implementing optional extended protocol services (see the  
10 corresponding section of [7]).

## 11 3.7.1.2.2. Global Action Overhead Message

12 In addition to the *Global Action Overhead Messages* listed in this section, see the  
13 corresponding section of [26] for operation in the analog mode.

## 1 CDMA Capability Global Action Message

Information Element	Length (bits)
T <sub>1</sub> T <sub>2</sub> = 11	2
DCC	2
ACT = 0100	4
CDMA_FREQ	11
CDMA_AVAIL	1
ADD_CDMA_AVAIL	1
RSVD = 000	3
END	1
OHD = 100	3
P	12

2

3 The interpretation of the data fields (not already defined in the corresponding section of  
4 [26]) is as follows:

- 5 CDMA\_FREQ — Channel number of the CDMA frequency assignment to  
6 acquire.
- 7 CDMA\_AVAIL — Set to '1' if Band Class 0 CDMA is available (see [5]).
- 8 ADD\_CDMA\_AVAIL — Set to '1' if additional CDMA systems are available.

9 The *Global Action Message* codes defined in Table 3.7.1.2.3-1 are in addition to the codes  
10 defined in Table 3.7.1-4 of [26].

11

**Table 3.7.1.2.3-1. Global Action Message  
Types**

12

Action Code	Type
0100	CDMA Capability

13

## 14 3.7.1.2.3. Registration ID Message

15 In addition to the definitions in this section, see the corresponding section of [26] for  
16 operation in analog mode.

## 17 3.7.1.2.4. Control-Filler Message

18 See the corresponding section of [26] for operation in the analog mode.

## 1 3.7.1.3. Data Restrictions

2 See the corresponding section of [26] for operation in the analog mode.

## 3 3.7.2. Forward Analog Voice Channel

4 See the corresponding section of [26].

## 5 3.7.2.1. Mobile Station Control Message

6 In addition to the *Mobile Station Control Message* defined in this section, see the  
7 corresponding section of [26] for operation in the analog mode.

## 8 Word 2 - First Alert With Info SMS Word

Information Element	Length (bits)
T <sub>1</sub> T <sub>2</sub> = 01	2
RL_W	7
SEQ_NO	3
B/F	2
TASK_TM	1
RSVD = 00000	5
INFO_DATA	8
P	12

## 9 Word 3 - Second Alert With Info SMS Word

Information Element	Length (bits)
T <sub>1</sub> T <sub>2</sub> = 01	2
RSVD = 00	2
INFO_DATA	24
P	12

## 10 Word N - (N-1) Alert With Info SMS Word

Information Element	Length (bits)
T <sub>1</sub> T <sub>2</sub> = 01	2
RSVD = 00	2
INFO_DATA	24
P	12

11

1 The interpretation of the data fields (not already defined in the corresponding section of  
2 [26]) is as follows:

3           RL\_W       — The remaining length, in Words, of the Alert With Info SMS  
4 word.

5           SEQ\_NO     — Sequence number. This field contains the modulo-8  
6 sequence number of the *Alert With Info SMS Message*. This  
7 field shall be initialized to '000', and reset to '000' when  
8 transmitting a new SMS teleservice message.

9                        If an SMS teleservice message spans more than one *Alert With*  
10 *Info SMS Message*, the sequence number shall be  
11 incremented by 1, modulo 8, for each additional *Alert With*  
12 *Info SMS Message* that is a segment of the SMS teleservice  
13 message.

14           B/F       — Begin/Final. This field is used to specify whether the SMS  
15 teleservice message has been segmented into multiple *Alert*  
16 *With Info SMS Messages*. If the SMS teleservice message is  
17 completely contained in a single *Alert With Info SMS Message*,  
18 this field shall be set to '11'. For an SMS teleservice message  
19 contained in multiple *Alert With Info SMS* messages, the first  
20 segment shall have a value of '10', intermediate segments  
21 shall have a value of '00' and the final segment shall have a  
22 value of '01'. A mobile station must assemble messages for  
23 receipt by the SMS teleservice.

24           TASK\_TM   — Task Timer. This field is included in the *Alert With Info SMS*  
25 *Message* to specify the Waiting for Order Task timeout period.  
26 A value of '0' indicates a 10 second order timer shall be used  
27 by the mobile station, and a value of '1' indicates that a 600  
28 ms order timer shall be used.

29           INFO\_DATA — Info data. This field contains the SMS teleservice message  
30 data (see [27]).

31 Selected Control Messages (see 2.7.2.1.1 and 3.7.2.1.1) are enciphered using the Cellular  
32 Message Encryption Algorithm (see 2.5.1 in [14]” Revision C) or the Enhanced Cellular  
33 Message Encryption Algorithm (see 2.5.2 in [14]). For each message, the enciphered fields  
34 are designated. The messages are grouped by channel designation.

### 35 3.7.2.1.1. Encrypted Control Messages

36 Word 1 of the Mobile Station Control Message contains the order and order qualifier fields  
37 that identify this message as *Alert With Info Message*. No field in Word 1 is encrypted.

### 38 3.7.2.1.2. Alert With Info Message

39  
40 No field in Word 2 – First Alert With Info Word is encrypted.

41 The subsequent words contain a character representation. Each character transmitted is  
42 represented in IA5 form in a field of 8 bits. Each word contains up to three characters.

1 The 24 bits that comprise the three characters in each FVC word are treated by the  
2 encryption procedure as a single message. No additional fields are encrypted.

3 If the Enhanced Cellular Encryption Algorithm is used, the input parameters shall be set  
4 as follows:

- 5 • SYNC[0] = 0x00
- 6 • SYNC[1] = 0x00
- 7 • DATA\_TYPE=0

#### 8 3.7.2.1.3. Flash With Info Message

9 No field in Word 2 - Flash With Info Word is encrypted.

10 The subsequent words contain a character representation. Each character transmitted is  
11 represented in IA5 form in a field of 8 bits. Each word contains up to three characters. The  
12 24 bits that comprise the three characters in each FVC word are treated by the encryption  
13 procedure as a single message. No additional fields are encrypted.

14 If the Enhanced Cellular Message Encryption Algorithm is used, the input parameters  
15 shall be set as follows:

- 16 • SYNC[0] = 0x00
- 17 • SYNC[1] = 0x00
- 18 • DATA\_TYPE= 0

#### 19 3.7.2.1.4. Alert With Info SMS Message

20 The Word 2 - First Alert With Info SMS Word contains fields B/F, TASK\_TM, RSVD and  
21 INFO\_DATA that are encrypted by the encryption procedure. No additional fields in Word  
22 2 are encrypted.

23 Subsequent Alert With Info SMS Words contain the INFO\_DATA field - representation of  
24 message data sent by the SMS teleservice. The INFO\_DATA fields of all subsequent Alert  
25 With Info SMS Words are encrypted. No additional fields of subsequent Alert With Info  
26 SMS Words are encrypted.

27 The encrypted fields of Word 2 - First Alert With SMS Word and all INFO\_DATA fields of  
28 the same Alert With Info SMS message are treated by the encryption procedure as a single  
29 message.

30 If the Enhanced Cellular Message Encryption Algorithm is used, the input parameters  
31 shall be set as follows:

- 32 • SYNC[0] = 0x00
- 33 • SYNC[1] = 0x00
- 34 • DATA\_TYPE= 1

#### 35 3.7.2.2. Reserved

36

1 No Text.

1 **4. REQUIREMENTS FOR MOBILE STATION ANALOG OPTIONS**

2 See the corresponding section of [7] for optional extended protocol services.

3

1 No Text.

1 **5. REQUIREMENTS FOR BASE STATION ANALOG OPTIONS**

2 See the corresponding section of [7] for optional extended protocol services.

3

1

2 No Text.

3

- 1 **A. ANNEX A - Reserved.**
- 2 Reserved.
- 3

- 1 No text.

## 1 **B. ANNEX B MOBILE STATION DATABASE**

### 2 **B.1 Introduction**

3 This is an informative annex that lists the numeric indicators that are described in this  
 4 document and are stored in the mobile station's permanent or semi-permanent memory.  
 5 Some of these indicators are required; other indicators are optional and are so noted.  
 6 The indicators are organized in this annex according to two categories:

- 7 • Mobile station indicators These indicators are global to the mobile station and  
 8 independent of the mobile station's NAMs.
- 9 • NAM indicators These indicators specify parameters associated with the  
 10 mobile station's NAM.

11 The description of each indicator shown below includes the indicator's name, the number of  
 12 bits it contains, and the section in this document where it is defined. Permanent indicators  
 13 are denoted by the "p" subscript; semi-permanent indicators are denoted by the "s-p"  
 14 subscript.

### 15 **B.2 Mobile Station Indicators**

16 Mobile station indicators are organized into permanent mobile station indicators and semi-  
 17 permanent mobile station indicators.

#### 18 **B.2.1 Permanent Mobile Station Indicators**

19 Permanent mobile station indicators specify physical station configuration and attributes,  
 20 independent of NAM. No additional permanent indicators are defined in this document.  
 21

22 Semi-permanent mobile station indicators are retained when the mobile station power is  
 23 turned off. These indicators are associated with mobile station registration. They are  
 24 independent of the NAM in use. Analog indicators are listed in Table B.2.2-1.  
 25

26 **Table B.2.2-1. Analog Semi-permanent Mobile Station Indicators**

Indicator	Number of Bits	Where Defined	Notes
NXTREG <sub>S-p</sub>	21	2.3.4.1	
SID <sub>S-p</sub>	15	2.3.4.1	
LOCAID <sub>S-p</sub>	12	2.3.4.2	
PUREG <sub>S-p</sub>	1	2.3.4.2	

27

### 28 **B.3 NAM Indicators**

29 Each mobile station contains one or more NAMs. Table B.3-1 lists the permanent and  
 30 semi-permanent values associated with each NAM.  
 31

1

**Table B.3-1. NAM Indicators**

<b>Indicator</b>	<b>Number of Bits</b>	<b>Where Defined</b>	<b>Notes</b>
FIRSTCHP <sub>p</sub>	11	2.3.7	
SSD_A <sub>S-p</sub>	64	2.3.12.1. 1	Shared Secret Data A
SSD_B <sub>S-p</sub>	64	2.3.12.1. 1	Shared Secret Data B
COUNT <sub>S-p</sub>	6	2.3.12.1. 3	Call History Parameter
IMSI_M_S <sub>p</sub>	34	2.3.1	Includes IMSI_M_S1 <sub>p</sub> and IMSI_M_S2 <sub>p</sub> .
HOME_SID <sub>p</sub>	15	2.3.8	
ACCOLC <sub>p</sub>	4	2.3.5	

2