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3RD GENERATION
PARTNERSHIP
PROJECT 2
"3GPP2"

Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Standards

Release C

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FOREWORD**(This foreword is not part of this Standard)**

1
2 These technical requirements form a standard for Over-the-Air Service Provisioning of
3 mobile stations. A mobile station operating in either the analog or the spread spectrum
4 (CDMA) mode conforming with various versions of the CDMA standards, such as
5 TIA/EIA/IS-2000-A, TIA/EIA/IS-2000, TIA/EIA-95-B, TIA/EIA/IS-95-A (inclusive of TSB74),
6 or ANSI J-STD-008 and this standard can be activated over the air in any system
7 conforming with these standards.

8 The scope of this standard covers over-the-air provisioning of mobile station operational
9 parameters. This standard does not address the quality or reliability of Over-the-Air
10 Service Provisioning, nor does it cover equipment performance or measurement
11 procedures.

SECTION SUMMARY

- 12
13
- 14 1. **Introduction.** This section defines the terms, references, protocols and network
15 reference model used in this document.
 - 16 2. **Message Transmission Procedures.** This section describes the lower-layer
17 procedures used for transmission of messages for Over-the-Air Service Provisioning.
 - 18 3. **Mobile Station Procedures.** This section describes the mobile station procedures
19 for Over-the-Air Service Provisioning.
 - 20 4. **Base Station Procedures.** This section describes the base station procedures for
21 Over-the-Air Service Provisioning.
 - 22 5. **Key Exchange Procedures.** This section describes the requirements for key
23 exchange procedures.

NOTES

- 1 1. The following verbal forms are used: “Shall” and “shall not” identify requirements to
2 be followed strictly to conform to the standard and from which no deviation is
3 permitted. “Should” and “should not” indicate that one of several possibilities is
4 recommended as particularly suitable, without mentioning or excluding others; that
5 a certain course of action is preferred but not necessarily required; or that (in the
6 negative form) a certain possibility or course of action is discouraged but not
7 prohibited. “May” and “need not” indicate a course of action permissible within the
8 limits of the standard. “Can” and “cannot” are used for statements of possibility and
9 capability, whether material, physical, or causal.
- 10 2. Footnotes appear at various points in this specification to elaborate and further
11 clarify items discussed in the body of the specification.
- 12 3. Unless indicated otherwise, this document presents numbers in decimal form.
13 Binary numbers are distinguished in the text by the use of single quotation marks.
14 In some tables, binary values may appear without single quotation marks if table
15 notation clearly specifies that values are binary. The character ‘x’ is used to
16 represent a binary bit of unspecified value. For example ‘xxx00010’ represents any
17 8-bit binary value such that the least significant five bits equal ‘00010’.
18 Hexadecimal numbers (base 16) are distinguished in the text by use of the form
19 0xh...h where h...h represents a string of hexadecimal digits. For example, 0x2fa1
20 represents a number whose binary value is ‘0010111110100001’ and whose decimal
21 value is 12193. Note that the exact number of bits in the binary representation of a
22 hexadecimal number strictly depends on the implementation requirements for the
23 variable being represented.
- 24 4. Numeric information is used to describe the operation of the mobile station. The
25 following subscripts are used in this document to clarify the use of the numeric
26 information:
 - 27 • “s” indicates a value stored in a mobile station’s temporary memory.
 - 28 • “r” indicates a value received by a mobile station over a forward analog channel
29 or a CDMA Forward Channel.
 - 30 • “p” indicates a value set in a mobile station’s permanent security and
31 identification memory.
 - 32 • “s-p” indicates a value stored in a mobile station’s semi-permanent security and
33 identification memory.
- 34 5. The term “mobile station” is equivalent to the term “personal station.”
- 35 6. IMSI_T Parameter Block does not apply for the mobile station conforming with
36 TIA/EIA/IS-95-A (inclusive of TSB74) or ANSI J-STD-008.
- 37 7. IMSI_M in this document is equivalent to IMSI defined in TIA/EIA/IS-95-A (inclusive
38 of TSB74) or ANSI J-STD-008.

NOTES

- 1 8. Each mobile station is assigned either a single unique 32-bit binary serial number
2 (E SN) or a single unique 56-bit binary serial number (MEID) that cannot be changed
3 by the subscriber without rendering the mobile station inoperative.

4

REFERENCES

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

7 – **Normative References:**

- 8 1. TIA-95-B, “*Mobile Station-Base Station Compatibility Standard for Wideband Spread*
 9 *Spectrum Cellular Systems*”, October 2004.
- 10 2. S.S0053, “*Common Cryptographic Algorithms*”, January 2002.
- 11 3. S.S0054, “*Interface Specification for Common Cryptographic Algorithms*”, January 2002.
- 12 4. Reserved.
- 13 5. C.S0002-D, “*Physical Layer Standard for cdma2000 Spread Spectrum Systems*”, March
 14 2004.
- 15 6. C.S0004-D, “*Signaling Link Access Control (LAC) Standard for cdma2000 Spread*
 16 *Spectrum Systems*”, March 2004.
- 17 7. C.S0005-D, “*Upper Layer (Layer 3) Signaling Standard for cdma2000 Spread Spectrum*
 18 *Systems*”, March 2004.
- 19 8. S.S0055 “*Enhanced Cryptographic Algorithms, Rev. A*”, January 2002.
- 20 9. C.S0024-A, “*cdma2000 High Rate Packet Data Air Interface Specification*”, April 2004.
- 21 10. IETF RFC 1334, “*PPP Authentication Protocols*”, October 1992.
- 22 11. IETF RFC 1994, “*PPP Challenge Handshake Authentication Protocol (CHAP)*”, August
 23 1996.
- 24 12. IETF RFC 2002, “*IP Mobility Support*”, October 1996.
- 25 13. IETF RFC 2344, “*Reverse Tunneling for Mobile IP*”, August 1996.
- 26 14. IETF RFC 2486, “*The Network Access Interface*”, January 1999.
- 27 15. IETF RFC 3012, “*Mobile IPv4 Challenge/Response Extensions*”, November 1999.
- 28 16. National Bureau of Standards, Federal Information Processing Standards Publication
 29 180-1; “*Secure Hash Standard*”, 1995.
- 30 17. X.S0013, “*ALL-IP Core Network Multimedia Domain*”, February 2004.
- 31 18. 3GPP TS 25.101, “*UE Radio Transmission and Reception (FDD)*”, March 2003.
- 32 19. X.S0016-310, “*MMS MM1 Stage 3 Using OMA/WAP*”, July 2004.
- 33 20. X.S0016-311, “*MMS MM1 Stage 3 Using M-IMAP for Message Submission and Retrieval*”,
 34 May 2003.

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- 1 21. X.S0016-312, “MMS MM1 Using SIP”, July 2004.
- 2 22. C.S0006-D, “Analog Signaling Standard for cdma2000 Spread Spectrum Systems –
3 Release D”, March 2004.
- 4 23. C.S0057-0, “Band Class Specification for cdma2000 Spread Spectrum Systems”,
5 February 2004.
- 6 24. C.S0023-C, *Removable User Identity Module for Spread Spectrum Systems, June 2006.*
- 7 – **Informative References:**
- 8 4. C.R1001-D, “Administration of Parameter Value Assignments for cdma2000 Spread
9 Spectrum Standards, Release D”, April 2003.

1 INTRODUCTION

1.1 General Description

Over-the-Air Service Provisioning (OTASP) consists of the following features provisioned over-the-air:

- Download of NAM operational parameters.
- Electronic Key Exchange for securely establishing the A-key and Root Key.
- System Selection for Preferred Roaming (SSPR) for providing mobile stations with information allowing acquisition of the preferred system in an area.
- Preferred User Zone List (PUZL) for providing mobile stations which support the optional User Zone feature with information allowing usage of the preferred user zone in an area.
- Download of 3G packet data operational parameters.

Service Programming Lock (SPL), if provided, prevents the over-the-air provisioning of certain mobile station parameters by an unauthorized network entity.

This document describes Over-the-Air Service Provisioning in CDMA and analog systems. The procedures defined are intended to be extendable and flexible enough to be used with future air interface specifications. The procedures in this document do not require support for continuation of the service provisioning process following a CDMA-to-analog handoff.

1.2 Terms and Numeric Information

1.2.1 Terms

3GPD. Third Generation Packet Data

AC. See Authentication Center.

Access Authentication. A procedure in which the Access Terminal (AT) is authenticated by the AN-AAA (Access Network Authentication, Authorization and Accounting entity).

Activation Code. A user-entered combination of a specified Feature Code (*FC) and defined group of at least two dialed digits (System Selection Code) that specify the user selection of a Band and a Block operated by the selected service provider.

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 and to validate SPASM.

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.

- 1 **Authentication Center (AC).** An entity that manages the authentication information
2 related to the mobile station.
- 3 **Base Station.** A fixed station used for communicating with mobile stations. Depending
4 upon the context, the term base station may refer to a cell, a sector within a cell, an MSC,
5 an OTAF, or other part of the wireless system. (See also MSC and OTAF.)
- 6 **BCMCS Root Key.** A secret 128-bit pattern used for BCMCS services.
- 7 **CRC.** See Cyclic Redundancy Code.
- 8 **Cyclic Redundancy Code (CRC).** A class of linear error detecting codes which generate
9 parity check bits by finding the remainder of a polynomial division.
- 10 **Electronic Serial Number (ESN).** A 32-bit number assigned by the mobile station
11 manufacturer, uniquely identifying the mobile station equipment.
- 12 **ESN.** See Electronic Serial Number.
- 13 **Forward CDMA Channel.** A CDMA Channel from a base station to mobile stations. The
14 Forward CDMA Channel contains one or more code channels that are transmitted on a
15 CDMA frequency assignment using a particular pilot PN offset.
- 16 **Forward Analog Voice Channel (FVC).** An analog voice channel used from a base
17 station to a mobile station.
- 18 **Forward Traffic Channel.** A code channel used to transport user and signaling traffic
19 from the base station to the mobile station.
- 20 **FRESH.** A 15-bit value used by the mobile station and the base station as the
21 cryptographic synchronizer for encrypting parameter data in Secure Mode. FRESH may be
22 set by the encrypting side to any value, including a monotonically incremented counter, as
23 long as this value is not repeated for the duration of the Secure Mode in progress.
- 24 **HLR.** See Home Location Register.
- 25 **Home Location Register (HLR).** The location register to which a MIN/IMSI is assigned
26 for record purposes such as subscriber information.
- 27 **Home System.** The cellular system in which the mobile station subscribes for service.
- 28 **HRPD.** High Rate Packet Data. See [9].
- 29 **IMPI.** IMS Private Identity. See [17].
- 30 **IMPU.** IMS Public Identity. See [17].
- 31 **IMS Root Key.** A secret 128-bit pattern used for IMS services.
- 32 **IMSI.** See International Mobile Station Identity.
- 33 **IMSI_M.** MIN based IMSI using the lower 10-digits to store the MIN.
- 34 **IMSI_O.** The operational value of IMSI used by the mobile station for operation with the
35 base station.
- 36 **IMSI_T.** IMSI not associated with MIN. 15-digits or fewer.

- 1 **International Mobile Station Identity (IMSI).** A method of identifying stations in the
2 land mobile service as specified in ITU-T Recommendation E.212.
- 3 **Long Code Mask.** A 42-bit binary number that creates the unique identity of the long
4 code. See also Public Long Code, Private Long Code, Public Long Code Mask and Private
5 Long Code Mask.
- 6 **LSB.** Least significant bit.
- 7 **MCC.** See Mobile Country Code.
- 8 **MEID.** See Mobile Equipment Identifier.
- 9 **Mobile Country Code (MCC).** A part of the E.212 IMSI identifying the home country. See
10 ITU-T Recommendation E.212.
- 11 **Mobile Equipment Identifier (MEID).** A 56-bit number assigned by the mobile station
12 manufacturer, uniquely identifying the mobile station equipment.
- 13 **Mobile Directory Number.** A dialable directory number which is not necessarily the
14 same as the mobile station's air interface identification, i.e., MIN, IMSI_M or IMSI_T.
- 15 **MIN.** See Mobile Identification Number.
- 16 **MMD.** Multimedia Domain.
- 17 **MMS.** Multimedia Messaging Service.
- 18 **MNC.** See Mobile Network Code.
- 19 **Mobile Identification Number (MIN).** The 34-bit number that is a digital
20 representation of the 10-digit number assigned to a mobile station.
- 21 **Mobile Network Code (MNC).** A part of the E.212 IMSI identifying the home network
22 within the home country. See ITU-T Recommendation E.212.
- 23 **Mobile Station.** A station, fixed or mobile, which serves as the end user's wireless
24 communication link with the base station. Mobile stations include portable units (e.g.,
25 hand-held personal units) and units installed in vehicles.
- 26 **Mobile Station Originated Call.** A call originating from a mobile station.
- 27 **Mobile Station Terminated Call.** A call received by a mobile station (not to be confused
28 with a disconnect or call release).
- 29 **Mobile Switching Center (MSC).** A configuration of equipment that provides wireless
30 radiotelephone service. Also called the Mobile Telephone Switching Office (MTSO).
- 31 **MSB.** Most significant bit.
- 32 **MSC.** See Mobile Switching Center.
- 33 **NAM.** See Number Assignment Module.
- 34 **Network.** A network is a subset of a wireless system, such as an area-wide wireless
35 network, a private group of base stations, or a group of base stations set up to handle a
36 special requirement. A network can be as small or as large as needed, as long as it is fully
37 contained within a system. See also System.

- 1 **Network Identification (NID).** A number that uniquely identifies a network within a
2 wireless system. See also System Identification.
- 3 **NID.** See Network Identification.
- 4 **Number Assignment Module (NAM).** A set of MIN/IMSI-related parameters stored in the
5 mobile station.
- 6 **OTAF.** See Over-the-Air Service Provisioning Function.
- 7 **Over-the-Air Service Provisioning Function (OTAF).** A configuration of network
8 equipment that controls OTASP functionality and messaging protocol.
- 9 **OTAPA.** See Over-the-Air Parameter Administration.
- 10 **OTASP.** See Over-the-Air Service Provisioning.
- 11 **Over-the-Air Parameter Administration (OTAPA).** Network initiated OTASP process of
12 provisioning mobile station operational parameters over the air interface.
- 13 **Over-the-Air Service Provisioning (OTASP).** A process of provisioning mobile station
14 operational parameters over the air interface.
- 15 **Parity Check Bits.** Bits added to a sequence of information bits to provide error
16 detection, correction, or both.
- 17 **P-CSCF.** Proxy Call Session Control Function.
- 18 **Preferred User Zone List (PUZL).** A list that provides the mobile station with the
19 information for the User Zones to which the mobile user is subscribed.
- 20 **PDSN.** Packet Data Service Node.
- 21 **Private Long Code.** The long code characterized by the private long code mask.
- 22 **Private Long Code Mask.** The long code mask used to form the private long code.
- 23 **Pseudo-ESN.** A 32-bit number derived from MEID and used in place of ESN.
- 24 **Public Long Code.** The long code characterized by the public long code mask.
- 25 **Public Long Code Mask.** The long code mask used to form the public long code. The
26 mask contains the ESN of the mobile station. See also Private Long Code Mask.
- 27 **PUZL.** See Preferred User Zone List.
- 28 **Release.** A process that the mobile station and base station use to inform each other of
29 call disconnect.
- 30 **Reverse CDMA Channel.** The CDMA Channel from the mobile station to the base
31 station. From the base station's perspective, the Reverse CDMA Channel is the sum of all
32 mobile station transmissions on a CDMA frequency assignment.
- 33 **Roamer.** A mobile station operating in a wireless system (or network) other than the one
34 from which service was subscribed.
- 35 **Secure Mode.** Network initiated mode of communicating operational parameters
36 between a mobile station and network based provisioning entity in an encrypted form.

- 1 **SIP.** Session Initiation Protocol.
- 2 **SMCK.** Secure Mode Ciphering Key.
- 3 **Service Option.** A service capability of the system. Service options may be applications
4 such as voice, data, or facsimile. See [4].
- 5 **Service Programming Code (SPC).** A secret code assigned to the mobile station and
6 known to the authorized network entity.
- 7 **Service Programming Lock (SPL).** A protection provided for preventing the over-the-air
8 provisioning of certain mobile station parameters by unauthorized network entity by way
9 of verifying the Service Programming Code (SPC).
- 10 **Shared Secret Data (SSD).** A 128-bit pattern stored in the mobile station (in semi-
11 permanent memory) and known by the base station. SSD is a concatenation of two 64-bit
12 subsets: SSD_A, which is used to support the authentication procedures, and SSD_B,
13 which serves as one of the inputs to the process generating the encryption mask and
14 private long code.
- 15 **SID.** See System Identification.
- 16 **SPASM.** See Subscriber Parameter Administration Security Mechanism.
- 17 **SPC.** See Service Programming Code.
- 18 **SPL.** See Service Programming Lock.
- 19 **SSD.** See Shared Secret Data.
- 20 **SSPR.** See System Selection for Preferred Roaming.
- 21 **Subscriber Parameter Administration Security Mechanism (SPASM).** Security
22 mechanism protecting parameters and indicators of active NAM from programming by an
23 unauthorized network entity during the OTAPA session.
- 24 **System.** A system is a wireless telephone service that covers a geographic area such as a
25 city, metropolitan region, county, or group of counties. See also Network.
- 26 **System Identification (SID).** A number uniquely identifying a wireless system.
- 27 **System Selection Code.** A part of the Activation Code that specifies the user selection of
28 a Band and a Block operated by the selected service provider.
- 29 **System Selection for Preferred Roaming (SSPR).** A feature that enhances the mobile
30 station system acquisition process based on the set of additional parameters stored in the
31 mobile station in the form of a Preferred Roaming List (PR_LIST_{s-p}).
- 32 **Traffic Channel.** A communication path between a mobile station and a base station
33 used for user and signaling traffic. The term Traffic Channel implies a Forward Traffic
34 Channel and Reverse Traffic Channel pair. See also Forward Traffic Channel and Reverse
35 Traffic Channel.
- 36 **User Zone (UZ).** CDMA Tiered Service Offerings are defined by User Zones that are
37 geographical groupings of services.
- 38 **UZ.** See User Zone.

1 **Voice Channel.** See Analog Voice Channel.

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

4 **WLAN Root Key.** A secret 128-bit pattern used for WLAN services.

5 1.2.2 Numeric Information

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

- 8 • “s” indicates a value stored in a mobile station’s temporary memory.
- 9 • “r” indicates a value received by a mobile station over a forward analog control
10 channel or a CDMA Forward Channel.
- 11 • “p” indicates a value set in a mobile station’s permanent security and identification
12 memory.
- 13 • “s-p” indicates a value stored in a mobile station’s semi-permanent security and
14 identification memory.

15 This section defines numeric information specifically related to the OTASP.

16 **A_KEY_P_REV_p** - Protocol revision of the mobile station Key Exchange procedure.

17 **A_KEY_TEMP_s** - A secret 64-bit pattern temporarily stored in the mobile station.

18 **AUTH_OTAP_{A_s}** - The computed 18-bit result AUTH_SIGNATURE used for validating
19 SPASM.

20 **BCMCS_K_p** - A secret 128-bit pattern permanently stored in the mobile station.

21 **BS_PARAM** - A variable used in the base station procedure for 3G Root Key computation.

22 **BS_PW** - A 128-bit user password that is stored in the base station. It has the same value
23 as the MS_PW.

24 **BS_PW_HASH** - The computed 1152-bit hash of the base station user password BS_PW.

25 **CUR_SSPR_P_REV_{s-p}** - Protocol revision of the mobile station’s current preferred roaming
26 list. This information is used to parse PR_LIST_{s-p}. Retained by the mobile station when
27 the power is turned off.

28 **DATA_P_REV_p** - Protocol revision of the mobile station NAM Download procedure.

29 **IMS_K_p** - A secret 128-bit pattern permanently stored in the mobile station.

30 **ITM_KEY** - An intermediate key used in the procedure for calculating service keys.

31 **MS_PARAM** - A variable used in the mobile station procedure for 3G Root Key
32 computation.

33 **MS_PW** - A 128-bit user password that is stored in the mobile station. It has the same
34 value as the BS_PW.

35 **MS_PW_HASH** - The computed 1152-bit hash of the mobile station user password
36 MS_PW.

- 1 **NAM_LOCK_p** - The locking indicator set in the mobile station by the base station that
2 defines SPASM protection of the programmable parameters in the active NAM during the
3 OTAPA session.
- 4 **NULL** - A value that is not in the specified range of the field or variable.
- 5 **NAM_LOCK_s** - A network controlled status of the SPASM protection of the active NAM for
6 the subsequent OTAPA session.
- 7 **NAM_LOCK_STATE** - a locking state of the mobile station programmable parameters for
8 OTAPA. If the NAM_LOCK_STATE = '1', the parameters are locked for network initiated
9 programming.
- 10 **PARAM_G_s** - Key exchange parameter G.
- 11 **PARAM_P_s** - Key exchange parameter P.
- 12 **PR_LIST_{s-p}** - Preferred Roaming List. Contains information to assist the mobile station
13 system selection and acquisition process. Retained by the mobile station when the
14 power is turned off.
- 15 **PRL_BLOCK_ID_CURRENT_s** - Parameter Block Identifier for the current Preferred
16 Roaming List temporarily stored in the mobile station.
- 17 **PUZL_{s-p}** - Preferred User Zone List. Contains information to assist the mobile station
18 during user zone selection and acquisition process. Retained by the mobile station when
19 the power is turned off.
- 20 **PUZL_P_REV_p** - Protocol revision of the mobile station PUZL Download procedure.
- 21 **RAND_SEED** - A secret 128-bit pattern temporarily stored in the mobile station.
- 22 **RK_p** - A secret 128-bit pattern permanently stored in the mobile station.
- 23 **RK_TEMP_s** - A secret 128-bit pattern temporarily stored in the mobile station.
- 24 **SPC_p** - Service Programming Code. A secret code assigned to the mobile station and
25 known to the authorized network entity. The base station uses the code equal to the
26 SPC_p for unlocking the mobile station parameters for programming or reprogramming.
- 27 **SPC_s** - Service Programming Code temporarily stored in the mobile station.
- 28 **SPL_P_REV_p** - Protocol revision of the mobile station Service Programming Lock.
- 29 **SP_LOCK_STATE** - A locking state of the mobile station programmable parameters. If the
30 SP_LOCK_STATE = '1', the parameters are locked for programming.
- 31 **SSPR_P_REV_p** - Protocol revision of the mobile station SSPR Download procedure and
32 the PRL format.
- 33 **SECURE_MODE_IND_s** - Secure Mode indicator. If SECURE_MODE_IND_s = '1', current
34 programming session is in Secure Mode.
- 35 **SMCK_s** - Secure Mode Cipherring Key.
- 36 **WLAN_K_p** - A secret 128-bit pattern permanently stored in the mobile station.
- 37

- 1 No text.

2 MESSAGE TRANSPORT PROTOCOL

2.1 General

OTASP Data Messages (see Sections 3 and 4) can be sent over the analog voice channel or the CDMA Traffic Channel. In either case, the *OTASP Data Messages* are sent using a Layer 2 protocol that provides reliable delivery and duplicate detection.

The delivery of *OTASP Data Messages* does not require sequential delivery of messages by the Layer 2 protocol because the Over-the-Air Service Provisioning procedures ensure that only one *OTASP Data Message* is outstanding at any time.

During the analog mode of operation, *OTASP Data Messages* are sent using the analog transport protocol (see 2.2). During the CDMA mode of operation, *OTASP Data Messages* are sent using the CDMA transport protocol (see 2.3).

2.2 Analog Transport Protocol

OTASP Data Messages are transmitted over an analog voice channel using the *OTASP Transport Message*. Signaling on the analog voice channel does not have a Layer 2 protocol defined in [1, 6]. Because of the large amount of data transported for Over-the-Air Service Provisioning, this standard defines a Layer 2 protocol to ensure *OTASP Data Message* integrity. This protocol provides message segmentation, segment acknowledgment, error detection and re-transmission.

2.2.1 *OTASP Data Message* Encapsulation

Each *OTASP Data Message Unit* transmitted on an analog voice channel shall consist of an 8-bit message length field (MSG_LENGTH), an *OTASP Data Message*, as defined in 3.5 and 4.5, and a 16-bit CRC, in that order (see Figure 2.2.1-1).

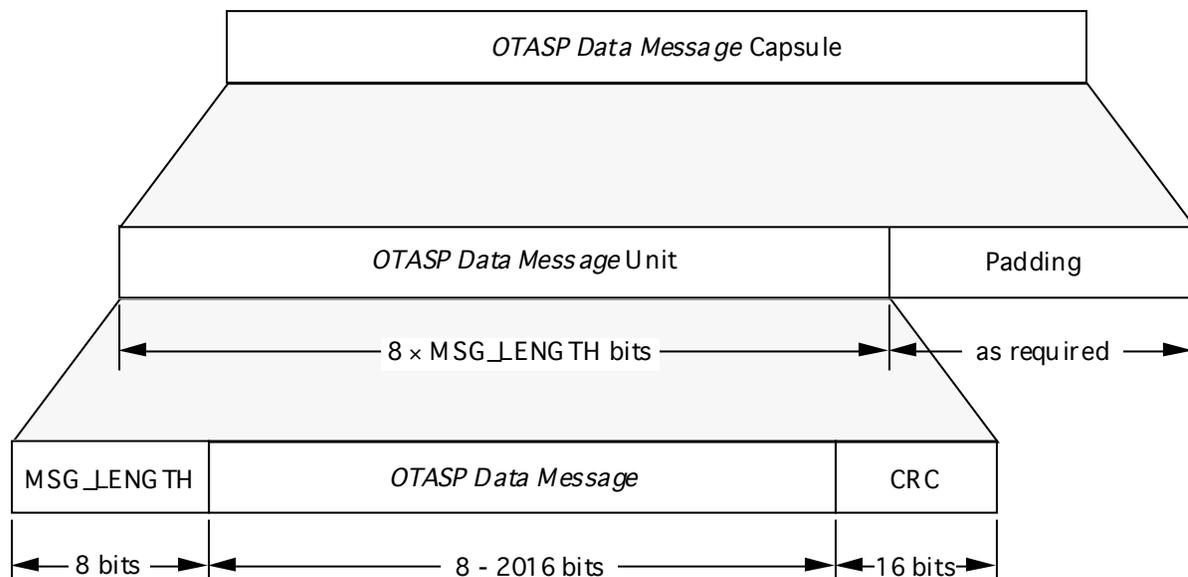


Figure 2.2.1-1 *OTASP Data Message* Encapsulation

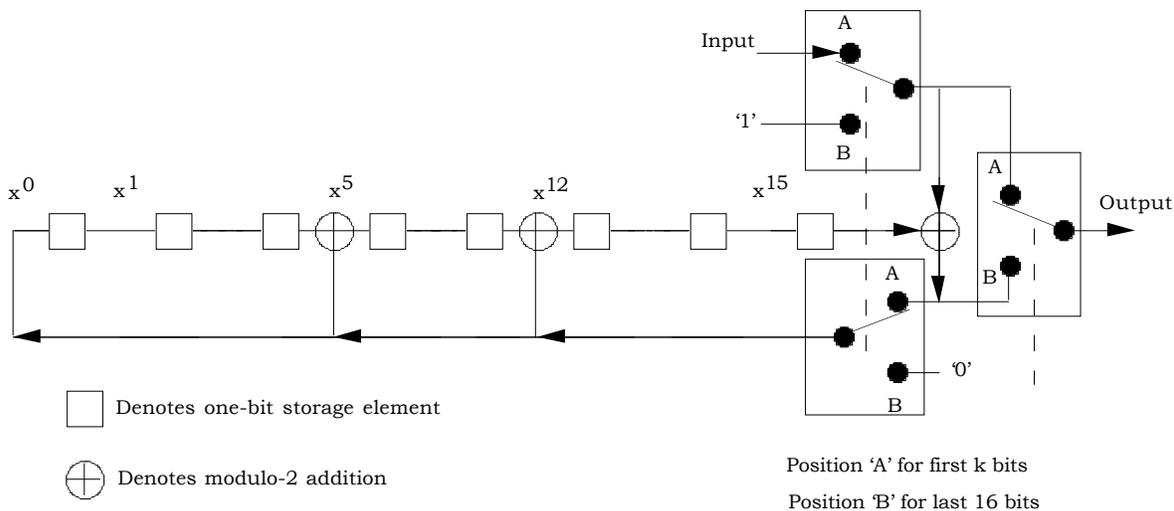
1 The MSG_LENGTH field shall be set to the number of octets in the *OTASP Data Message*
 2 plus three.

3 The 16-bit CRC is calculated on the MSG_LENGTH field and the *OTASP Data Message* bits.
 4 The generator polynomial for this CRC shall be as follows:

5
$$g(x) = x^{16} + x^{12} + x^5 + x^0$$

6 The 16-bit CRC shall be computed according to the following procedure using the logic
 7 shown in Figure 2.2.1-2:

- 8 • Initially, all shift register elements shall be set to logical one and the switches shall
 9 be set in the position 'A'.
- 10 • The register shall be clocked with each *OTASP Data Message* bit as an input, most
 11 significant bit first.
- 12 • The switches shall be set in the position 'B', and the register shall be clocked an
 13 additional 16 times. The 16 additional output bits shall be the CRC bits.
- 14 • The 16 CRC bits shall be transmitted in the order calculated.



15

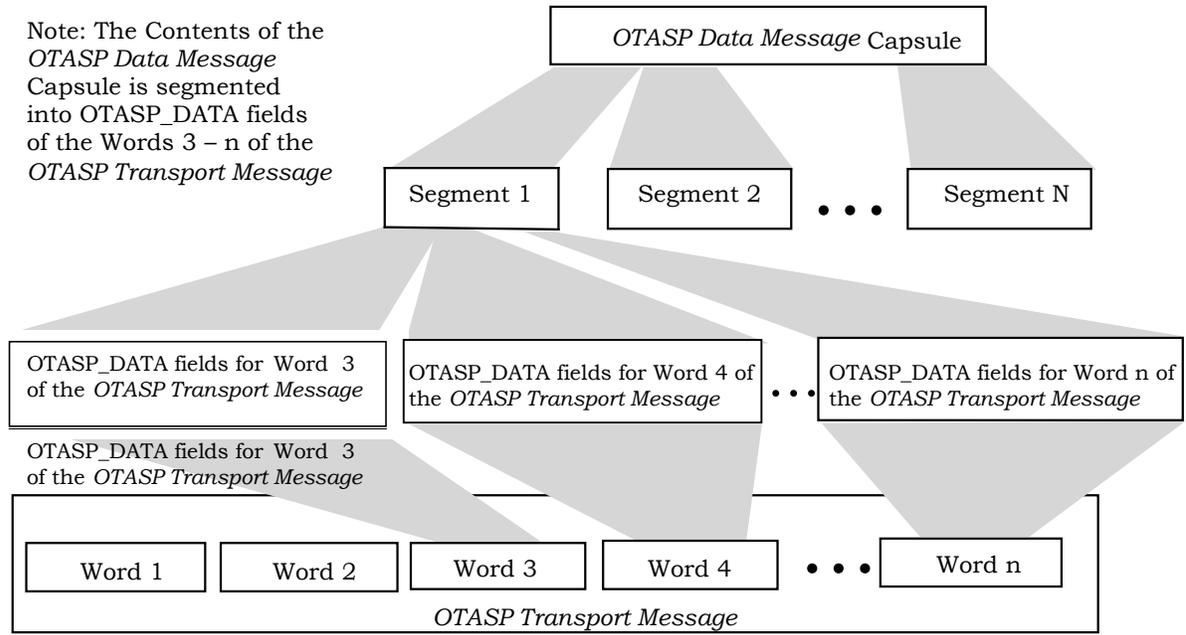
16 **Figure 2.2.1-2 OTASP Data Message CRC**

17 Padding consisting of zero or more '0' bits shall be added immediately following the *OTASP*
 18 *Data Message Unit*. The length of the padding shall be such that the resulting *OTASP*
 19 *Data Message Capsule* fits into the minimum possible integral number of *OTASP Transport*
 20 *Messages* (see 2.2.2).

21 **2.2.2 OTASP Data Message Segmentation**

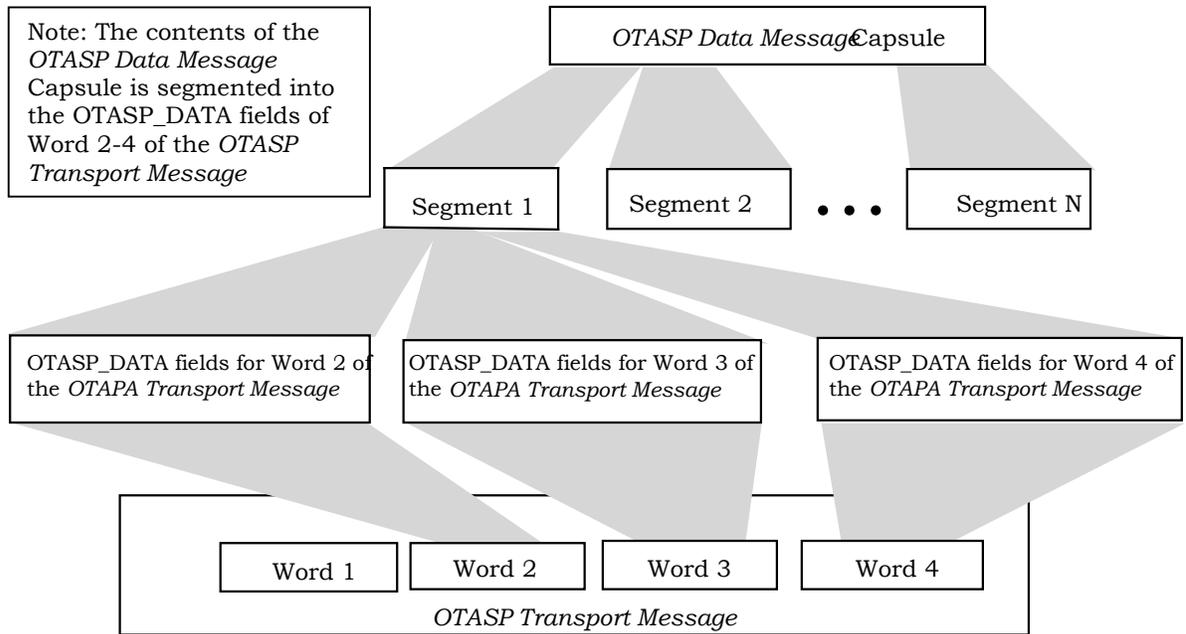
22 Each *OTASP Data Message Capsule* (see 2.2.1) sent on an analog voice channel shall be
 23 segmented and transmitted in one or more *OTASP Transport Messages*, as defined in
 24 2.2.3.4 and 2.2.4.3. Figures 2.2.2-1 and 2.2.2-2 illustrate the segmentation process for the
 25 forward and reverse analog voice channels, respectively.

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Figure 2.2.2-1 OTASP Data Message Capsule Segmentation on the Forward Analog Voice Channel.



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Figure 2.2.2-2 OTASP Data Message Capsule Segmentation on the Reverse Analog Voice Channel

2.2.3 Mobile Station Procedures

OTASP Data Messages are sent and received on analog voice channels only when the mobile station is in the Conversation Task (see 2.6.4.4 of [1]). The mobile station shall transmit OTASP Transport Messages in accordance with the procedures in 2.7.2 of [1]. Mobile stations implementing the Over-the-Air Service Provisioning feature shall comply with the following requirements in addition to those of 2.6.4.4 of [1].

2.2.3.1 OTASP Transport Message Acknowledgment and Re-transmission

When the mobile station sends an OTASP Transport Message, it starts the OTASP acknowledgment timer. The timer is disabled when an OTASP Transport Confirmation Message is received.

After sending an OTASP Transport Message, the mobile station shall not send a new OTASP Transport Message until it has received an OTASP Transport Confirmation Message acknowledging the message that has been sent.

If the OTASP acknowledgment timer expires and the OTASP Transport Message has been sent fewer than three times, the mobile station shall resend the OTASP Transport Message and reset the OTASP acknowledgment timer to two seconds. If the OTASP acknowledgment timer expires and the OTASP Transport Message has been sent three times, the mobile station shall enter the Release Task (see 2.6.4.5 of [1]).

1 2.2.3.2 Message Transmission

2 While the mobile station is in the Conversation Task, the following messages can be sent
3 in addition to those listed in 2.6.4.4 of [1]:

4 1. *OTASP Transport Message:*

5 After sending the message, the mobile station shall set the OTASP
6 acknowledgment timer to two seconds. The mobile station shall construct the
7 *OTASP Transport Message* as follows:

- 8 • If the OTASP_DATA field of the *OTASP Transport Message* contains an entire
9 *OTASP Data Message Capsule*, the mobile station shall set TX_SEQ_NUM_S to
10 '00000', shall set the SEQ_NUM field equal to TX_SEQ_NUM_S, and shall set the
11 value of the B/F field to '11'.
- 12 • If the OTASP_DATA field of the *OTASP Transport Message* contains the first
13 segment of the segmented *OTASP Data Message Capsule*, the mobile station
14 shall set TX_SEQ_NUM_S to '00000', shall set the SEQ_NUM field equal to
15 TX_SEQ_NUM_S and shall set the value of the B/F field to '10'.
- 16 • If the OTASP_DATA field of the *OTASP Transport Message* contains a segment
17 other than the first segment of the segmented *OTASP Data Message Capsule*,
18 the mobile station shall perform the following:
 - 19 - If the OTASP_DATA field of the *OTASP Transport Message* contains a
20 segment other than the final segment of the *OTASP Data Message Capsule*,
21 the mobile station shall set TX_SEQ_NUM_S to (TX_SEQ_NUM_S + 1) modulo
22 32, shall set the SEQ_NUM field equal to TX_SEQ_NUM_S and shall set the
23 value of the B/F field to '00'.
 - 24 - If the OTASP_DATA field of the *OTASP Transport Message* contains the final
25 segment of the *OTASP Data Message Capsule*, the mobile station shall set
26 TX_SEQ_NUM_S to (TX_SEQ_NUM_S + 1) modulo 32, shall set the SEQ_NUM
27 field equal to TX_SEQ_NUM_S and shall set the value of the B/F field to '01'.

28 The mobile station shall remain in the Conversation Task.

29 2. *OTASP Transport Confirmation Message:*

30 The mobile station shall set the SEQ_ACK field and DMU_CRC_OK field as specified
31 in 2.2.3.3. The mobile station shall remain in the Conversation Task.

32 2.2.3.3 Message Reception

33 While the mobile station is in the Conversation Task, the following messages can be
34 received in addition to those listed in 2.6.4.4 of [1]. When any message is received, the
35 mobile station shall perform all actions specified in 2.6.4.4 of [1] that apply to a message
36 reception. The mobile station shall take the actions specified below for each message:

37 1. *OTASP Transport Message:*

38 If the value of ESN_T received in the *OTASP Transport Message* does not match the
39 ESN_P that identifies the mobile station, the mobile station shall turn off the

1 transmitter and then enter the Serving-System Determination Task (see 2.6.3.12
2 of [1]).

3 If the value of ESN_T received in the *OTASP Transport Message* matches the ESN_P ,
4 the mobile station shall do the following:

- 5 • The mobile station shall send an *OTASP Transport Confirmation Message* within
6 750 ms after receiving the last bit of the *OTASP Transport Message*. The mobile
7 station shall set the SEQ_ACK field equal to SEQ_NUM_T received in the *OTASP*
8 *Transport Message*. The mobile station shall set the DMU_CRC_OK field as
9 specified below.
- 10 • If the value of the B/F field of the received message is '11', the OTASP_DATA
11 field of the received message contains an *OTASP Data Message Capsule* in its
12 entirety (i.e., contains an unsegmented *OTASP Data Message Capsule*). The
13 mobile station shall discard any incomplete *OTASP Data Message Capsule* being
14 reassembled. If the CRC of the *OTASP Data Message Unit* checks (see 2.2.1),
15 the mobile station shall set the DMU_CRC_OK field of the *OTASP Transport*
16 *Confirmation Message* to '1', and shall process the *OTASP Data Message* as
17 specified in Section 3; otherwise, the mobile station shall set the
18 DMU_CRC_OK field of the *OTASP Transport Confirmation Message* to '0', and
19 shall discard the *OTASP Data Message Capsule*.
- 20 • If the value of the B/F field of the received message is '10', the mobile station
21 shall discard any incomplete *OTASP Data Message Capsule* being reassembled,
22 and shall store the OTASP_DATA field of the received message as the first
23 segment of an *OTASP Data Message Capsule* to be reassembled. The mobile
24 station shall set RX_SEQ_NUM_S to the value of the SEQ_NUM field of the
25 received message. The mobile station shall set the DMU_CRC_OK field of the
26 *OTASP Transport Confirmation Message* to '0'.
- 27 • If the value of the B/F field of the received message is '00' and a segmented
28 *OTASP Data Message Capsule* is being reassembled, the mobile station shall
29 perform the following:
 - 30 - If $(RX_SEQ_NUM_S + 1)$ modulo 32 is equal to the value of the SEQ_NUM field
31 of the received message, the mobile station shall store the OTASP_DATA
32 field of the received message as the next segment of the *OTASP Data*
33 *Message Capsule* being reassembled, and shall increment RX_SEQ_NUM_S,
34 modulo 32.
 - 35 - If RX_SEQ_NUM_S is equal to the value of the SEQ_NUM field of the received
36 message, the mobile station shall discard the OTASP_DATA field of the
37 received message.
 - 38 - If neither RX_SEQ_NUM_S nor $(RX_SEQ_NUM_S + 1)$ modulo 32 is equal to the
39 value of the SEQ_NUM field of the received message, the mobile station
40 shall discard the OTASP_DATA field of the received message and shall
41 discard the incomplete *OTASP Data Message Capsule* being reassembled.

- 1 - The mobile station shall set the DMU_CRC_OK field of the *OTASP Transport*
2 *Confirmation Message* to '0'.
- 3 • If the value of the B/F field of the received message is '00', and if no segmented
4 *OTASP Data Message Capsule* is being reassembled, the mobile station shall
5 discard the OTASP_DATA field of the received message. The mobile station
6 shall set the DMU_CRC_OK field of the *OTASP Transport Confirmation Message*
7 to '0'.
- 8 • If the value of the B/F field of the received message is '01' and if a segmented
9 *OTASP Data Message Capsule* is being reassembled, the mobile station shall
10 perform the following:
- 11 - If $(RX_SEQ_NUM_S + 1)$ modulo 32 is equal to the value of the SEQ_NUM field
12 of the received message, the mobile station shall store the OTASP_DATA
13 field of the received message as the last segment of the *OTASP Data*
14 *Message Capsule* being reassembled and shall increment $RX_SEQ_NUM_S$,
15 modulo 32. If the CRC of the *OTASP Data Message Unit* checks (see 2.2.1),
16 the mobile station shall set the DMU_CRC_OK field of the *OTASP Transport*
17 *Confirmation Message* to '1' and shall process the *OTASP Data Message* as
18 specified in Section 3; otherwise, the mobile station shall set the
19 DMU_CRC_OK field of the *OTASP Transport Confirmation Message* to '0' and
20 shall discard the *OTASP Data Message Capsule*.
- 21 - If $RX_SEQ_NUM_S$ is equal to the value of the SEQ_NUM field of the received
22 message, the mobile station shall discard the OTASP_DATA field of the
23 received message. If the CRC of the *OTASP Data Message Unit* checks (see
24 2.2.1), the mobile station shall set the DMU_CRC_OK field of the *OTASP*
25 *Transport Confirmation Message* to '1'; otherwise, the mobile station shall
26 set the DMU_CRC_OK field to '0'.
- 27 - If neither $RX_SEQ_NUM_S$ nor $(RX_SEQ_NUM_S + 1)$ modulo 32 is equal to the
28 value of the SEQ_NUM field of the received message, the mobile station
29 shall discard the OTASP_DATA field of the received message and shall
30 discard the incomplete *OTASP Data Message Capsule* being reassembled.
31 The mobile station shall set the DMU_CRC_OK field of the *OTASP Transport*
32 *Confirmation Message* to '0'.
- 33 • If the value of the B/F field of the received message is '01', and if no segmented
34 *OTASP Data Message Capsule* is being reassembled, the mobile station shall
35 discard the OTASP_DATA field of the received message. The mobile station
36 shall set the DMU_CRC_OK field of the *OTASP Transport Confirmation Message*
37 to '0'.

38 The mobile station shall remain in the Conversation Task.

39 2. *OTASP Transport Confirmation Message:*

40 If the SEQ_ACK field is equal to $TX_SEQ_NUM_S$, the mobile station shall disable
41 the OTASP acknowledgment timer; otherwise, the mobile station shall ignore the
42 message. The mobile station shall remain in the Conversation Task.

1 2.2.3.4 Reverse Voice Channel Message Format

2 2.2.3.4.1 OTASP Transport Message

3 When the mobile station sends the *OTASP Transport Message* on the Reverse Voice
 4 Channel (RVC), it shall use the following format:

- 5 • Word 1 of the *OTASP Transport Message*:

Information Element	Length (bits)
F=1	1
NAWC	2
T=1	1
MSG_TYPE=00000	5
ORDQ=000	3
ORDER=11010	5
SEQ_NUM	5
B/F	2
ESN_4	8
RSVD=0000	4
P	12

6

- 7 • Word 2 of the *OTASP Transport Message*:

Information Element	Length (bits)
F=0	1
NAWC	2
T=1	1
ESN_3	8
ESN_2	8
ESN_1	8
OTASP_DATA	8
P	12

8

- 9 • Words 3 and 4 of the *OTASP Transport Message*:

Information Element	Length (bits)
F=0	1
NAWC	2
T=1	1
OTASP_DATA	32
P	12

1

2 F - First word field. The mobile station shall set this field to '1' in the
3 first word of the message, and to '0' in all other words.

4 NAWC - Number of additional words coming field. The mobile station shall
5 set this field in each word of the message to the number of
6 remaining words not including the current word.

7 T - T field. The mobile station shall set this field to '1'.

8 MSG_TYPE - Message Type field. The mobile station shall set this field to
9 '00000'.

10 ORDQ - Order qualifier field. The mobile station shall set this field to '000'.

11 ORDER - Order field. The mobile station shall set this field to '11010'.

12 SEQ_NUM - Message Sequence Number. The mobile station shall set this field
13 to the message sequence number of this *OTASP Transport Message*.

14 B/F - Begin/Final. This field is used to specify whether the *OTASP Data*
15 *Message Capsule* has been segmented into multiple *OTASP*
16 *Transport Messages*. If the *OTASP Data Message Capsule* is
17 completely contained in a single *OTASP Transport Message*, the
18 mobile station shall set this field to '11'. For an *OTASP Data*
19 *Message Capsule* contained in multiple *OTASP Transport Messages*,
20 the mobile station shall set the value of this field in the first
21 segment to '10', the value of this field in all intermediate segments
22 to '00', and the value of this field in the final segment to '01'.

23 ESN_4 - The mobile station shall set this field to the most significant octet
24 (bits d31-d24) of the mobile station ESN.

25 ESN_3 - The mobile station shall set this field to the next to the most
26 significant octet (bits d23-d16) of the mobile station ESN.

27 ESN_2 - The mobile station shall set this field to the next to the least
28 significant octet (bits d15-d8) of the mobile station ESN.

29 ESN_1 - The mobile station shall set this field to the least significant octet
30 (bits d7-d0) of the mobile station ESN.

31 RSVD - Reserved for future use; the mobile station shall set all bits as
32 indicated.

- 1 OTASP_DATA - The mobile station shall set these fields to the corresponding octets
 2 of the *OTASP Data Message Capsule*.
 3 P - Parity field. The mobile station shall set this field as specified in
 4 2.7.2 of [1].

5 2.2.3.4.2 *OTASP Transport Confirmation Message*

6 The mobile station Reverse Voice Channel (RVC) *OTASP Transport Confirmation Message*
 7 has the following format:

Information Element	Length (bits)
F=1	1
NAWC=00	2
T=1	1
MSG_TYPE=00001	5
ORDQ=000	3
ORDER=11010	5
SEQ_ACK	5
DMU_CRC_OK	1
RSVD=00000000000000	13
P	12

- 8 F - First word field. The mobile station shall set this field to '1'.
 9 NAWC - Number of additional words coming field. The mobile station shall
 10 set this field to '00'.
 11 T - T field. The mobile station shall set this field to '1'.
 12 MSG_TYPE - Message Type field. The mobile station shall set this field to '00001'.
 13 ORDQ - Order qualifier field. The mobile station shall set this field to '000'.
 14 ORDER - Order field. The mobile station shall set this field to '11010'.
 15 SEQ_ACK - Sequence Number for Acknowledgment by the *OTASP Transport*
 16 *Confirmation Message*. The mobile station shall set this field to the
 17 value of SEQ_NUM in the *OTASP Transport Message* being
 18 acknowledged.
 19 DMU_CRC_OK - *OTASP Data Message* Unit CRC status flag. The mobile station shall
 20 set this field as specified in 2.2.3.2 to indicate whether or not the
 21 *OTASP Data Message* Unit CRC checks.
 22 RSVD - Reserved for future use; the mobile station shall set all bits as
 23 indicated.
 24 P - Parity field. The mobile station shall set this field as specified in
 25 2.7.2 of [1].

2.2.4 Base Station Procedures

OTASP Data Messages are sent and received on the analog voice channel only when the base station is in the Conversation Task (see 3.6.4.4 of [1]). The base station shall transmit *OTASP Transport Messages* as specified in 3.7.2 of [1]. Base stations implementing the Over-the-Air Service Provisioning feature should comply with the following requirements in addition to those of 3.6.4.4 of [1].

2.2.4.1 Message Transmission

While the base station is in the Conversation Task, the following messages can be sent in addition to those listed in 3.6.4.4 of [1]:

1. *OTASP Transport Message*:

The base station should construct the *OTASP Transport Message* as follows:

- If the *OTASP_DATA* field of the *OTASP Transport Message* contains an entire *OTASP Data Message Capsule*, the base station should set the value of the *SEQ_NUM* field to '00000' and the value of the *B/F* field to '11'.
- If the *OTASP_DATA* field of the *OTASP Transport Message* contains the first segment of the segmented *OTASP Data Message Capsule*, the base station should set the value of the *SEQ_NUM* field to '00000' and the value of the *B/F* field to '10'.
- If the *OTASP_DATA* field of the *OTASP Transport Message* contains a segment other than the first segment of the segmented *OTASP Data Message Capsule*, the base station should perform the following:
 - If the *OTASP_DATA* field of the *OTASP Transport Message* contains a segment other than the final segment of the *OTASP Data Message Capsule*, the base station should increment *SEQ_NUM* modulo 32 and should set the value of the *B/F* field to '00'.
 - If the *OTASP_DATA* field of the *OTASP Transport Message* contains the final segment of the *OTASP Data Message*, the base station should increment *SEQ_NUM* modulo 32 and should set the value of the *B/F* field to '01'.

The base station should remain in the Conversation Task.

2. *OTASP Transport Confirmation Message*:

The base station should set the *SEQ_ACK* field to the value of the *SEQ_NUM* field received in the *OTASP Transport Message* being acknowledged, and should remain in the Conversation Task.

2.2.4.2 Message Reception

While the base station is in the Conversation Task, the following messages can be received autonomously from the mobile station, in addition to those listed in 3.6.4.4 of [1]. When any message is received, the base station should perform all actions specified in 3.6.4.4 of [1] that apply to a message reception. The base station shall take the actions specified below for each message:

1. *OTASP Transport Message:*

If the value of ESN received in the *OTASP Transport Message* does not match the ESN that identifies the mobile station being activated, the base station should ignore the message.

If the value of ESN received in the *OTASP Transport Message* matches the ESN that identifies the mobile station being activated, the base station should do the following:

- The base station should send an *OTASP Transport Confirmation Message*.
- If the value of the B/F field of the received message is '11', the OTASP_DATA field of the received message contains the *OTASP Data Message Capsule* in its entirety. The base station may discard any incomplete *OTASP Data Message* being reassembled, and should process the *OTASP Data Message* as specified in Section 4.
- If the value of the B/F field of the received message is '10', the base station may discard any incomplete *OTASP Data Message* being reassembled, and should store the OTASP_DATA field of the received message as the first segment of an *OTASP Data Message Capsule* to be reassembled. The base station should store the value of the SEQ_NUM field of the received message in RX_SEQ_NUM.
- If the value of the B/F field of the received message is '00' and a segmented *OTASP Data Message Capsule* is being reassembled, the base station should perform the following:
 - If $(RX_SEQ_NUM + 1) \text{ modulo } 32$ is equal to the value of the SEQ_NUM field of the received message, the base station should store the OTASP_DATA field of the received message as the next segment of the *OTASP Data Message* being reassembled, and increment RX_SEQ_NUM modulo 32.
 - If RX_SEQ_NUM is equal to the value of the SEQ_NUM field of the received message, the base station may discard the OTASP_DATA field of the received message.
 - If neither RX_SEQ_NUM nor $(RX_SEQ_NUM + 1) \text{ modulo } 32$ is equal to the value of the SEQ_NUM field of the received message, the base station may discard the OTASP_DATA field of the received message and may discard the incomplete *OTASP Data Message* being reassembled.

- 1 • If the value of the B/F field of the received message is '00', and no segmented
2 *OTASP Data Message* Capsule is being reassembled, the base station may
3 discard the *OTASP_DATA* field of the received message.
- 4 • If the value of the B/F field of the received message is '01' and a segmented
5 *OTASP Data Message* Capsule is being reassembled, the base station should
6 perform the following:
- 7 - If $(RX_SEQ_NUM + 1)$ modulo 32 is equal to the value of the *SEQ_NUM* field
8 of the received message, the base station should store the *OTASP_DATA*
9 field of the received message as the last segment of the *OTASP Data*
10 *Message* Capsule being reassembled, should increment *RX_SEQ_NUM*
11 modulo 32, and should process the *OTASP Data Message* as specified in
12 Section 4.
- 13 - If *RX_SEQ_NUM* is equal to the value of the *SEQ_NUM* field of the received
14 message, the base station may discard the *OTASP_DATA* field of the
15 received message.
- 16 - If neither *RX_SEQ_NUM* nor $(RX_SEQ_NUM + 1)$ modulo 32 is equal to the
17 value of the *SEQ_NUM* field of the received message, the base station may
18 discard the *OTASP_DATA* field of the received message and may discard the
19 incomplete *OTASP Data Message* Capsule being reassembled.
- 20 • If the value of the B/F field of the received message is '01', and no segmented
21 *OTASP Data Message* Capsule is being reassembled, the base station may
22 discard the *OTASP_DATA* field of the received message.

23 The base station should remain in the Conversation Task.

24 2. *OTASP Transport Confirmation Message:*

25 If *SEQ_ACK* is equal to the sequence number of the last *OTASP Transport Message*
26 sent, the base station may transmit the next *OTASP Transport Message*; otherwise,
27 the base station should ignore the message. If the *DMU_CRC_OK* field indicates
28 that the CRC of the *OTASP Data Message* Unit did not check at the mobile station
29 (see 2.2.3.3), the base station should resend the *OTASP Data Message*. The base
30 station should remain in the Conversation Task.

31 2.2.4.3 Forward Voice Channel Message Format

32 2.2.4.3.1 *OTASP Transport Message*

33 When the base station sends an *OTASP Transport Message* on the Forward Voice Channel
34 (FVC), it shall use the following variable-length message format:

- 1 • Word 1 of the *OTASP Transport Message*:

Information Element	Length (bits)
T ₁ T ₂ = 10	2
SCC=11	2
PSCC	2
EF=0	1
SEQ_NUM	5
DATA_WORDS	3
MSG_TYPE=00000	5
ORDQ=000	3
ORDER=11010	5
P	12

2

- 3 • Word 2 of the *OTASP Transport Message*:

Information Element	Length (bits)
T ₁ T ₂ = 01	2
B/F	2
ESN ₄	8
ESN ₃	8
ESN ₂	8
P	12

4

- 5 • Word 3 of the *OTASP Transport Message*:

Information Element	Length (bits)
T ₁ T ₂ = 01	2
RSVD=00	2
ESN ₁	8
OTASP_DATA	16
P	12

6

- 7 • Word 4 through N of the *OTASP Transport Message*:

Information Element	Length (bits)
T ₁ T ₂ = 01	2
RSVD=00	2
OTASP_DATA	24
P	12

1

2

T₁T₂ - Type field. The base station shall set this field to '10' in the first word of the message, and to '01' in all other words.

3

4

SCC - SAT color code for new channel. The base station shall set this field to '11'.

5

6

PSCC - Present SAT color code. The base station shall set this field to indicate the SAT color code associated with the present channel as specified in the Table 3.7.1.1-2 of [1].

7

8

9

EF - Extended Protocol Forward Channel Indicator. The base station shall set this field to '0'.

10

11

SEQ_NUM - Message Sequence Number. The base station shall set this field to the message sequence number of this *OTASP Transport Message*.

12

13

DATA_WORDS - The number of words in the *OTASP Transport Message* containing the OTASP_DATA field. The base station shall set this field to the number of words in the *OTASP Transport Message*, not including Word 1 and Word 2.

14

15

16

17

MSG_TYPE - Message Type field. The base station shall set this field to '00000'.

18

ORDQ - Order qualifier field. The base station shall set this field to '000'.

19

ORDER - Order field. The base station shall set this field to '11010'.

20

B/F - Begin/Final. This field is used to specify whether the *OTASP Data Message Capsule* has been segmented into multiple *OTASP Transport Messages*. If the *OTASP Data Message Capsule* is completely contained in a single *OTASP Transport Message*, the base station shall set this field to '11'. For an *OTASP Data Message Capsule* contained in multiple *OTASP Transport Messages*, the base station shall set the value of this field in the first segment to '10', the value of this field in all intermediate segments to '00', and the value of this field in the final segment to '01'.

21

22

23

24

25

26

27

28

29

ESN₄ - The base station shall set this field to the most significant octet (bits d31-d24) of the mobile station ESN.

30

31

ESN₃ - The base station shall set this field to the next to the most significant octet (bits d23-d16) of the mobile station ESN.

32

- 1 ESN_2 - The base station shall set this field to the next to the least
- 2 significant octet (bits d15-d8) of the mobile station ESN.
- 3 ESN_1 - The base station shall set this field to the least significant octet (bits
- 4 d7-d0) of the mobile station ESN.
- 5 OTASP_DATA - The base station shall set these fields to the corresponding octets of
- 6 the *OTASP Data Message Capsule*.
- 7 RSVD - Reserved for future use; the base station shall set all bits as
- 8 indicated.
- 9 P - Parity field. The base station shall set this field as specified in 3.7.2
- 10 of [1].

11 2.2.4.3.2 *OTASP Transport Confirmation Message*

12 When the base station sends an *OTASP Transport Confirmation Message* on the Forward

13 Voice Channel (FVC), it shall use the following fixed-length message format:

14

Information Element	Length (bits)
T ₁ T ₂ = 10	2
SCC=11	2
PSCC	2
EF=0	1
SEQ_ACK	5
RSVD=000	3
MSG_TYPE=00001	5
ORDQ=000	3
ORDER=11010	5
P	12

- 15 T₁T₂ - Type field. The base station shall set this field to '10'.
- 16 SCC - SAT color code for new channel. The base station shall set this field
- 17 to '11'.
- 18 PSCC - Present SAT color code. The base station shall set this field to
- 19 indicate the SAT color code associated with the present channel as
- 20 specified in the Table 3.7.1.1-2 of [1].
- 21 EF - Extended Protocol Forward Channel Indicator. The base station
- 22 shall set this field to '0'.

- 1 SEQ_ACK - Sequence Number for Acknowledgment by the *OTASP Transport*
 2 *Confirmation Message*. The base station shall set this field to the
 3 value of SEQ_NUM in the *OTASP Transport Message* being
 4 acknowledged.
- 5 MSG_TYPE - Message Type field. The base station shall set this field to '00001'.
- 6 ORDQ - Order qualifier field. The base station shall set this field to '000'.
- 7 ORDER - Order field. The base station shall set this field to '11010'.
- 8 RSVD - Reserved for future use; the base station shall set all bits as
 9 indicated.
- 10 P - Parity field. The base station shall set this field as specified in 3.7.2
 11 of [1].

12 **2.3 CDMA Transport Protocol**

13 The messages defined in 3.5 and 4.5 shall be sent in the CHARI fields of *Data Burst*
 14 *Messages* (see 6.7.2.3.2.4 and 7.7.3.3.2.4 of [1] and 2.7.2.3.2.4 and 3.7.3.3.2.4 of [7]). The
 15 BURST_TYPE field of *Data Burst Messages* carrying *OTASP Data Messages* shall be set to
 16 '000100' (as assigned in [4]). The MSG_NUMBER and NUM_MSGS fields shall be set to 1
 17 and the NUM_FIELDS field shall be set to the number of octets in the *OTASP Data*
 18 *Message*.

19 The base station should send *Data Burst Messages* carrying *OTASP Data Messages* only
 20 on CDMA Traffic Channels. Mobile stations shall ignore *Data Burst Messages* with the
 21 BURST_TYPE field equal to '000100' that are received on CDMA channels other than
 22 CDMA Traffic Channels. *Data Burst Messages* carrying *OTASP Data Messages* shall be
 23 sent as messages requiring Layer 2 acknowledgment (see 6.6.4.1.3.1 and 7.6.4.1.3.1 of [1]
 24 or as messages requiring delivery in assured mode see 1.3.2.1 and 1.3.2.2 of [7]).
 25

- 1 No text.

1 3 MOBILE STATION PROCEDURES

2 3.1 Initial Values and NAM Parameters

3 Mobile stations support one or more Number Assignment Modules (NAM). The NAM
4 includes certain numeric indicators, as defined in Annex F of [1, 7]. The standard NAM
5 indicators, stored in the mobile station's permanent and semi-permanent memory, are
6 defined in F.3 of [1, 7]. Manufacturer-specific NAM parameters may be defined within a
7 Parameter Block Type reserved for manufacturer-specific parameter definitions (see Tables
8 3.5.2-1 and 4.5.2-1).

9 Mobile stations supporting Service Programming Lock shall maintain a single additional
10 indicator, SPC_p (see 3.3.6).

11 Mobile stations supporting the Over-the-Air Parameter Administration (OTAPA) shall
12 maintain an additional indicator for each NAM, NAM_LOCK_p (see 3.2.2).

13 The NAM indicators and parameters that can be assigned values using Over-the-Air
14 Service Provisioning are specified in 4.5.2, 4.5.3, 4.5.4 and 4.5.6.

15 A mobile station shall have a single NAM selected for use at all times. If a mobile station
16 supports more than one NAM, the mobile station manufacturer shall provide a means for
17 the user to select the NAM to be activated.

18 When a mobile station is manufactured, and whenever a NAM is created or cleared:

- 19 • IMSI_M_CLASS_p shall be set to 0.
- 20 • MCC_M_p, IMSI_M_11_12_p and IMSI_M_S_p shall be set to the coded value of the
21 IMSI_M with the four least-significant digits set to ESN_p, converted directly from
22 binary to decimal, modulo 10000. The other digits shall be set to 0.
- 23 • IMSI_M_ADDR_NUM_p shall be set to '000'.
- 24 • IMSI_T_CLASS_p shall be set to 0.
- 25 • MCC_T_p, IMSI_T_11_12_p and IMSI_T_S_p shall be set to the coded value of the
26 IMSI_T with the four least-significant digits set to ESN_p, converted directly from
27 binary to decimal, modulo 10000. The other digits shall be set to 0.
- 28 • IMSI_T_ADDR_NUM_p shall be set to '000'.
- 29 • ACCOLC_p shall be set as specified in 6.3.5 of [1] or 2.3.5 of [7].
- 30 • HOME_SID_p, if present, shall be set to 0.
- 31 • All other indicators of the selected NAM may be set to manufacturer-defined default
32 values. All configuration indicator values shall be set within their valid range (see
33 F.3 of [1, 7]).

34 Mobile stations may perform any function allowable by applicable standards, including
35 system accesses, whether the selected NAM is activated or not.

36

1 **3.2 Initiation of the Programming Procedures**

2 Over-the-air service provisioning (OTASP) can be initiated in two ways: by the user and by
3 the network.

4 The user-initiated procedure provides a tool for the mobile station user to select a
5 wireless service provider, to activate a mobile station, and to update NAM indicators and
6 parameters.

7 The network-initiated procedure, also known as Over-The-Air Parameter Administration
8 (OTAPA), is also built upon the over-the-air programming protocol and procedures that
9 support the OTASP feature. OTAPA provides a tool for the wireless service provider to
10 update NAM indicators and parameters.

11 3.2.1 User-Initiated Procedure

12 The mobile station shall initiate programming procedures only when directed to do so by
13 the user. The procedure for user initiation of the programming procedure is
14 manufacturer-defined. Upon initiation of the programming procedure, the mobile station
15 shall set PRL_BLOCK_ID_CURRENT_s to NULL. As part of this procedure, the mobile station
16 shall permit the user to enter a choice of the service provider. At a minimum, the mobile
17 station shall permit the user to manually enter the activation code for the selected system
18 using the following sequence:

- 19 • *FC + XX + SEND

20 *FC - Feature Code (*ACT or *228). This feature code indicates the
21 activation call type to the base station.

22 XX - System Selection Code. This code indicates the system
23 selected by the user. See Table 3.2-1.

1

Table 3.2-1 System Selection Code.

Selected System	Code
800 MHz, A-Band	00
800 MHz, B-Band	01
1.9 GHz, A Block	02
1.9 GHz, B Block	03
1.9 GHz, C Block	04
1.9 GHz, D Block	05
1.9 GHz, E Block	06
1.9 GHz, F Block	07
TACS, A-Band	08
TACS, B-Band	09
JTACS, A-Band	10
JTACS, B-Band	11
Korean PCS, A-Band	12
Korean PCS, B-Band	13
Korean PCS, C-Band	14
450 MHz, A-Band	15
450 MHz, B-Band	16
450 MHz, C-Band	17
450 MHz, D-Band	18
450 MHz, E-Band	19
450 MHz, F-Band	20
450 MHz, G-Band	21
450 MHz, H-Band	22
2 GHz Band	23
700 MHz, A-Band	24
700 MHz, B-Band	25
700 MHz, C-Band	26
700 MHz, D-Band	27
1800 MHz Band	28
900 MHz Band	29
Secondary 800 MHz, A-Band	30
Secondary 800 MHz, B-Band	31

Secondary 800 MHz, C-Band	32
Secondary 800 MHz, D-Band	33
Secondary 800 MHz, E-Band	34
400 MHz European PAMR, A-Band	35
400 MHz European PAMR, B-Band	36
400 MHz European PAMR, C-Band	37
400 MHz European PAMR, D-Band	38
400 MHz European PAMR, E-Band	39
400 MHz European PAMR, F-Band	40
800 MHz PAMR, A-Band	41
800 MHz PAMR, B-Band	42
Reserved	43 through 99

- 1 The user may append additional digits after the System Selection Code.
- 2 The activation code consists of the Feature Code, the System Selection Code and any
3 additional digits that the user appends.
- 4 The mobile station shall use the preferred roaming list to select the system if either of the
5 following sets of conditions hold:
- 6 • Set #1:
 - 7 - The mobile station supports the Service Programming Lock feature, and
 - 8 - The SPC_p is set to any value other than the default value (see 3.3.6), and
 - 9 - The mobile station supports SSPR and the PR_LIST_SIZE is greater than zero
10 (see 3.5.5).
 - 11 • Set #2:
 - 12 - The user has entered the feature code (*FC) only (no system selection code or
13 any additional digits have been entered), and
 - 14 - The mobile station supports SSPR and the PR_LIST_SIZE is greater than zero
15 (see 3.5.5).
- 16 Otherwise, the mobile station shall use the system selection code (see Table 3.2-1) to
17 acquire the system.
- 18 When the user directs the mobile station to begin the programming procedure, and if the
19 mobile station is not already monitoring a selected system, the mobile station shall enter
20 the *System Determination Substate* of the *Mobile Station Initialization State* with a
21 provisioning indication.
- 22 If the mobile station enters the *System Determination Substate* of the *Mobile Station*
23 *Initialization State* with a provisioning indication the mobile station shall perform the
24 following:

- 1 • If an 800 MHz system is selected for provisioning, the mobile station shall perform
2 the following:
- 3 - The mobile station shall set CDMABAND_S to '00000'.
 - 4 - If the user selects System A, the mobile station shall set SERVSYS_S to SYS_A. If
5 the user selects System B, the mobile station shall set SERVSYS_S to SYS_B.
 - 6 - The mobile station shall set CDMACH_S to either the Primary or the Secondary
7 CDMA Channel number (see 6.1.1.1.1 of [1] or 2.1.1.1.1 of [5]) for the selected
8 system (A or B)- and shall attempt to acquire the system as specified in 6.6.1.1.3
9 of [1] or 2.6.1.1.3 of [7]. If the mobile station fails to acquire a CDMA system on
10 the first CDMA Channel it tries, the mobile station should attempt to acquire on
11 the alternate CDMA Channel (Primary or Secondary) before attempting other
12 alternatives.
 - 13 - If the mobile station fails to acquire a CDMA system on either the Primary or
14 Secondary CDMA Channel, the mobile station may attempt to acquire an analog
15 system as specified in 6.6.1.1.3 of [1] or 2.6.1.1.3 of [7], using the current setting
16 of SERVSYS_S.
- 17 • If a 1.9 GHz system is selected for provisioning, the mobile station shall perform the
18 following:
- 19 - The mobile station shall set CDMABAND_S = '00001'.
 - 20 - The mobile station shall set CDMACH_S to a preferred CDMA Channel number
21 (see Table 6.1.1.1-4 of [1] or Table 2.1.1.1-5 of [5]) within the selected frequency
22 block and shall attempt to acquire a CDMA system as specified in 6.6.1.1.3 of [1]
23 or 2.6.1.1.3 of [7].
 - 24 - If the mobile station fails to acquire a CDMA system on the preferred CDMA
25 channel it tries, the mobile station should set CDMACH_S to an alternate
26 preferred CDMA Channel number within the selected frequency block and
27 should attempt to acquire a CDMA system. The mobile station should continue
28 attempting to acquire different preferred CDMA Channels until it acquires a
29 CDMA system or until it exhausts all preferred CDMA Channels within the
30 selected frequency block.
- 31 • If a TACS system is selected for provisioning, the mobile station shall perform the
32 following:
- 33 - The mobile station shall set CDMABAND_S to '00010'.
 - 34 - The mobile station shall set CDMACH_S to a preferred CDMA Channel number
35 (see Table 2.1.1.1.3-6 of [5]) within the selected frequency block and shall
36 attempt to acquire a CDMA system as specified in 2.6.1.1.3 of [7].

- 1 - If the mobile station fails to acquire a CDMA system on the preferred CDMA
2 channel it tries, the mobile station should set CDMACH_S to an alternate
3 preferred CDMA Channel number within the selected frequency block and
4 should attempt to acquire a CDMA system. The mobile station should
5 continue attempting to acquire different preferred CDMA Channels until it
6 acquires a CDMA system or until it exhausts all preferred CDMA Channels
7 within the selected frequency block.
- 8 • If a JTACS system is selected for provisioning, the mobile station shall perform the
9 following:
- 10 - The mobile station shall set CDMABAND_S to '00011'.
- 11 - If the user selects System A, the mobile station shall set SERVSYS_S to SYS_A.
12 If the user selects System B, the mobile station shall set SERVSYS_S to SYS_B.
- 13 - The mobile station shall set CDMACH_S to either the Primary or the Secondary
14 CDMA Channel number (see 2.1.1.1.4 of [5]) for the selected system (A or B)-
15 and shall attempt to acquire the system as specified in 2.6.1.1.3 of [7]. If the
16 mobile station fails to acquire a CDMA system on the first CDMA Channel it
17 tries, the mobile station should attempt to acquire a CDMA system on the
18 alternate CDMA Channel (Primary or Secondary) in the same band before
19 attempting other alternatives.
- 20 • If a Korean PCS Band system is selected for provisioning, the mobile station shall
21 perform the following:
- 22 - The mobile station shall set CDMABAND_S to '00100'.
- 23 - The mobile station shall set CDMACH_S to a preferred CDMA Channel number
24 (see Table 2.1.1.1.5-5 of [5]) within the selected frequency block and shall
25 attempt to acquire a CDMA system as specified in 2.6.1.1.3 of [7].
- 26 - If the mobile station fails to acquire a CDMA system on the preferred CDMA
27 channel it tries, the mobile station should set CDMACH_S to an alternate
28 preferred CDMA Channel number within the selected frequency block and
29 should attempt to acquire a CDMA system. The mobile station should
30 continue attempting to acquire different preferred CDMA Channels until it
31 acquires a CDMA system or until it exhausts all preferred CDMA Channels
32 within the selected frequency block.
- 33 • If a 450 MHz Band system is selected for provisioning, the mobile station shall
34 perform the following:
- 35 - The mobile station shall set CDMABAND_S to '00101'.
- 36 - The mobile station shall set CDMACH_S to a preferred CDMA Channel number
37 (see Table 2.1.1.1.6-5 of [5]) within the selected frequency block and shall
38 attempt to acquire a CDMA system as specified in 2.6.1.1.3 of [7].

- 1 - If the mobile station fails to acquire a CDMA system on the preferred CDMA
2 channel it tries, the mobile station should set CDMACH_S to an alternate preferred
3 CDMA Channel number within the selected frequency block and should attempt to
4 acquire a CDMA system. The mobile station should continue attempting to
5 acquire different preferred CDMA Channels until it acquires a CDMA system or
6 until it exhausts all preferred CDMA Channels within the selected frequency block.
- 7 • If a 2GHz Band system is selected for provisioning, the mobile station shall perform
8 the following:
- 9 - The mobile station shall set CDMABAND_S to '00110'.
- 10 - The mobile station shall set CDMACH_S to a preferred CDMA channel number (see
11 2.1.1.1.7 of [5]) and shall attempt to acquire the system as specified in 2.6.1.1.3 of
12 [7]. If the mobile station fails to acquire a CDMA system on the first CDMA
13 Channel it tries, the mobile station should continue attempting to acquire
14 different preferred CDMA channels until it acquires a CDMA system or until it
15 exhausts all preferred CDMA channels within the CDMA Preferred Set.
- 16 • If the mobile station fails to acquire a system, or if the selected band is not
17 supported by the mobile station, the mobile station shall terminate the
18 programming procedure and shall retain the NAM indicator values and parameters
19 specified in 3.1, in effect prior to the initiation of the programming procedure.
- 20 • If a 700MHz Band system is selected for provisioning, the mobile station shall
21 perform the following:
- 22 - The mobile station shall set CDMABAND_S to '00111'.
- 23 - The mobile station shall set CDMACH_S to a preferred CDMA Channel number
24 (see Table 2.1.1.1.8-5 of [5]) within the selected frequency block and shall
25 attempt to acquire a CDMA system as specified in 2.6.1.1.3 of [5].
- 26 - If the mobile station fails to acquire a CDMA system on the preferred CDMA
27 channel it tries, the mobile station should set CDMACH_S to an alternate
28 preferred CDMA Channel number within the selected frequency block and
29 should attempt to acquire a CDMA system. The mobile station should
30 continue attempting to acquire different preferred CDMA Channels until it
31 acquires a CDMA system or until it exhausts all preferred CDMA Channels
32 within the selected frequency block.
- 33 • If a 1800MHz Band system is selected for provisioning, the mobile station shall
34 perform the following:
- 35 - The mobile station shall set CDMABAND_S to '01000'.
- 36 - The mobile station shall set CDMACH_S to a preferred CDMA channel number
37 (see 2.1.1.1.9 of [5]) and shall attempt to acquire the system as specified in
38 2.6.1.1.3 of [7]. If the mobile station fails to acquire a CDMA system on the first
39 CDMA Channel it tries, the mobile station should continue attempting to
40 acquire different preferred CDMA channels until it acquires a CDMA system or
41 until it exhausts all preferred CDMA channels within the CDMA Preferred Set.

- 1 • If a 900MHz Band system is selected for provisioning, the mobile station shall
2 perform the following:
- 3 - The mobile station shall set CDMABAND_S to '01001'.
- 4 - The mobile station shall set CDMACH_S to a preferred CDMA channel number
5 (see 2.1.1.1.10 of [5]) and shall attempt to acquire the system as specified in
6 2.6.1.1.3 of [7]. If the mobile station fails to acquire a CDMA system on the first
7 CDMA Channel it tries, the mobile station should continue attempting to
8 acquire different preferred CDMA channels until it acquires a CDMA system or
9 until it exhausts all preferred CDMA channels within the CDMA Preferred Set.
- 10 • If a Secondary 800MHz Band system is selected for provisioning, the mobile station
11 shall perform the following:
- 12 - The mobile station shall set CDMABAND_S to '01010'.
- 13 - The mobile station shall set CDMACH_S to a preferred CDMA Channel number
14 (see Table 2.1.1.1.11-5 of [5]) within the selected frequency block and shall
15 attempt to acquire a CDMA system as specified in 2.6.1.1.3 of [7].
- 16 - If the mobile station fails to acquire a CDMA system on the preferred CDMA
17 channel it tries, the mobile station should set CDMACH_S to an alternate
18 preferred CDMA Channel number within the selected frequency block and
19 should attempt to acquire a CDMA system. The mobile station should
20 continue attempting to acquire different preferred CDMA Channels until it
21 acquires a CDMA system or until it exhausts all preferred CDMA Channels
22 within the selected frequency block.
- 23 • If a 400MHz European PAMR Band system is selected for provisioning, the mobile
24 station shall perform the following:
- 25 - The mobile station shall set CDMABAND_S to '01011'.
- 26 - The mobile station shall set CDMACH_S to a preferred CDMA Channel number
27 (see Table 2.1.1.1.12-5 of [5]) within the selected frequency block and shall
28 attempt to acquire a CDMA system as specified 2.6.1.1.3 of [7].
- 29 - If the mobile station fails to acquire a CDMA system on the preferred CDMA
30 channel it tries, the mobile station should set CDMACH_S to an alternate
31 preferred CDMA Channel number within the selected frequency block and
32 should attempt to acquire a CDMA system. The mobile station should
33 continue attempting to acquire different preferred CDMA Channels until it
34 acquires a CDMA system or until it exhausts all preferred CDMA Channels
35 within the selected frequency block.
- 36 • If an 800MHz PAMR Band system is selected for provisioning, the mobile station
37 shall perform the following:
- 38 - The mobile station shall set CDMABAND_S to '01100'.
- 39 - The mobile station shall set CDMACH_S to a preferred CDMA channel number
40 (see 2.1.1.1.13 of [5]) and shall attempt to acquire the system as specified in

1 2.6.1.1.3 of [7]. If the mobile station fails to acquire a CDMA system on the first
 2 CDMA Channel it tries, the mobile station should continue attempting to
 3 acquire different preferred CDMA channels until it acquires a CDMA system or
 4 until it exhausts all preferred CDMA channels within the CDMA Preferred Set.

5 Once the selected system is acquired, the mobile station shall originate a call as follows:

- 6 • If the mobile station is in the CDMA mode, the mobile station shall perform the
 7 *Mobile Station Origination Operation*, as defined in 6.6.2.5 of [1] or 2.6.2.5 of [7], using
 8 the activation code as the dialed digits. The mobile station should request either a
 9 voice or an async data service option in the *Origination Message*. The mechanism
 10 used for the service option selection (either voice or async data) is vendor specific.
 11 The mobile station shall format each message sent on the CDMA Access Channel,
 12 Enhanced Access Channel, or Reverse Common Control Channel using an MSID
 13 field format that contains the mobile station's ESN or MEID.¹
- 14 • If the mobile station is in the analog mode, the mobile station shall enter the
 15 System Access Task with an "origination" indication, using the activation code as
 16 the dialed digits. Regardless of the value of the S_S bit, the mobile station shall send
 17 Serial Number Word C in all Reverse Analog Control Channel messages.

18 If the mobile station responds to a page and the mobile station does not support
 19 concurrent services, the mobile station shall terminate the programming procedure and
 20 shall retain the NAM indicator values and parameters, specified in 3.1, in effect prior to
 21 the initiation of the programming procedure.

22 If the mobile station does not support Service Programming Lock, the mobile station shall
 23 set mobile station locking state SP_LOCK_STATE to '0'.

24 If the mobile station supports Service Programming Lock, and if SPC_p is equal to '0' (the
 25 default value), the mobile station shall set SP_LOCK_STATE to '0'; otherwise, the mobile
 26 station shall set SP_LOCK_STATE to '1'.

27 The mobile station shall set SPC_s = SPC_p.

28 When the mobile station supports OTAPA and the programming session was initiated by
 29 the user, the mobile station shall set the NAM_LOCK_STATE to '0' to indicate that SPASM
 30 does not protect access to the NAM parameters and indicators.

31 3.2.2 Network-Initiated Procedure

32 An OTAPA-capable mobile station should support a manufacturer-specific means by which
 33 the user may disable and enable OTAPA for a given NAM. OTAPA should be enabled by
 34 default. When enabled, OTAPA may be initiated by the network.

¹For systems defined in [1] or [7], this means the MSID_TYPE field must be set to '000' or '011'. For systems defined in [1] or [7], the use of a pseudo ESN can potentially conflict with another pseudo ESN in the network performing the mobile provisioning. The system should implement protective procedures to guard against this case.

1 OTAPA procedures can be conducted when the mobile station is in the CDMA
2 *Conversation Substate* or the analog Conversation Task (see 3.2.2.3). All *OTASP Data*
3 *Messages* during the OTAPA session are exchanged between the base station and the
4 mobile station using signaling traffic.

5 If the mobile station is in the CDMA *Mobile Station Idle State* the base station can place
6 the mobile station on the CDMA Traffic Channel for the purpose of conducting OTAPA
7 procedure (see 3.2.2.1).

8 3.2.2.1 Initiation of OTAPA in the CDMA Mobile Station Idle State

9 The network can initiate OTAPA by placing a mobile terminated call to the mobile station
10 indicating the OTAPA service option in the *General Page Message*. The OTAPA Service
11 Option when using Multiplex Option 1 is called Service Option 18. The OTAPA Service
12 Option when using Multiplex Option 2 is called Service Option 19. The mobile station
13 shall respond to paging as defined in 6.6 of [1] or 2.6 of [7] and perform service negotiation.

14 3.2.2.2 Connection of the OTAPA Service Option

15 A service option is connected when primary traffic data are being processed in accordance
16 with the requirements of the service option.

17 The negotiated service configuration shall include only valid attributes for the negotiated
18 service option consistent with those specified in Tables 3.2.2.2-1 and 3.2.2.2-2.

1 **Table 3.2.2.2-1 Valid Service Configuration Attributes for Service Option 18**

Service Configuration Attribute	Valid Selections
Forward Multiplex Option	Multiplex Option 1
Reverse Multiplex Option	Multiplex Option 1
Forward Transmission Rates	Rate Set 1 with all four rates enabled
Reverse Transmission Rates	Rate Set 1 with all four rates enabled
Forward Traffic Type	None. This service option does not use nor generate any forward traffic other than signaling.
Reverse Traffic Type	None. This service option does not use nor generate any reverse traffic other than signaling.

2

3 **Table 3.2.2.2-2 Valid Service Configuration Attributes for Service Option 19**

Service Configuration Attribute	Valid Selections
Forward Multiplex Option	Multiplex Option 2
Reverse Multiplex Option	Multiplex Option 2
Forward Transmission Rates	Rate Set 2 with all four rates enabled
Reverse Transmission Rates	Rate Set 2 with all four rates enabled
Forward Traffic Type	None. This service option does not use nor generate any forward traffic other than signaling.
Reverse Traffic Type	None. This service option does not use nor generate any reverse traffic other than signaling.

4 If the mobile station accepts a service configuration, as specified in a *Service Connect*
5 *Message*, that includes a service option connection using Service Option 18 or 19, then
6 the service option connection shall become part of the current service configuration at the
7 action time associated with the *Service Connect Message*. Service Option 18 or 19 is
8 considered connected when the current service configuration includes a service option
9 connection for it.

10 If Service Option 18 or 19 is connected when the mobile station enters the *Waiting for*
11 *Mobile Station Answer Substate*, or while the mobile station is in the *Waiting for Mobile*
12 *Station Answer Substate*, the mobile station shall send a *Connect Order* to the base station
13 as a message requiring acknowledgment without waiting for the user to explicitly
14 command the call to be answered. The mobile station shall enter the *Conversation*
15 *Substate*.

16 When Service Option 18 or 19 is connected, the Service Option shall discard all primary
17 traffic data bits received from the multiplex sublayer, and the mobile station shall transmit
18 null traffic channel data.

1 3.2.2.3 Starting the OTAPA session

2 If the mobile station supports OTAPA and OTAPA is enabled (see 3.2.2), the mobile station
3 shall start the OTAPA session when it receives the *OTAPA Request Message* with the
4 START_STOP_r equal to '1', while in the *CDMA Conversation Substate* or the analog
5 Conversation Task.

6 Upon starting the OTAPA session, the mobile station shall set PRL_BLOCK_ID_CURRENT_s
7 to NULL.

8 During the OTAPA session, access to individual parameters of the active NAM is controlled
9 by the Subscriber Parameter Administration Security Mechanism (SPASM).

10 If the programming session was initiated by the user as described in 3.2.1, SPASM does
11 not protect access to the NAM parameters and indicators; otherwise, upon invocation of
12 the OTAPA session the mobile station shall set the NAM_LOCK_s = NAM_LOCK_p and
13 NAM_LOCK_STATE = NAM_LOCK_p. The NAM_LOCK_STATE being set to '0' indicates that
14 SPASM protection of the mobile station's active NAM is disabled. The NAM_LOCK_STATE
15 being set to '1' indicates that SPASM protection of the mobile station's active NAM is
16 enabled.

17 If the mobile station does not support Service Programming Lock, the mobile station shall
18 set mobile station locking state SP_LOCK_STATE to '0'.

19 If the mobile station supports Service Programming Lock, and if SPC_p is equal to '0' (the
20 default value), the mobile station shall set SP_LOCK_STATE to '0'; otherwise, the mobile
21 station shall set SP_LOCK_STATE to '1'.

22 The mobile station shall set SPC_s = SPC_p.

23 3.3 Programming Procedure

24 3.3.1 OTASP Data Message Processing

25 The mobile station shall discard all *OTASP Data Messages* received, if the programming
26 procedure is not initiated as described in 3.2 or when the mobile station is in any state,
27 substate or task other than the *CDMA Conversation Substate* or the analog Conversation
28 Task. If the mobile station is in the *Mobile Station Control on the Traffic Channel State*, the
29 mobile station shall send the *Mobile Station Reject Order* with ORDQ equal to '0000010'.

30 While in the *CDMA Conversation Substate* or the analog Conversation Task, the mobile
31 station shall process *OTASP Data Messages* as follows:

- 32 1. Configuration Request Message: The mobile station shall send a *Configuration*
33 *Response Message* within 750 ms after receiving the message.
 - 34 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
35 mobile station shall set the RESULT_CODE in all corresponding returned
36 confirmation blocks to '00001010', "Rejected - Mobile station locked." The
37 mobile station shall include all requested parameter blocks with the
38 BLOCK_LEN field set to '00000000'.
 - 39 • If both SP_LOCK_STATE and NAM_LOCK_STATE are set to '0', then:

- 1 - If the mobile station does not support a requested parameter block, the
2 mobile station shall set RESULT_CODE in the corresponding returned
3 confirmation block to '00000111', "Rejected - BLOCK_ID value not
4 supported." The mobile station shall include the parameter block with the
5 BLOCK_LEN field set to '00000000'.
- 6 - If the requested data blocks exceed the allowable message length, the
7 mobile station shall set RESULT_CODE in the corresponding returned
8 confirmation block to '00000000', "Accepted - Operation successful" for each
9 Parameter Block included in the message. The mobile station shall include
10 data blocks, in the order requested, up to the maximum number of blocks
11 that fit into the message. If SECURE_MODE_IND_S = '1', the mobile station
12 shall set the FRESH_INCL field to '1', include the FRESH field and set it to a
13 15-bit value selected according to 3.3.8. The mobile station shall encrypt as
14 specified in 3.3.8 each PARAM_DATA field of all Parameter Blocks included
15 in the *Configuration Response Message*. All the encrypted Parameter Blocks
16 and FRESH field shall fit into the *Configuration Response Message*.
- 17 - Otherwise, the mobile station shall set RESULT_CODE to '00000000',
18 "Accepted - Operation successful" for each Parameter Block included in the
19 corresponding confirmation block. The mobile station shall include
20 complete data blocks, in the order requested, in the *Configuration Response*
21 *Message*. If SECURE_MODE_IND_S = '1', the mobile station shall set the
22 FRESH_INCL field to '1', include the FRESH field and set it to a 15-bit value
23 selected according to 3.3.8. The mobile station shall encrypt as specified in
24 3.3.8 each PARAM_DATA field of all Parameter Blocks included in the
25 *Configuration Response Message*.

26

27 2. *Download Request Message*: The mobile station shall respond to the message with
28 a *Download Response Message* within 750 ms.

- 29 • If FRESH_INCL_T = '1' and the SECURE_MODE_IND_S = '1', the mobile station shall
30 set FRESH_S = FRESH_T and decrypt as specified in 3.3.8 each PARAM_DATA field
31 of all Parameter Blocks received in the *Download Request Message*.
- 32 • If the *Download Request Message* contains an OTASP Parameter Block with a
33 BLOCK_ID that is not supported by the mobile station, the mobile station shall
34 set BLOCK_ID to the received parameter block identifier and RESULT_CODE to
35 '00000111', "Rejected - BLOCK_ID value not supported;"
- 36 • If the *Download Request Message* contains an OTASP Parameter Block having a
37 size different from that supported by the mobile station, the mobile station
38 shall set BLOCK_ID to the received parameter block identifier and
39 RESULT_CODE to '00000010', "Rejected - Data size mismatch;"

- 1 • If the *Download Request Message* contains an OTASP Parameter Block with a
2 parameter value that is out-of-range, the mobile station shall set BLOCK_ID to
3 the received parameter block identifier and RESULT_CODE to '00000100',
4 "Rejected - Invalid parameter;"
- 5 • If the *Download Request Message* contains an OTASP Parameter Block with
6 MAX_SID_NID larger than that supported by the mobile station, the mobile
7 station shall set BLOCK_ID to the received parameter block identifier and
8 RESULT_CODE to '00000101', "Rejected - SID/NID length mismatch;"
- 9 • If the *Download Request Message* is not accepted for any other reason, the
10 mobile station shall set BLOCK_ID to the received parameter block identifier
11 and RESULT_CODE to '00000001', "Rejected - Unknown reason;"
- 12 • Otherwise, the mobile station shall store the message data in temporary
13 memory, set BLOCK_ID to the received parameter block identifier and set
14 RESULT_CODE to '00000000', "Accepted - Operation successful." Then, if the
15 mobile station supports the optional NAM indicators (see F.3 of [1, 7]), the
16 mobile station should also store values for CDMA_PREF_SERV_p and
17 ANALOG_PREF_SERV_p equal to the serving system selected for activation in
18 temporary memory. If more than one *Download Request Message* or parameter
19 block is received containing values for the same indicators, the mobile station
20 shall retain only the most recently received values. If the received data
21 includes SID/NID pairs, the mobile station shall retain only the SID/NID pairs
22 from the most recently received message.
- 23 3. *Commit Request Message*: The mobile station shall send a *Commit Response*
24 *Message* within 10 seconds after receiving the message.
- 25 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
26 mobile station shall not move data from temporary memory to permanent
27 memory. The mobile station shall set RESULT_CODE to '00001010', "Rejected -
28 Mobile station locked;" otherwise,
- 29 - If the mobile station is able to move data from temporary memory to
30 permanent memory successfully, the mobile station shall set the
31 RESULT_CODE to '00000000', "Accepted - Operation successful."
- 32 - If the mobile station is not able to move data from temporary memory to
33 permanent memory for any other reason, the mobile station shall set the
34 RESULT_CODE to '00000001', "Rejected - Unknown reason."
- 35 - If the mobile station has received configuration parameters in one or more
36 *Download Request Messages*, it shall set the NAM indicators to the values
37 contained in the received configuration parameters data. The mobile
38 station shall not change the value of any NAM indicator for which no data
39 has been received.

- 1 - If the mobile station has received Preferred Roaming List parameters in one
2 or more *SSPR Download Request Messages*, it shall set the permanent
3 Preferred Roaming List parameters to the values contained in the received
4 data. The mobile station shall set the CUR_SSPR_P_REV_{S-P} according to
5 the following rules:
- 6 If PRL_BLOCK_ID_CURRENT_S is set to '00000000' (Preferred Roaming List
7 Parameter Block), then the mobile station shall set the
8 CUR_SSPR_P_REV_{S-P} to '00000001'.
- 9 - If PRL_BLOCK_ID_CURRENT_S is set to '00000001' (Extended Preferred
10 Roaming List Parameter Block), then the mobile station shall set the
11 CUR_SSPR_P_REV_{S-P} to the value of CUR_SSPR_P_REV in the Extended
12 Preferred Roaming List (see Section 3.5.5).
- 13 - If the mobile station has received 3GPD parameters in one or more *3GPD*
14 *Download Request Messages*, it shall set the permanent 3GPD parameters
15 to the values contained in the received data.
- 16 - If the mobile station has received Preferred User Zone List parameters in
17 one or more *PUZL Download Request Messages*, it shall set the permanent
18 Preferred User Zone List parameters to the values contained in the received
19 data.
- 20 - If the mobile station has received User Zone Delete parameter blocks in one
21 or more *PUZL Download Request Messages*, it shall remove the identified
22 user zone entry(s) from the current Preferred User Zone List.
- 23 - If the received data includes SID/NID pairs, the mobile station shall set the
24 NAM indicators to include only the SID/NID pairs received.
- 25 - If the mobile station has stored A_KEY_TEMP_S after receiving a *Key*
26 *Generation Request Message*, it shall set the value of the A_KEY_P NAM
27 indicator equal to A_KEY_TEMP_S.
- 28 - If the mobile station has stored RK_TEMP_S after receiving a *Key Generation*
29 *Request Message*, it shall set the value of the RK_P NAM indicator equal to
30 RK_TEMP_S.
- 31 - If the mobile station has generated the SSD_S as a result of an SSD update
32 procedure based on the A_KEY_TEMP_S, the mobile station shall store the
33 SSD_S in SSD_{S-P}.
- 34 - If the mobile station has stored temporary service keys after receiving a
35 *Service Key Generation Request Message*, it shall store the service keys to
36 permanent memory.
- 37 - If the mobile station has stored the SPC_S after receiving a *Validation*
38 *Request Message*, it shall set the value of the SPC_P parameter equal to
39 SPC_S.

- 1 - If the mobile station has stored the NAM_LOCK_S after receiving a *Validation*
2 *Request Message*, it shall set the value of the NAM_LOCK_P parameter equal
3 to NAM_LOCK_S .
- 4 - If the mobile station has received System Tag List parameters in one or
5 more *System Tag Download Request Messages*, it shall set the permanent
6 System Tag List parameters to the values contained in the received data.
7 The mobile station shall set the $TAG_P_REV_{S-p}$ to $TAG_P_REV_R$.
- 8 4. *Re-Authenticate Request Message*: The mobile station shall send a *Re-Authenticate*
9 *Response Message* within 750 ms after receiving the message. The mobile station
10 shall set $RAND_S = RAND_R$. The mobile station shall perform the re-authentication
11 procedures specified in 3.3.2.
- 12 5. *MS Key Request Message*: The mobile station shall set $PARAM_P_S = PARAM_P_R$ and
13 $PARAM_G_S = PARAM_G_R$ if $A_KEY_P_REV$ received in the *MS Key Request Message* =
14 ‘00000010’.
- 15 If $A_KEY_P_REV$ received in the *MS Key Request Message* = ‘00000011’, ‘00000100’
16 or ‘00000101’, the mobile station shall set $PARAM_P_S$ and $PARAM_G_S$ to the values
17 as specified in 5.3.1, respectively.
- 18 • If the value of $A_KEY_P_REV$ in the *MS Key Request Message* is not supported
19 by the mobile station, the mobile station shall indicate the error condition by
20 setting $RESULT_CODE$ to ‘00000011’, “Rejected - Protocol version mismatch.”
21 The mobile station shall send an *MS Key Response Message* within 750 ms
22 after receiving this message.
- 23 • If the value of $A_KEY_P_REV$ in the *MS Key Request Message* is supported by
24 the mobile station, the mobile station shall set $RESULT_CODE$ to ‘00000000’,
25 “Accepted - Operation successful.” The mobile station shall compute the
26 MS_RESULT value according to the value of $A_KEY_P_REV$ received in the *MS*
27 *Key Request Message* as follows:
- 28 ‘00000010’, calculate MS_RESULT in accordance with 5.1.2;
29 ‘00000011’, calculate MS_RESULT in accordance with 5.3.2;
30 ‘00000100’, calculate MS_RESULT in accordance with 5.3.2;
31 ‘00000101’, calculate MS_RESULT in accordance with 5.5.2.
- 32 The mobile station shall send an *MS Key Response Message* within 30 seconds
33 after receiving this message.
- 34 • If the mobile station is unable to compute the MS_RESULT value in accordance
35 with 5.1.2, 5.3.2 or 5.5.2, the mobile station shall set $RESULT_CODE$ to
36 ‘00000001’, “Rejected - Unknown reason.” The mobile station shall send an *MS*
37 *Key Response Message* within 30 seconds after receiving this message.
- 38 6. *Key Generation Request Message*:

- 1 • If the mobile station has not received an *MS Key Request Message*, the mobile
2 station shall indicate the error condition by setting RESULT_CODE to
3 '0000110', "Rejected - Message not expected in this mode." The mobile station
4 shall send a *Key Generation Response Message* within 750 ms after receiving
5 this message.
- 6 • If the mobile station has received an *MS Key Request Message* and returned
7 RESULT_CODE other than '00000000', "Accepted - Operation successful," the
8 mobile station shall indicate the error condition by setting RESULT_CODE to
9 '0000110', "Rejected - Message not expected in this mode." The mobile station
10 shall send a *Key Generation Response Message* within 750 ms after receiving
11 this message.
- 12 • If the mobile station has received an *Key Generation Request Message* with the
13 value of BS_RESULT equal to 0, the mobile station shall set RESULT_CODE to
14 '00000001', "Rejected - Unknown reason." The mobile station shall then send a
15 *Key Generation Response Message* within 750 ms after receiving this message.
- 16 • Otherwise, the mobile station shall compute the value of the A-key, A-key and
17 Root Key combination, or Root Key if the value of A_KEY_P_REV received in the
18 *MS Key Request Message* equals to:
- 19 '00000010', calculate A-key in accordance with 5.1.3;
20 '00000011', calculate A-key and Root Key in accordance with 5.3.3;
21 '00000100', calculate Root Key in accordance with 5.3.4;
22 '00000101', calculate Root Key in accordance with 5.5.3.
- 23 • If the mobile station has not successfully calculated the A-key, A-key and Root
24 Key combination, or Root Key in accordance with 5.1.3, 5.3.3, 5.3.4 and 5.5.3
25 respectively, the mobile station shall set RESULT_CODE to '00000001',
26 "Rejected - Unknown reason." The mobile station shall then send a *Key*
27 *Generation Response Message* within 30 seconds after receiving this message.
- 28 • If the mobile station has successfully calculated the A-key, A-key and Root Key
29 combination, or Root Key in accordance with 5.1.3, 5.3.3, 5.3.4 and 5.5.3
30 respectively, the mobile station shall set RESULT_CODE to '00000000',
31 "Accepted - Operation successful". The mobile station shall then send a *Key*
32 *Generation Response Message* ~~or an *Extended Protocol Capability Response*~~
33 ~~*Message*~~ within 30 seconds after receiving this message. ~~If the *Protocol*~~
34 ~~*Capability Request Message* contains the OTASP_P_REV field and the mobile~~
35 ~~station is able to parse it, then the mobile station shall send the *Extended*~~
36 ~~*Protocol Capability Response Message*; otherwise, the mobile station shall send~~
37 ~~the *Protocol Capability Response Message*.~~
- 38 7. *Protocol Capability Request Message*: If the *Protocol Capability Request Message*
39 contains the OTASP_P_REV field and the mobile station is able to parse it, then the
40 mobile station shall send the *Extended Protocol Capability Response Message* within
41 750 ms after receiving the message; otherwise, the mobile station shall send a
42 *Protocol Capability Response Message* within 750 ms after receiving the message.

- 1 8. SSPR Configuration Request Message: The mobile station shall send an *SSPR*
2 *Configuration Response Message* within 750 ms after receiving the message.
- 3 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
4 mobile station shall set RESULT_CODE in the *SSPR Configuration Response*
5 *Message* to '00001010', "Rejected - Mobile station locked". The mobile station
6 shall include the requested parameter block with the BLOCK_LEN field set to
7 zero.
 - 8 • If both SP_LOCK_STATE and NAM_LOCK_STATE are set to '0', then:
 - 9 - If the mobile station does not support the requested parameter block, the
10 mobile station shall set RESULT_CODE in the corresponding returned
11 parameter block to '00000111', "Rejected - BLOCK_ID value not supported."
12 The mobile station shall include the parameter block with the BLOCK_LEN
13 field set to zero.
 - 14 - If the *SSPR Configuration Request Message* contains the request for the
15 Preferred Roaming List Dimension Parameter Block (BLOCK_ID = '00000000')
16 and if the mobile station supports SSPR_P_REV greater than or equal to
17 '00000011' and stores preferred roaming list associated with SSPR_P_REV
18 greater than or equal to '00000011', then, the mobile station shall set the
19 RESULT_CODE in the *SSPR Configuration Response Message* to '00100011',
20 "Rejected - PRL format mismatch." The mobile station shall include the
21 parameter block with the BLOCK_LEN field set to zero.
 - 22 - If the REQUEST_OFFSET_r received in the message specifies an offset which
23 is invalid for the current preferred roaming list, the mobile station shall set
24 the RESULT_CODE in the corresponding returned parameter block to
25 '00000010', "Rejected - Data size mismatch."
26 The mobile station shall set the BLOCK_ID to the corresponding parameter
27 block identifier, the SEGMENT_OFFSET in the returned Parameter Block to
28 the value of the REQUEST_OFFSET_r, the SEGMENT_SIZE to '00000000', and
29 shall include no octets of the preferred roaming list in the returned
30 Parameter Block.
 - 31 - Otherwise, if the *SSPR Configuration Request Message* contains the request
32 for the Preferred Roaming List Parameter Block (BLOCK_ID = '00000001'),
33 and if the REQUEST_OFFSET_r received in the message is valid for the
34 current preferred roaming list, the mobile station shall set the
35 RESULT_CODE in the *SSPR Configuration Response Message* to '00000000',
36 "Accepted - Operation successful" for the Parameter Block included in the
37 message.
38 The mobile station shall include the preferred roaming list data (PR_LIST_{s-}
39 p) starting at the offset corresponding to the REQUEST_OFFSET_r and not
40 exceeding a maximum number of octets corresponding to the
41 REQUEST_MAX_SIZE_r received in the message.

1 The mobile station shall set the SEGMENT_OFFSET in the returned
 2 Parameter Block to the value of the REQUEST_OFFSET_T received in the
 3 message.

4 The mobile station shall set the SEGMENT_SIZE field to the number of
 5 octets of the preferred roaming list included in the returned Parameter
 6 Block. If the Parameter Block contains the last segment of the preferred
 7 roaming list data, the mobile station shall set the LAST_SEGMENT field to
 8 '1'; otherwise the mobile station shall set the LAST_SEGMENT field to '0' in
 9 the returned Parameter Block.

10 9. SSPR Download Request Message: The mobile station shall respond to the
 11 message with an *SSPR Download Response Message* within 750 ms.

- 12 • If FRESH_INCL_T = '1' and the SECURE_MODE_IND_S = '1', the mobile station shall
 13 set FRESH_S = FRESH_T and decrypt as specified in 3.3.8 each PARAM_DATA field
 14 of all Parameter Blocks received in the *SSPR Download Request Message*.
- 15 • If the *SSPR Download Request Message* contains an SSPR Parameter Block with
 16 a BLOCK_ID that is not supported by the mobile station, the mobile station
 17 shall set the RESULT_CODE in the *SSPR Download Response Message* to
 18 '0000111', "Rejected - BLOCK_ID value not supported" and shall set the
 19 BLOCK_ID to the received parameter block identifier. The mobile station shall
 20 set the SEGMENT_OFFSET and the SEGMENT_SIZE in the *SSPR Download*
 21 *Response Message* to '0000000'.
- 22 • If the *SSPR Download Request Message* contains an SSPR Parameter Block
 23 having a size different from that supported by the mobile station, the mobile
 24 station shall set the RESULT_CODE in the *SSPR Download Response Message*
 25 to '0000010', "Rejected - Data size mismatch" and shall set the BLOCK_ID to
 26 the received parameter block identifier.

27 The mobile station shall set SEGMENT_OFFSET to the value of
 28 SEGMENT_OFFSET received in the message. The mobile station shall set
 29 SEGMENT_SIZE to the value of SEGMENT_SIZE received in the message.

- 30 • If the SSPR Download Request Message does not contain an SSPR Parameter
 31 Block with a BLOCK_ID of either '00000000' (Preferred Roaming List) or
 32 '00000001' (Extended Preferred Roaming List), the mobile station shall omit the
 33 SEGMENT_OFFSET and SEGMENT_SIZE. • Otherwise, if the BLOCK_ID
 34 field in the *SSPR Download Request Message* is equal to '00000000' or
 35 '00000001' (Preferred Roaming List Parameter Block or Extended Preferred
 36 Roaming List Parameter Block, respectively), the mobile station shall perform
 37 the following:
 - 38 - The mobile station shall set SEGMENT_OFFSET to the value of
 39 SEGMENT_OFFSET received in the message. The mobile station shall set
 40 SEGMENT_SIZE to the value of SEGMENT_SIZE received in the message.

- 1 - If PRL_BLOCK_ID_CURRENT_S is not NULL and the value of the BLOCK_ID_r
2 field is not equal to PRL_BLOCK_ID_CURRENT_S, the mobile station shall
3 perform the following:
- 4 + Set the RESULT_CODE in the *SSPR Download Response Message* to
5 ‘00100010’, “Rejected – Unexpected PRL BLOCK_ID change”.
- 6 + In the *SSPR Download Response Message*, set the BLOCK_ID to the
7 received parameter block identifier and set the SEGMENT_OFFSET and
8 the SEGMENT_SIZE to ‘00000000’.
- 9 + Discard all the SEGMENT_DATA octets that have been received in an
10 *SSPR Download Request Message* with the BLOCK_ID field set to
11 ‘00000000’ or ‘00000001’.
- 12 + Set the PRL_BLOCK_ID_CURRENT_S to NULL.
- 13 - Otherwise, the mobile station shall perform the following:
- 14 + Set the PRL_BLOCK_ID_CURRENT_S to the value of the BLOCK_ID field
15 received in the *SSPR Download Request Message*.
- 16 + If SEGMENT_OFFSET in conjunction with SEGMENT_SIZE are
17 inconsistent with the preferred roaming list storage capabilities of the
18 mobile station, the mobile station shall set the RESULT_CODE to
19 ‘00001000’, “Rejected - Preferred roaming list length mismatch” and shall
20 set the BLOCK_ID to the received parameter block identifier.
- 21 + Otherwise, if SEGMENT_OFFSET in conjunction with SEGMENT_SIZE
22 are consistent with the preferred roaming list storage capabilities of the
23 mobile station, the mobile station shall store the SEGMENT_DATA
24 octets in temporary memory.
- 25 o If LAST_SEGMENT is equal to ‘0’, the mobile station shall set the
26 RESULT_CODE to ‘00000000’, “Accepted - Operation successful” and
27 shall set the BLOCK_ID to the received parameter block identifier.
- 28 o If LAST_SEGMENT is equal to ‘1’, the mobile station shall calculate
29 the CRC, as specified in Section 3.5.5.1 for the preferred roaming list
30 stored in temporary memory. If the CRC checks, the mobile station
31 shall set the RESULT_CODE to ‘00000000’, “Accepted - Operation
32 successful;” otherwise, the mobile station shall set the
33 RESULT_CODE to ‘00001001’, “Rejected - CRC error” and shall
34 discard this segment and all previously assembled segments of the
35 preferred roaming list from the temporary memory. The mobile
36 station shall set the BLOCK_ID to the received parameter block
37 identifier.
- 38 10. Validation Request Message: The mobile station shall send a *Validation Response*
39 *Message* within 750 ms after receiving the message.

- 1 • If the *Validation Request Message* contains a Validation Parameter Block with a
2 BLOCK_ID that is not supported by the mobile station, the mobile station shall
3 set the BLOCK_ID to the received parameter block identifier and shall set the
4 RESULT_CODE to '00000111', "Rejected - BLOCK_ID value not supported;"
- 5 • If the *Validation Request Message* contains a Validation Parameter Block having
6 a size different from that supported by the mobile station, the mobile station
7 shall set the RESULT_CODE to '00000010', "Rejected - Data size mismatch" and
8 shall set the BLOCK_ID to the received parameter block identifier.
- 9 • If the *Validation Request Message* contains a Validation Parameter Block with a
10 parameter value that is out-of-range, the mobile station shall set the
11 RESULT_CODE to '00000100', "Rejected - Invalid parameter" and the BLOCK_ID
12 to the received parameter block identifier.
- 13 • If the *Validation Request Message* is not accepted for any other reason, the
14 mobile station shall set the RESULT_CODE to '00000001', "Rejected - Unknown
15 reason" and shall set the BLOCK_ID to the received parameter block identifier.
- 16 • If the *Validation Request Message* contains the Verify SPC Parameter Block, the
17 mobile station shall compare the SPC_T received in the message with the SPC_S.
- 18 - If the comparison results in a mismatch, the mobile station shall set the
19 RESULT_CODE to '00001011', "Rejected - Invalid SPC" and shall set the
20 BLOCK_ID to the received parameter block identifier.
- 21 - Otherwise, if the comparison results in a match, the mobile station shall
22 set the RESULT_CODE to '00000000', "Accepted - Operation successful" and
23 shall set the BLOCK_ID to the received parameter block identifier. The
24 mobile station shall set the SP_LOCK_STATE to '0'.
- 25 • If the *Validation Request Message* contains the Change SPC Parameter Block,
26 the mobile station shall do the following:
- 27 - If SP_LOCK_STATE = '1', the mobile station shall set the RESULT_CODE to
28 '00001010', "Rejected - Mobile station locked" and shall set the BLOCK_ID
29 to the received parameter block identifier.
- 30 - If SP_LOCK_STATE = '0' and SPC_S is set to the default value, the mobile
31 station shall do the following:
- 32 + If the mobile station is programmed by the user to accept SPC change
33 (see 3.3.6), the mobile station shall set the RESULT_CODE to
34 '00000000', "Accepted - Operation successful" and shall set the
35 BLOCK_ID to the received parameter block identifier. The mobile station
36 shall set SPC_S to SPC_T received in the message.
- 37 + If the mobile station is programmed by the user to deny SPC change, the
38 mobile station shall set the RESULT_CODE to '00001100', "Rejected -
39 SPC change denied by the user" and shall set the BLOCK_ID to the
40 received parameter block identifier.

- 1 - Otherwise, if SP_LOCK_STATE = '0' and if the SPC_S is not set to the default
2 value, the mobile station shall set SPC_S = SPC_R received in the message and
3 shall set the RESULT_CODE to '00000000', "Accepted - Operation
4 successful" and the BLOCK_ID to the received parameter block identifier.
- 5 • If the *Validation Request Message* contains both the Verify SPC Parameter Block
6 and the Change SPC Parameter Block, the mobile station shall process the
7 Verify SPC Parameter Block first.
- 8 • If the *Validation Request Message* contains the Validate SPASM Parameter
9 Block, the mobile station shall do the following:
- 10 - If the programming session was initiated by the user as described in 3.2.1,
11 the mobile station shall set the RESULT_CODE to '00001110', "Rejected -
12 BLOCK_ID not expected in this mode" and shall set the BLOCK_ID to the
13 received parameter block identifier.
- 14 - If the NAM_LOCK_STATE = '0', the mobile station shall set the
15 RESULT_CODE to '00000000', "Accepted - Operation successful" and shall
16 set the BLOCK_ID to the received parameter block identifier. The mobile
17 station shall set NAM_LOCK_S = NAM_LOCK_R received in the message.
- 18 - If the NAM_LOCK_STATE = '1', the mobile station shall compare the
19 AUTH_OTAPA_R received in the message with the AUTH_OTAPA_S calculated
20 using SPASM Validation Procedure defined in 3.3.7.
- 21 + If the comparison results in a mismatch, the mobile station shall set the
22 RESULT_CODE to '00001101', "Rejected - Invalid SPASM" and shall set
23 the BLOCK_ID to the received parameter block identifier.
- 24 + If the comparison results in a match, the mobile station shall set the
25 RESULT_CODE to '00000000', "Accepted - Operation successful" and
26 shall set the BLOCK_ID to the received parameter block identifier. The
27 mobile station shall set the NAM_LOCK_STATE to '0' and the
28 NAM_LOCK_S = NAM_LOCK_R.
- 29 11. *OTAPA Request Message*: The mobile station shall send the *OTAPA Response*
30 *Message* within 750 ms after receiving the message.
- 31 • If the programming session was initiated by the user as described in 3.2.1, the
32 mobile station shall indicate the error condition by setting RESULT_CODE to
33 '00001110', "Rejected - Message not expected in this mode." The mobile
34 station shall set the NAM_LOCK_IND field to '0' and shall omit the
35 RAND_OTAPA field in the *OTAPA Response Message*.
- 36 • If the mobile station does not support OTAPA, or if the OTAPA was disabled by
37 the user as described in 3.2.2, the mobile station shall indicate the error
38 condition by setting RESULT_CODE to '00000110', "Rejected - Message not
39 expected in this mode." The mobile station shall set the NAM_LOCK_IND field
40 to '0' and shall omit the RAND_OTAPA field in the *OTAPA Response Message*.

- 1 • If the START_STOP_T field received in the message is equal to '1', the mobile
2 station shall do the following:
 - 3 - If the NAM_LOCK_STATE = '1', the mobile station shall set the
4 NAM_LOCK_IND field to '1', RAND_OTAPA field to a randomly generated 32-
5 bit value, and shall set the RESULT_CODE to the '00000000', "Accepted -
6 Operation successful" in the *OTAPA Response Message*. The mobile station
7 shall generate the AUTH_OTAPA_S as specified in 3.3.7.
 - 8 - If the NAM_LOCK_STATE = '0', the mobile station shall set the
9 NAM_LOCK_IND field to '0', the RESULT_CODE to the '00000000', "Accepted
10 - Operation successful", and shall omit the RAND_OTAPA field in the
11 *OTAPA Response Message*.
 - 12 - The mobile station shall start the OTAPA session (see 3.2.2.3).
- 13 • If the START_STOP_T field received in the message is equal to '0', the mobile
14 station shall set the NAM_LOCK_IND field to '0', the RESULT_CODE to the
15 '00000000', "Accepted - Operation successful", and shall omit the RAND_OTAPA
16 field in the *OTAPA Response Message*. The mobile station shall terminate the
17 OTAPA session (see 3.4).

18 12. *PUZL Configuration Request Message*: The mobile station shall send a *PUZL*
19 *Configuration Response Message* within 750 ms after receiving the message.

- 20 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
21 mobile station shall set RESULT_CODE in the *PUZL Configuration Response*
22 *Message* to '00001010', "Rejected - Mobile station locked". The mobile station
23 shall set BLOCK_ID to the received value and set BLOCK_LEN to zero.
- 24 • If both SP_LOCK_STATE and NAM_LOCK_STATE are set to '0', then:
 - 25 - If the mobile station does not support the requested parameter block, the
26 mobile station shall set RESULT_CODE in the *PUZL Configuration Response*
27 *Message* to '00000111', "Rejected - BLOCK_ID value not supported". The
28 mobile station shall set BLOCK_ID to the received value and set
29 BLOCK_LEN to zero.
 - 30 - If the *PUZL Configuration Request Message* contains the request for the
31 PUZL Priorities Parameter Block (BLOCK_ID = '00000001'), and the
32 REQUEST_INDEX value received in the message specifies an index that is
33 invalid for the current preferred user zone list, the mobile station shall set
34 RESULT_CODE in the *PUZL Configuration Response Message* to '00000010',
35 "Rejected - Data size mismatch".

36 The mobile station shall set BLOCK_ID to the received parameter block
37 identifier, set SEGMENT_INDEX in the returned parameter block to the
38 value of the REQUEST_INDEX, set NUM_ENTRIES to '00000000' and include
39 no UZ_ID, UZ_SID and UZ_PRIORITY field data.

- 1 - Otherwise, if the *PUZL Configuration Request Message* contains the request
2 for the PUZL Priorities Parameter Block (BLOCK_ID = '00000001'), and the
3 REQUEST_INDEX value received in the message specifies an index which is
4 valid for the current preferred user zone list, the mobile station shall set
5 RESULT_CODE in the *PUZL Configuration Response Message* to '00000000',
6 "Accepted – Operation successful" and shall set BLOCK_ID to the received
7 parameter block identifier.

8 The mobile station shall include the UZ_ID, UZ_SID and UZ_PRIORITY
9 values starting at the user zone entry in the current preferred user zone list
10 corresponding to the REQUEST_INDEX value and not exceeding the
11 maximum number of user zone entries specified by the
12 REQUEST_MAX_ENTRIES value received in the message.

13 The mobile station shall set SEGMENT_INDEX in the returned parameter
14 block to the value of the REQUEST_INDEX received in the message.

15 The mobile station shall set the NUM_ENTRIES field to the number of user
16 zone entries for which ID, SID and priority information has been included in
17 the returned parameter block. If the parameter block contains the
18 information for the last user zone entry of the current preferred user zone
19 list, the mobile station shall set the LAST_SEGMENT field to '1'; otherwise,
20 the mobile station shall set the LAST_SEGMENT field to '0' in the returned
21 parameter block.

- 22 - If the *PUZL Configuration Request Message* contains the request for the User
23 Zone Parameter Block (BLOCK_ID = '00000010'), and if the user zone entry
24 identified by the UZ_ID and UZ_SID values received in the message is not
25 present in the current preferred user zone list, the mobile station shall set
26 RESULT_CODE in the *PUZL Configuration Response Message* to '00010000',
27 "Rejected – User Zone not in PUZL". The mobile station shall set BLOCK_ID
28 to the received value and set BLOCK_LEN to zero.

- 29 - If the *PUZL Configuration Request Message* contains the request for the User
30 Zone Parameter Block (BLOCK_ID = '00000010'), and if the
31 REQUEST_OFFSET value received in the message specifies an offset which
32 is invalid for the user zone entry, the mobile station shall set
33 RESULT_CODE in the *PUZL Configuration Response Message* to '00000010',
34 "Rejected – Data size mismatch".

35 The mobile station shall set BLOCK_ID to the received parameter block
36 identifier, set SEGMENT_OFFSET in the returned parameter block to the
37 value of the REQUEST_OFFSET, set UZ_ID and UZ_SID to the values
38 received in the message, set SEGMENT_SIZE to '00000000' and include no
39 octets of the user zone entry in the returned parameter block.

- 1 - Otherwise, if the *PUZL Configuration Request Message* contains the request
2 for the User Zone Parameter Block (BLOCK_ID = '00000010'), and if the
3 REQUEST_OFFSET value received in the message specifies an offset which
4 is valid for the specified user zone entry, the mobile station shall set
5 RESULT_CODE in the *PUZL Configuration Response Message* to '00000000',
6 "Accepted – Operation successful", and shall set BLOCK_ID to the received
7 parameter block identifier.

8 The mobile station shall include the user zone entry of the preferred user
9 zone list starting at the offset corresponding to the REQUEST_OFFSET and
10 not exceeding a maximum number of octets corresponding to the
11 REQUEST_MAX_SIZE received in the message.

12 The mobile station shall set SEGMENT_OFFSET in the returned parameter
13 block to the value of the REQUEST_OFFSET received in the message and
14 set UZ_ID and UZ_SID to the values received in the message.

15 The mobile station shall set SEGMENT_SIZE to the number of octets of the
16 user zone entry included in the returned parameter block. If the parameter
17 block contains the last segment of the user zone entry, the mobile station
18 shall set the LAST_SEGMENT field to '1'; otherwise, the mobile station shall
19 set the LAST_SEGMENT field to '0' in the returned parameter block.

- 20 - If the *PUZL Configuration Request Message* contains the request for the
21 Preferred User Zone List Parameter Block (BLOCK_ID = '00000011'), and if
22 the REQUEST_INDEX value received in the message specifies an index
23 which is invalid for the current preferred user zone list, the mobile station
24 shall set RESULT_CODE in the *PUZL Configuration Response Message* to
25 '00000010', "Rejected – Data size mismatch".

26 The mobile station shall set BLOCK_ID to the received parameter block
27 identifier, set NUM_ENTRIES to '1' in the returned parameter block, set
28 SEGMENT_INDEX to the value of the REQUEST_INDEX, set
29 SEGMENT_OFFSET to the value of REQUEST_OFFSET, set SEGMENT_SIZE
30 to '00000000' and include no octets of the preferred user zone list in the
31 returned parameter block.

- 32 - If the *PUZL Configuration Request Message* contains the request for the
33 Preferred User Zone List Parameter Block (BLOCK_ID = '00000011'), and if
34 the REQUEST_OFFSET value received in the message specifies an offset
35 which is invalid for user zone entry identified by REQUEST_INDEX of the
36 current preferred user zone list, the mobile station shall set RESULT_CODE
37 in the *PUZL Configuration Response Message* to '00000010', "Rejected – Data
38 size mismatch".

1 The mobile station shall set BLOCK_ID to the received parameter block
2 identifier, set NUM_ENTRIES to '1' in the returned parameter block, set
3 SEGMENT_INDEX to the value of the REQUEST_INDEX, set
4 SEGMENT_OFFSET to the value of REQUEST_OFFSET, set SEGMENT_SIZE
5 to '00000000' and include no octets of the preferred user zone list in the
6 returned parameter block.

7 - Otherwise, if the *PUZL Configuration Request Message* contains the request
8 for the Preferred User Zone List Parameter Block (BLOCK_ID = '00000011'),
9 and if the REQUEST_INDEX value received in the message specifies an
10 index which is valid for the current preferred user zone list, and if the
11 REQUEST_OFFSET value received in the message specifies an offset which
12 is valid for the user zone entry identified by REQUEST_INDEX, the mobile
13 station shall set RESULT_CODE to '00000000', "Accepted – Operation
14 successful", and shall set BLOCK_ID to the received parameter block
15 identifier.

16 The mobile station shall include the user zone entry specified by
17 REQUEST_INDEX of the preferred user zone list starting at the offset
18 corresponding to REQUEST_OFFSET and not exceeding a maximum
19 number of octets corresponding to REQUEST_MAX_SIZE received in the
20 message.

21 The mobile station shall set SEGMENT_INDEX in the returned parameter
22 block to the value of REQUEST_INDEX received in the message and shall set
23 SEGMENT_OFFSET to the value of REQUEST_OFFSET.

24 The mobile station shall set SEGMENT_SIZE to the number of octets of the
25 user zone entry included in the returned parameter block. If the parameter
26 block contains the last segment of the user zone entry, the mobile station
27 shall set the LAST_SEGMENT field to '1'; otherwise, the mobile station shall
28 set the LAST_SEGMENT field to '0' in the returned parameter block.

29 If the last segment of a user zone entry is included in the returned
30 parameter block and if the REQUEST_MAX_SIZE number of octets has not
31 been included, the mobile station shall include a segment of the next user
32 zone entry of the preferred user zone list. When including the start of a
33 subsequent user zone entry, the mobile shall set the SEGMENT_OFFSET to
34 '00000000' and shall not include a segment of less than four octets. The
35 SEGMENT_INDEX shall be set appropriately and the LAST_SEGMENT and
36 SEGMENT_SIZE shall be set as described above.

37 The mobile station shall set NUM_ENTRIES to the number of user zone
38 entry segments included in the returned parameter block.

- 1 - If the *PUZL Configuration Request Message* contains the request for a valid
2 parameter block and if there is no entry in the current preferred user zone
3 list, the mobile station shall set the RESULT_CODE in the *PUZL*
4 *Configuration Response Message* to '00010001', "Rejected – No entries in
5 *PUZL*", and shall set the BLOCK_ID to the received parameter block
6 identifier
- 7 - Otherwise, if SECURE_MODE_IND_s = '1', the mobile station shall set the
8 FRESH_INCL field to '1', and include the FRESH field set to a 15-bit value
9 selected according to 3.3.8. The mobile station shall encrypt as specified in
10 3.3.8 each PARAM_DATA field of all Parameter Blocks included in the *PUZL*
11 *Configuration Response Message*.
- 12 13. *PUZL Download Request Message*: The mobile station shall send a *PUZL Download*
13 *Response Message* within 750 ms after receiving the message.
- 14 • If FRESH_INCL_r = '1' and the SECURE_MODE_IND_s = '1', the mobile station shall
15 set FRESH_s = FRESH_r and decrypt as specified in 3.3.8 each PARAM_DATA field
16 of all Parameter Blocks received in the *PUZL Download Request Message*.
- 17 • If the *PUZL Download Request Message* contains a PUZL Parameter Block with a
18 BLOCK_ID that is not supported by the mobile station, the mobile station shall
19 set BLOCK_ID to the received parameter block identifier, set RESULT_CODE to
20 '00000111', "Rejected - BLOCK_ID value not supported", and set IDS_PRESENT
21 to '0'. The UZ_ID and UZ_SID fields shall not be included in the returned
22 parameter block.
- 23 • If the *PUZL Download Request Message* contains a PUZL Parameter Block having
24 a size different from that supported by the mobile station, the mobile station
25 shall set BLOCK_ID to the received parameter block identifier, set
26 RESULT_CODE to '00000010', "Rejected - Data size mismatch", and set
27 IDS_PRESENT to '0'. The UZ_ID and UZ_SID fields shall not be included in the
28 returned parameter block.
- 29 • If the *PUZL Download Request Message* contains a PUZL Parameter Block with a
30 parameter value that is out-of-range, the mobile station shall set BLOCK_ID to
31 the received parameter block identifier, set RESULT_CODE to '00000100',
32 "Rejected - Invalid parameter" and shall set IDS_PRESENT to '0'. The UZ_ID and
33 UZ_SID fields shall not be included in the returned parameter block.
- 34 • If the *PUZL Download Request Message* is not accepted for any other reason,
35 the mobile station shall set BLOCK_ID to the received parameter block
36 identifier, set RESULT_CODE to '00000001', "Rejected - Unknown reason", and
37 set IDS_PRESENT to '0'. The UZ_ID and UZ_SID fields shall not be included in
38 the returned parameter block.

- 1 • If the *PUZL Download Request Message* contains the User Zone Insert
2 Parameter Block and the User Zone ID/System ID pair already exists in the
3 current preferred user zone list, the mobile station shall set BLOCK_ID to the
4 received parameter block identifier, set RESULT_CODE to '00001111', "Rejected
5 – User Zone already in PUZL", and set IDS_PRESENT to '1'. The mobile station
6 shall include the UZ_ID and UZ_SID fields in the returned parameter block
7 containing the values received.
- 8 - Otherwise, the mobile station shall store the parameter block data in
9 temporary memory, set BLOCK_ID to the received parameter block
10 identifier, set RESULT_CODE to '00000000', "Accepted - Operation
11 successful", and set IDS_PRESENT to '1'. The mobile station shall include
12 the UZ_ID and UZ_SID fields in the returned parameter block containing the
13 values received. If more than one *PUZL Download Request Message* or
14 parameter block is received containing the same user zone entry segment,
15 the mobile station shall retain only the most recently received data.
- 16 • If the *PUZL Download Request Message* contains the User Zone Update
17 Parameter Block and the User Zone ID/System ID pair does not exist in the
18 current preferred user zone list, the mobile station shall set BLOCK_ID to the
19 received parameter block identifier, set RESULT_CODE to '00010000', "Rejected
20 – User Zone not in PUZL", and set IDS_PRESENT to '1'. The mobile station shall
21 include the UZ_ID and UZ_SID fields in the returned parameter block
22 containing the values received.
- 23 - Otherwise, the mobile station shall store the parameter block data in
24 temporary memory, set BLOCK_ID to the received parameter block
25 identifier, set RESULT_CODE to '00000000', "Accepted - Operation
26 successful", and set IDS_PRESENT to '1'. The mobile station shall include
27 the UZ_ID and UZ_SID fields in the returned parameter block containing the
28 values received. If more than one *PUZL Download Request Message* or
29 parameter block is received containing the same user zone entry segment,
30 the mobile station shall retain only the most recently received data.
- 31 • If the *PUZL Download Request Message* contains the User Zone Delete
32 Parameter Block, and if the User Zone ID/System ID pair does not exist in the
33 current preferred user zone list, the mobile station shall set BLOCK_ID to the
34 received parameter block identifier, set RESULT_CODE to '00010000', "Rejected
35 – User Zone not in PUZL", and shall set IDS_PRESENT to '1'. The mobile station
36 shall include the UZ_ID and UZ_SID fields in the returned parameter block
37 containing the values received.
- 38 - Otherwise, the mobile station shall mark the specified user zone entry to
39 be deleted, set BLOCK_ID to the received parameter block identifier, set
40 RESULT_CODE to '00000000', "Accepted - Operation successful", and set
41 IDS_PRESENT to '1'. The mobile station shall include the UZ_ID and UZ_SID
42 fields in the returned parameter block containing the values received.

- 1 • If the *PUZL Download Request Message* contains the User Zone Priority Change
2 Parameter Block and the User Zone ID/System ID pair does not exist in the
3 current preferred user zone list, the mobile station shall set BLOCK_ID to the
4 received parameter block identifier, set RESULT_CODE to '00010000', "Rejected
5 – User Zone not in PUZL", and set IDS_PRESENT to '1'. The mobile station shall
6 include the UZ_ID and UZ_SID fields in the returned parameter block
7 containing the values received.
- 8 - Otherwise, the mobile station shall store the parameter block data in
9 temporary memory, set BLOCK_ID to the received parameter block
10 identifier, set RESULT_CODE to '00000000', "Accepted - Operation
11 successful", and set IDS_PRESENT to '1'. The mobile station shall include
12 the UZ_ID and UZ_SID fields in the returned parameter block containing the
13 values received. If more than one *PUZL Download Request Message* or
14 parameter block is received for the same user zone, the mobile station shall
15 retain only the most recently received data.
- 16 • If the *PUZL Download Request Message* contains the PUZL Flags Parameter
17 Block, the mobile station shall store the parameter block data in temporary
18 memory, set BLOCK_ID to the received parameter block identifier, set
19 RESULT_CODE to '00000000', "Accepted - Operation successful", and set
20 IDS_PRESENT to '0'. The UZ_ID and UZ_SID fields shall not be included in the
21 returned parameter block. If more than one *PUZL Download Request Message* or
22 parameter block is received, the mobile station shall retain only the most
23 recently received data.
- 24 14. *3GPD Configuration Request Message*: The mobile station shall send a *3GPD*
25 *Configuration Response Message* within 750 ms after receiving the message.
- 26 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
27 mobile station shall set the RESULT_CODE in the corresponding returned
28 confirmation blocks to '00001010', "Rejected - Mobile station locked." The
29 mobile station shall include all requested parameter blocks with the
30 BLOCK_LEN field set to '00000000'.
- 31 • If both SP_LOCK_STATE and NAM_LOCK_STATE are set to '0', then:
- 32 - If the mobile station does not support a requested parameter block, the
33 mobile station shall set RESULT_CODE in the corresponding returned
34 confirmation block to '00000111', "Rejected - BLOCK_ID value not
35 supported." The mobile station shall include the parameter block with the
36 BLOCK_LEN field set to '00000000'.

- 1 - If the requested data blocks exceed the allowable message length, the
2 mobile station shall set RESULT_CODE in the corresponding returned
3 confirmation block to '00000000', "Accepted - Operation successful" for each
4 Parameter Block included in the message. The mobile station shall include
5 data blocks, in the order requested, up to the maximum number of blocks
6 that fit into the message. If SECURE_MODE_IND_s = '1', the mobile station
7 shall set the FRESH_INCL field to '1', include the FRESH field and set it to a
8 15-bit value selected according to 3.3.8. The mobile station shall encrypt as
9 specified in 3.3.8 each PARAM_DATA field of all Parameter Blocks included
10 in the *3GPD Configuration Response Message*. All the encrypted Parameter
11 Blocks and FRESH field shall fit into the *3GPD Configuration Response*
12 *Message*.
- 13 - Otherwise, the mobile station shall set RESULT_CODE to '00000000',
14 "Accepted - Operation successful" for each Parameter Block included in the
15 corresponding confirmation block. The mobile station shall include
16 complete data blocks, in the order requested, in the *3GPD Configuration*
17 *Response Message*. . If SECURE_MODE_IND_s = '1', the mobile station shall
18 set the FRESH_INCL field to '1', and include the FRESH field and set it to a
19 15-bit value selected according to 3.3.8. The mobile station shall encrypt as
20 specified in 3.3.8 each PARAM_DATA field of all Parameter Blocks included
21 in the *3GPD Configuration Response Message*.

- 22 15. *3GPD Download Request Message*: The mobile station shall respond to the
23 message with a *3GPD Download Response Message* within 750 ms.
- 24 • If FRESH_INCL_r = '1', the mobile station shall set FRESH_s = FRESH_r. If the
25 SECURE_MODE_IND_s = '1', the mobile station shall decrypt as specified in 3.3.8
26 each PARAM_DATA field of all Parameter Blocks received in the *3GPD Download*
27 *Request Message*.
- 28 • If the *3GPD Download Request Message* contains an 3GPD Parameter Block with
29 a BLOCK_ID that is not supported by the mobile station, the mobile station
30 shall set BLOCK_ID to the received parameter block identifier and
31 RESULT_CODE to '00000111', "Rejected - BLOCK_ID value not supported;"
- 32 • If the *3GPD Download Request Message* contains an 3GPD Parameter Block
33 having a size different from that supported by the mobile station, the mobile
34 station shall set BLOCK_ID to the received parameter block identifier and
35 RESULT_CODE to '00000010', "Rejected - Data size mismatch;"
- 36 • If the *3GPD Download Request Message* contains an 3GPD Parameter Block with
37 a parameter value that is out-of-range, the mobile station shall set BLOCK_ID
38 to the received parameter block identifier and RESULT_CODE to '00000100',
39 "Rejected - Invalid parameter;"
- 40 • If the *3GPD Download Request Message* contains an Operation Mode Parameter
41 Block with a OP_MODE not supported by the mobile station, the mobile station
42 shall set BLOCK_ID to the received parameter block identifier and
43 RESULT_CODE to '00010010', "Rejected - Operation Mode mismatch;"

- 1 • If the *3GPD Download Request Message* contains a SimpleIP User Profile
2 Parameter Block with a NUM_NAI or any NAI_ENTRY_INDEX greater than that
3 supported by the mobile station, the mobile station shall set BLOCK_ID to the
4 received parameter block identifier and RESULT_CODE to '00010011', "Rejected
5 – SimpleIP MAX_NUM_NAI mismatch;"
- 6 • If the *3GPD Download Request Message* contains a SimpleIP User Profile
7 Parameter Block with any NAI_LENGTH larger than that supported by the
8 mobile station, the mobile station shall set BLOCK_ID to the received
9 parameter block identifier and RESULT_CODE to '00010100', "Rejected –
10 SimpleIP MAX_NAI_LENGTH mismatch;"
- 11 • If the *3GPD Download Request Message* contains a MobileIP User Profile
12 Parameter Block with a NUM_NAI or any NAI_ENTRY_INDEX greater than that
13 supported by the mobile station, the mobile station shall set BLOCK_ID to the
14 received parameter block identifier and RESULT_CODE to '00010101', "Rejected
15 – MobileIP MAX_NUM_NAI mismatch;"
- 16 • If the *3GPD Download Request Message* contains a MobileIP User Profile
17 Parameter Block with any NAI_LENGTH larger than that supported by the
18 mobile station, the mobile station shall set BLOCK_ID to the received
19 parameter block identifier and RESULT_CODE to '00010110', "Rejected –
20 MobileIP MAX_NAI_LENGTH mismatch;"
- 21 • If the *3GPD Download Request Message* contains a SimpleIP PAP SS Parameter
22 Block with a SS_LENGTH larger than that supported by the mobile station, the
23 mobile station shall set BLOCK_ID to the received parameter block identifier
24 and RESULT_CODE to '00010111', "Rejected – SimpleIP PAP MAX_SS_LENGTH
25 mismatch;"
- 26 • If the *3GPD Download Request Message* contains a SimpleIP CHAP SS
27 Parameter Block with a SS_LENGTH larger than that supported by the mobile
28 station, the mobile station shall set BLOCK_ID to the received parameter block
29 identifier and RESULT_CODE to '00011000', "Rejected – SimpleIP CHAP
30 MAX_SS_LENGTH mismatch;"
- 31 • If the *3GPD Download Request Message* contains a MobileIP SS Parameter Block
32 with a MN-AAA_SS_LENGTH larger than that supported by the mobile station,
33 the mobile station shall set BLOCK_ID to the received parameter block
34 identifier and RESULT_CODE to '00011001', "Rejected – MAX_MN-
35 AAA_SS_LENGTH mismatch;"
- 36 • If the *3GPD Download Request Message* contains a MobileIP SS Parameter Block
37 with a MN-HA_SS_LENGTH larger than that supported by the mobile station,
38 the mobile station shall set BLOCK_ID to the received parameter block
39 identifier and RESULT_CODE to '00011010', "Rejected – MAX_MN-
40 HA_SS_LENGTH mismatch;"

- 1 • If the *3GPD Download Request Message* contains a MobileIP User Profile
2 Parameter Block with any MN-AAA_AUTH_ALGORITHM not supported by the
3 mobile station, the mobile station shall set BLOCK_ID to the received
4 parameter block identifier and RESULT_CODE to '00011011', "Rejected – MN-
5 AAA_AUTH_ALGORITHM mismatch;"
- 6 • If the *3GPD Download Request Message* contains a MobileIP User Profile
7 Parameter Block with any MN-HA_AUTH_ ALGORITHM not supported by the
8 mobile station, the mobile station shall set BLOCK_ID to the received
9 parameter block identifier and RESULT_CODE to '00011100', "Rejected – MN-
10 HA_AUTH_ ALGORITHM mismatch;"
- 11 • If the *3GPD Download Request Message* contains a SimpleIP Status Parameter
12 Block with an ACT_NAI_ENTRY_INDEX not supported by the mobile station, the
13 mobile station shall set BLOCK_ID to the received parameter block identifier
14 and RESULT_CODE to '00011101', "Rejected – SimpleIP ACT_NAI_ENTRY_INDEX
15 mismatch;"
- 16 • If the *3GPD Download Request Message* contains a MobileIP Status Parameter
17 Block with an ACT_NAI_ENTRY_INDEX not supported by the mobile station, the
18 mobile station shall set BLOCK_ID to the received parameter block identifier
19 and RESULT_CODE to '00011110', "Rejected – MobileIP ACT_NAI_ENTRY_INDEX
20 mismatch;"
- 21 • If the *3GPD Download Request Message* contains a SimpleIP PAP SS Parameter
22 Block with an NAI_ENTRY_INDEX not supported by the mobile station, the
23 mobile station shall set BLOCK_ID to the received parameter block identifier
24 and RESULT_CODE to '00011111', "Rejected – SimpleIP PAP NAI_ENTRY_INDEX
25 mismatch;"
- 26 • If the *3GPD Download Request Message* contains a SimpleIP CHAP SS
27 Parameter Block with an NAI_ENTRY_INDEX not supported by the mobile
28 station, the mobile station shall set BLOCK_ID to the received parameter block
29 identifier and RESULT_CODE to '00100000', "Rejected – SimpleIP CHAP
30 NAI_ENTRY_INDEX mismatch;"
- 31 • If the *3GPD Download Request Message* contains a MobileIP SS Parameter Block
32 with an NAI_ENTRY_INDEX not supported by the mobile station, the mobile
33 station shall set BLOCK_ID to the received parameter block identifier and
34 RESULT_CODE to '00100001', "Rejected – MobileIP NAI_ENTRY_INDEX
35 mismatch;"
- 36 • If the *3GPD Download Request Message* contains a HRPD Access Authentication
37 User Profile Parameter Block with any NAI_LENGTH larger than that supported
38 by the mobile station, the mobile station shall set BLOCK_ID to the received
39 parameter block identifier and RESULT_CODE to '00100100', "Rejected – HRPD
40 Access Authentication MAX_NAI_LENGTH mismatch;"

- 1 • If the *3GPD Download Request Message* contains a HRPD Access Authentication
2 CHAP SS Parameter Block with a SS_LENGTH larger than that supported by the
3 mobile station, the mobile station shall set BLOCK_ID to the received
4 parameter block identifier and RESULT_CODE to '00100101', "Rejected – HRPD
5 Access Authentication CHAP_MAX_SS_LENGTH mismatch;"
- 6 • If the *3GPD Download Request Message* is not accepted for any other reason,
7 the mobile station shall set BLOCK_ID to the received parameter block
8 identifier and RESULT_CODE to '00000001', "Rejected – Unknown reason;"
- 9 • Otherwise, the mobile station shall store the message data in temporary memory,
10 set BLOCK_ID to the received parameter block identifier and set RESULT_CODE to
11 '00000000', "Accepted – Operation successful." If more than one *3GPD Download*
12 *Request Message* or parameter block is received containing values for the same
13 indicators, the mobile station shall retain only the most recently received values.
- 14 16. *Secure Mode Request Message*: The mobile station shall send the *Secure Mode*
15 *Response Message* within 750 ms after receiving the message.
- 16 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
17 mobile station shall indicate the error condition by setting the RESULT_CODE
18 to '00001010', "Rejected - Mobile station locked" in the *Secure Mode Response*
19 *Message*.
- 20 • If both SP_LOCK_STATE and NAM_LOCK_STATE are set to '0', then:
- 21 - If the mobile station does not support Secure Mode, the mobile station
22 shall indicate the error condition by setting RESULT_CODE to '00000110',
23 "Rejected - Message not expected in this mode", in the *Secure Mode*
24 *Response Message*; otherwise
- 25 - If the START_STOP_T field received in the message is equal to '1', the mobile
26 station shall do the following:
- 27 + The mobile station shall set SECURE_MODE_IND_S = '1'.
28 + The mobile station shall generate SMCK_S (see 3.8.2).
29 + The mobile station shall set the RESULT_CODE to '00000000', "Accepted -
30 - Operation successful", in the *Secure Mode Response Message*.
- 31 - If the START_STOP_T field received in the message is equal to '0', the mobile
32 station shall set the RESULT_CODE to the '00000000', "Accepted -
33 Operation successful", in the *OTAPA Response Message*. If the Secure
34 Mode is active, the mobile station shall terminate the Secure Mode. The
35 mobile station shall set SECURE_MODE_IND_S = '0' and SMCK_S to NULL.
- 36 17. *MMD Configuration Request Message*: The mobile station shall send a *MMD*
37 *Configuration Response Message* within 750 ms after receiving the message.

- 1 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
2 mobile station shall set the RESULT_CODE in the corresponding returned
3 confirmation blocks to '00001010', "Rejected - Mobile station locked." The
4 mobile station shall include all requested parameter blocks with the
5 BLOCK_LEN field set to '00000000'.
- 6 • If both SP_LOCK_STATE and NAM_LOCK_STATE are set to '0', then:
- 7 - If the mobile station does not support a requested parameter block, the
8 mobile station shall set RESULT_CODE in the corresponding returned
9 confirmation block to '00000111', "Rejected - BLOCK_ID value not
10 supported." The mobile station shall include the parameter block with the
11 BLOCK_LEN field set to '00000000'.
- 12 - If the requested data blocks exceed the allowable message length, the
13 mobile station shall set RESULT_CODE in the corresponding returned
14 confirmation block to '00000000', "Accepted - Operation successful" for each
15 Parameter Block included in the message. The mobile station shall include
16 data blocks, in the order requested, up to the maximum number of blocks
17 that fit into the message. If SECURE_MODE_IND_s = '1', the mobile station
18 shall set the FRESH_INCL field to '1', include the FRESH field and set it to a
19 15-bit value selected according to 3.3.8. The mobile station shall encrypt as
20 specified in 3.3.8 each PARAM_DATA field of all Parameter Blocks included
21 in the *MMD Configuration Response Message*. All the encrypted Parameter
22 Blocks and FRESH field shall fit into the *MMD Configuration Response*
23 *Message*.
- 24 - Otherwise, the mobile station shall set RESULT_CODE to '00000000',
25 "Accepted - Operation successful" for each Parameter Block included in the
26 corresponding confirmation block. The mobile station shall include
27 complete data blocks, in the order requested, in the *MMD Configuration*
28 *Response Message*. . If SECURE_MODE_IND_s = '1', the mobile station shall
29 set the FRESH_INCL field to '1', and include the FRESH field and set it to a
30 15-bit value selected according to 3.3.8. The mobile station shall encrypt as
31 specified in 3.3.8 each PARAM_DATA field of all Parameter Blocks included
32 in the *MMD Configuration Response Message*.

33 18. MMD Download Request Message: The mobile station shall respond to the
34 message with a *MMD Download Response Message* within 750 ms.

- 35 • If FRESH_INCL_r = '1', the mobile station shall set FRESH_s = FRESH_r. If the
36 SECURE_MODE_IND_s = '1', the mobile station shall decrypt as specified in 3.3.8
37 each PARAM_DATA field of all Parameter Blocks received in the *MMD Download*
38 *Request Message*.
- 39 • If the *MMD Download Request Message* contains an MMD Application Parameter
40 Block with a BLOCK_ID that is not supported by the mobile station, the mobile
41 station shall set BLOCK_ID to the received parameter block identifier and
42 RESULT_CODE to '00000111', "Rejected - BLOCK_ID value not supported;"

- 1 • If the *MMD Download Request Message* contains an MMD Application Parameter
2 Block having a size different from that supported by the mobile station, the
3 mobile station shall set BLOCK_ID to the received parameter block identifier
4 and RESULT_CODE to '0000010', "Rejected - Data size mismatch;"
- 5 • If the *MMD Download Request Message* contains an MMD Application Parameter
6 Block with a parameter value that is out-of-range, the mobile station shall set
7 BLOCK_ID to the received parameter block identifier and RESULT_CODE to
8 '00000100', "Rejected - Invalid parameter;"
- 9 • If the *MMD Download Request Message* contains a MMD Application Parameter
10 Block with a NUM_IMPU or any IMPU_ENTRY_IDX greater than that supported
11 by the mobile station, the mobile station shall set BLOCK_ID to the received
12 parameter block identifier and RESULT_CODE to '00100110', "Rejected – MMD
13 MAX_NUM_IMPU mismatch;"
- 14 • If the *MMD Download Request Message* contains a MMD Application Parameter
15 Block with any IMPU_LENGTH larger than that supported by the mobile station,
16 the mobile station shall set BLOCK_ID to the received parameter block
17 identifier and RESULT_CODE to '00100111', "Rejected – MMD
18 MAX_IMPU_LENGTH mismatch;"
- 19 • If the *MMD Download Request Message* contains a MMD Application Parameter
20 Block with a NUM_P-CSCF or any P-CSCF_ENTRY_IDX greater than that
21 supported by the mobile station, the mobile station shall set BLOCK_ID to the
22 received parameter block identifier and RESULT_CODE to '00101000', "Rejected
23 – MMD MAX_NUM_P-CSCF mismatch;"
- 24 • If the *MMD Download Request Message* contains a MMD Application Parameter
25 Block with any P-CSCF_LENGTH larger than that supported by the mobile
26 station, the mobile station shall set BLOCK_ID to the received parameter block
27 identifier and RESULT_CODE to '00101001', "Rejected – MMD MAX_P-
28 CSCF_LENGTH mismatch;"
- 29 • If the *MMD Download Request Message* is not accepted for any other reason,
30 the mobile station shall set BLOCK_ID to the received parameter block
31 identifier and RESULT_CODE to '00000001', "Rejected – Unknown reason;"
 - 32 • Otherwise, the mobile station shall store the message data in temporary
33 memory, set BLOCK_ID to the received parameter block identifier and set
34 RESULT_CODE to '00000000', "Accepted – Operation successful." If more
35 than one *MMD Download Request Message* or parameter block is received
36 containing values for the same indicators, the mobile station shall retain
37 only the most recently received values.

38 19. System Tag Configuration Request Message: The mobile station shall send a
39 *System Tag Configuration Response Message* within 750 ms after receiving the
40 message.

- 1 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
2 mobile station shall set RESULT_CODE in the *System Tag Configuration*
3 *Response Message* to '00001010', "Rejected - Mobile station locked". The
4 mobile station shall include the requested parameter block with the
5 BLOCK_LEN field set to zero.
- 6 • If both SP_LOCK_STATE and NAM_LOCK_STATE are set to '0', then:
- 7 - If the mobile station does not support the requested parameter block, the
8 mobile station shall set RESULT_CODE in the corresponding returned
9 parameter block to '00000111', "Rejected - BLOCK_ID value not supported."
10 The mobile station shall include the parameter block with the BLOCK_LEN
11 field set to zero.
- 12 - If the REQUEST_OFFSET_T received in the message specifies an offset which
13 is invalid for the current system tag list, the mobile station shall set the
14 RESULT_CODE in the corresponding returned parameter block to
15 '00000010', "Rejected - Data size mismatch."
- 16 The mobile station shall set the BLOCK_ID to the corresponding parameter
17 block identifier, the SEGMENT_OFFSET in the returned Parameter Block to
18 the value of the REQUEST_OFFSET_T, the SEGMENT_SIZE to '00000000', and
19 shall include no octets of the system tag list in the returned Parameter
20 Block.
- 21 - Otherwise, if the REQUEST_OFFSET_T received in the message is valid for
22 the current system tag list, the mobile station shall set the RESULT_CODE
23 in the *System Tag Configuration Response Message* to '00000000', "Accepted
24 - Operation successful" for the Parameter Block included in the message.
- 25 The mobile station shall include the system tag data starting at the offset
26 corresponding to the REQUEST_OFFSET_T and not exceeding a maximum
27 number of octets corresponding to the REQUEST_MAX_SIZE_T received in the
28 message.
- 29 The mobile station shall set the SEGMENT_OFFSET in the returned
30 Parameter Block to the value of the REQUEST_OFFSET_T received in the
31 message.
- 32 The mobile station shall set the SEGMENT_SIZE field to the number of
33 octets of the system tag list included in the returned Parameter Block. If
34 the Parameter Block contains the last segment of the system tag list data,
35 the mobile station shall set the LAST_SEGMENT field to '1'; otherwise the
36 mobile station shall set the LAST_SEGMENT field to '0' in the returned
37 Parameter Block.
- 38 20. System Tag Download Request Message: The mobile station shall respond to the
39 message with a *System Tag Download Response Message* within 750 ms.
- 40 • If the *System Tag Download Request Message* contains a System Tag Parameter
41 Block with a BLOCK_ID that is not supported by the mobile station, the mobile
42 station shall set the RESULT_CODE in the *System Tag Download Response*

1 Message to '00000111', "Rejected - BLOCK_ID value not supported" and shall
 2 set the BLOCK_ID to the received parameter block identifier. The mobile
 3 station shall omit the SEGMENT_OFFSET and the SEGMENT_SIZE fields in the
 4 *System Tag Download Response Message*.

- 5 • If the *System Tag Download Request Message* contains a System Tag Parameter
 6 Block having a size different from that supported by the mobile station, the
 7 mobile station shall set the RESULT_CODE in the *System Tag Download*
 8 *Response Message* to '00000010', "Rejected - Data size mismatch" and shall set
 9 the BLOCK_ID to the received parameter block identifier.

10 If the *System Tag Download Request Message* does not contain a System tag
 11 Parameter Block having a BLOCK_ID of '00000001', '00000010', or '00000011',
 12 the mobile station shall omit the SEGMENT_OFFSET and SEGMENT_SIZE
 13 fields.

- 14 • Otherwise, the mobile station shall perform the following:
 - 15 - If the *System Tag Download Request Message* contains a System tag
 16 Parameter Block having a BLOCK_ID of '00000001', '00000010', or '00000011',
 17 the mobile station shall set SEGMENT_OFFSET to the value of
 18 SEGMENT_OFFSET received in the message. The mobile station shall set
 19 SEGMENT_SIZE to the value of SEGMENT_SIZE received in the message.
 - 20 - If SYS_TAG_BLOCK_ID_CURRENT_s is not NULL and the value of the
 21 BLOCK_ID_r field is not equal to SYS_TAG_BLOCK_ID_CURRENT_s, the
 22 mobile station shall perform the following:
 - 23 + Set the RESULT_CODE in the *System Tag Download Response Message*
 24 to '00101010', "Rejected – Unexpected System Tag BLOCK_ID change".
 - 25 + In the *System Tag Download Response Message*, set the BLOCK_ID to
 26 the received parameter block identifier and set the SEGMENT_OFFSET
 27 and the SEGMENT_SIZE to '00000000'.
 - 28 + Discard all the SEGMENT_DATA octets that have been received in a
 29 *System Tag Download Request Message* with the BLOCK_ID field set to
 30 '00000001'.
 - 31 + Set the SYS_TAG_BLOCK_ID_CURRENT_s to NULL.
 - 32 - Otherwise, the mobile station shall perform the following:
 - 33 + Set the SYS_TAG_BLOCK_ID_CURRENT_s to the value of the BLOCK_ID
 34 field received in the *System Tag Download Request Message*.
 - 35 + If SEGMENT_OFFSET in conjunction with SEGMENT_SIZE are
 36 inconsistent with the system tag list storage capabilities of the mobile
 37 station, the mobile station shall set the RESULT_CODE to '00101011',
 38 "Rejected – System Tag format mismatch" and shall set the BLOCK_ID to
 39 the received parameter block identifier.

- 1 + Otherwise, if SEGMENT_OFFSET in conjunction with SEGMENT_SIZE
2 are consistent with the system tag list storage capabilities of the mobile
3 station, the mobile station shall store the SEGMENT_DATA octets in
4 temporary memory.
- 5 o If LAST_SEGMENT is equal to '0', the mobile station shall set the
6 RESULT_CODE to '00000000', "Accepted - Operation successful" and
7 shall set the BLOCK_ID to the received parameter block identifier.
- 8 o If LAST_SEGMENT is equal to '1' or if BLOCK_ID is equal to
9 '00000000' (Home System Tag), the mobile station shall calculate the
10 CRC, as specified in Section 3.5.10.1 for the system tag list stored in
11 temporary memory. If the CRC checks, the mobile station shall set
12 the RESULT_CODE to '00000000', "Accepted - Operation successful;"
13 otherwise, the mobile station shall set the RESULT_CODE to
14 '00001001', "Rejected - CRC error" and shall discard this segment
15 and all previously assembled segments of the system tag list from the
16 temporary memory. The mobile station shall set the BLOCK_ID to
17 the received parameter block identifier.

18 21. Service Key Generation Request Message:

- 19 • The mobile station shall compute the value of the service root key, for each
20 service root key requested, in accordance with 3.3.9.
- 21 • If the mobile station has not successfully calculated the service key(s) in
22 accordance with 3.3.9, the mobile station shall set RESULT_CODE to
23 '00000001', "Rejected - Unknown reason." The mobile station shall then send a
24 *Service Key Generation Response Message* within 750 ms after receiving this
25 message.
- 26 • If the mobile station has successfully calculated the services root key(s) in
27 accordance with 3.3.9, the mobile station shall set RESULT_CODE to
28 '00000000', "Accepted - Operation successful." The mobile station shall then
29 send a *Service Key Generation Response Message* within 750 ms after receiving
30 this message.

31 22. MMS Configuration Request Message: The mobile station shall send a *MMS*
32 *Configuration Response Message* within 750 ms after receiving the message.

- 33 • If either SP_LOCK_STATE, or NAM_LOCK_STATE, or both are set to '1', the
34 mobile station shall set the RESULT_CODE in the corresponding returned
35 confirmation blocks to '00001010', "Rejected - Mobile station locked." The
36 mobile station shall include all requested parameter blocks with the
37 BLOCK_LEN field set to '00000000'.
- 38 • If both SP_LOCK_STATE and NAM_LOCK_STATE are set to '0', then:

- 1 - If the mobile station does not support a requested parameter block, the
2 mobile station shall set RESULT_CODE in the corresponding returned
3 confirmation block to '00000111', "Rejected - BLOCK_ID value not
4 supported." The mobile station shall include the parameter block with the
5 BLOCK_LEN field set to '00000000'.
- 6 - If the requested data blocks exceed the allowable message length, the
7 mobile station shall set RESULT_CODE in the corresponding returned
8 confirmation block to '00000000', "Accepted - Operation successful" for each
9 Parameter Block included in the message. The mobile station shall include
10 data blocks, in the order requested, up to the maximum number of blocks
11 that fit into the message. If SECURE_MODE_IND_s = '1', the mobile station
12 shall set the FRESH_INCL field to '1', include the FRESH field and set it to a
13 15-bit value selected according to 3.3.8. The mobile station shall encrypt as
14 specified in 3.3.8 each PARAM_DATA field of all Parameter Blocks included
15 in the *MMS Configuration Response Message*. All the encrypted Parameter
16 Blocks and FRESH field shall fit into the *MMS Configuration Response*
17 *Message*.
- 18 - Otherwise, the mobile station shall set RESULT_CODE to '00000000',
19 "Accepted - Operation successful" for each Parameter Block included in the
20 corresponding confirmation block. The mobile station shall include
21 complete data blocks, in the order requested, in the *MMS Configuration*
22 *Response Message*. If SECURE_MODE_IND_s = '1', the mobile station shall set
23 the FRESH_INCL field to '1', and include the FRESH field and set it to a 15-
24 bit value selected according to 3.3.8. The mobile station shall encrypt as
25 specified in 3.3.8 each PARAM_DATA field of all Parameter Blocks included
26 in the *MMS Configuration Response Message*.

27 23. MMS Download Request Message: The mobile station shall respond to the
28 message with a *MMS Download Response Message* within 750 ms.

- 29 • If FRESH_INCL_r = '1', the mobile station shall set FRESH_s = FRESH_r. If the
30 SECURE_MODE_IND_s = '1', the mobile station shall decrypt as specified in 3.3.8
31 each PARAM_DATA field of all Parameter Blocks received in the *MMS Download*
32 *Request Message*.
- 33 • If the *MMS Download Request Message* contains an MMS URI Parameter Block
34 with a BLOCK_ID that is not supported by the mobile station, the mobile station
35 shall set BLOCK_ID to the received parameter block identifier and
36 RESULT_CODE to '00000111', "Rejected - BLOCK_ID value not supported"
- 37 • If the *MMS Download Request Message* contains an MMS URI Parameter Block
38 having a size different from that supported by the mobile station, the mobile
39 station shall set BLOCK_ID to the received parameter block identifier and
40 RESULT_CODE to '00000010', "Rejected - Data size mismatch"

- 1 • If the *MMS Download Request Message* contains an MMS URI Parameter Block
2 with a parameter value that is out-of-range, the mobile station shall set
3 BLOCK_ID to the received parameter block identifier and RESULT_CODE to
4 ‘00000100’, “Rejected - Invalid parameter”
- 5 • If the *MMS Download Request Message* contains a MMS URI Parameter Block
6 with a NUM_MMS_URI greater than that supported by the mobile station, the
7 mobile station shall set BLOCK_ID to the received parameter block identifier
8 and RESULT_CODE to ‘00101100’, “Rejected – NUM_MMS_URI mismatch”
- 9 • If the *MMS Download Request Message* contains a MMS URI Parameter Block
10 with any MMS_URI_LENGTH larger than that supported by the mobile station,
11 the mobile station shall set BLOCK_ID to the received parameter block identifier
12 and RESULT_CODE to ‘00101101’, “Rejected – MMS_URI_LENGTH mismatch;”
- 13 • If the *MMS Download Request Message* contains a MMS URI Parameter Block
14 with an invalid MMS_URI, the mobile station shall set BLOCK_ID to the
15 received parameter block identifier and RESULT_CODE to ‘00101110’, “Rejected
16 – Invalid MMS_URI”
- 17 • If the *MMS Download Request Message* is not accepted for any other reason, the
18 mobile station shall set BLOCK_ID to the received parameter block identifier
19 and RESULT_CODE to ‘00000001’, “Rejected – Unknown reason;”
- 20 • Otherwise, the mobile station shall store the message data in temporary
21 memory, set BLOCK_ID to the received parameter block identifier and set
22 RESULT_CODE to ‘00000000’, “Accepted – Operation successful.” If more than
23 one *MMS Download Request Message* or parameter block is received containing
24 values for the same indicators, the mobile station shall retain only the most
25 recently received values.

26

27 If the mobile station receives an *OTASP Data Message* that it does not recognize or which
28 requires a capability that is not supported, the mobile station shall discard the message
29 and shall send a *Mobile Station Reject Order* with ORDQ set to ‘00000110’ within T56m
30 seconds.

31 3.3.2 Mobile Station SSD Update and Re-authentication

32 Re-authentication is the process by which the mobile station is instructed to perform
33 authentication and generate the Private Long Code Mask (CDMA only) and Message
34 Encryption parameters while on the CDMA Traffic channel or analog voice channel. The
35 authentication key, A-key, may be generated by the mobile station during the
36 programming session. Shared Secret Data, SSD, is generated prior to performing re-
37 authentication.

38 If the mobile station has not generated an A-key during the present programming session
39 via the *Key Generation Request Message*, the mobile station shall follow the procedures
40 specified in 6.3.12 of [1] or 2.3.12 of [7] when performing an SSD update.

1 If the mobile station has correctly generated an A-key during the present programming
 2 session, the mobile station shall follow the procedures specified in 6.3.12 of [1] or 2.3.12 of
 3 [7] when performing an SSD update with the following exceptions:

- 4 • The mobile station shall use $A_KEY_TEMP_S$ as the A-key input.
- 5 • The mobile station shall store the SSD_A_NEW and SSD_B_NEW outputs in
 6 SSD_A_S and SSD_B_S , respectively, rather than in SSD_A_{S-p} and SSD_B_{S-p} .

7 Once SSD has been generated from $A_KEY_TEMP_S$, the mobile station shall use SSD_S
 8 instead of SSD_{S-p} until SSD_S is stored into SSD_{S-p} after receiving a *Commit Request*
 9 *Message*.

10 The authentication algorithms are described in “Common Cryptographic Algorithms.” The
 11 interface for the algorithms is described in “Interface Specification for Common
 12 Cryptographic Algorithms.” Re-authentication should be performed as follows:

13 In the mobile station,

- 14 • Set the input parameters of the Auth_Signature procedure (see 2.3 of
 15 “Interface Specification for Common Cryptographic Algorithms”) as follows
 - 16 - If the programming session was initiated by the network as described in
 17 3.2.2, the input parameters shall be set as defined in 6.3.12.1.7 of TIA/EIA-
 18 95B.
 - 19 - If the programming session was initiated by the user as described in 3.2.1,
 20 the input parameters shall be set as defined in 6.3.12.1.6 of TIA/EIA-95B.
- 21 • Execute the Auth_Signature procedure;
- 22 • Set $AUTHR_S$ equal to the 18-bit output $AUTH_SIGNATURE$;
- 23 • Send $AUTHR_S$, $RANDC$ (eight most significant bits of $RAND_S$), $AUTH_DATA_S$ and
 24 $COUNT_{S-p}$ to the base station in the *Re-Authenticate Response Message*.

25 At the base station,

- 26 • Compare the received values for $RANDC$, and optionally $COUNT$, with the
 27 internally stored values associated with the mobile station being activated;
- 28 • Compute $AUTHR$ as described above, except use the internally stored value of
 29 SSD_A ;
- 30 • Compare the value for $AUTHR$ computed internally with the value of $AUTHR$
 31 received from the mobile station.

32 If the comparisons executed at the base station are successful, the base station may
 33 activate Message Encryption (see 3.3.3) and may also activate Voice Privacy (see 3.3.4).
 34 The base station may issue a *Parameter Update Order* to the mobile station on the Forward
 35 Voice Channel or on the Forward Traffic Channel, updating the value of $COUNT_{S-p}$ in the
 36 mobile station.

37 If any of the comparisons fail, the base station may deny activation, initiate the Unique
 38 Challenge-Response Procedure (see 6.3.12.1.5 of [1] or 2.3.12.1.4 of [7]) or commence the
 39 process of updating SSD (see 6.3.12.1.5 of [1] or 2.3.12.1.9 of [7]).

3.3.3 Activation of Message Encryption

To enhance the security of the programming session and to protect sensitive subscriber information, a method is provided to encrypt certain fields of selected OTASP Traffic Channel and Forward and Reverse Voice Channel messages (see [7] for details).

Message encryption is controlled on a per-call basis.

If message encryption was activated (see 2.3.12.2.1 and 6.3.12.2 of [1] or 2.3.12.2 of [7]) or transition to the Private Long Code Mask was made (see 6.3.12.3 of [1] or 2.3.12.3 of [7]) before the re-authentication operation, the message encryption parameters active at that time shall remain unchanged for the duration of the call.

Otherwise, the message encryption parameters are re-calculated during the re-authentication operation. In this case, the data used to initialize the algorithm for calculating the message encryption parameters is computed based on parameters in effect at the time the AUTHR included in *Re-Authenticate Response Message* was computed.

3.3.4 Activation of Voice Privacy

To enhance the security of the programming session and to protect sensitive subscriber information, voice privacy is provided in the CDMA system (see 6.3.12.3 of [1] or 2.3.12.3 of [7]) by means of the Private Long Code Mask used for PN spreading.

The generation of the Private Long Code Mask is specified in [1, 7].

If transition to the Private Long Code Mask was made (see 6.3.12.3 of [1] or 2.3.12.3 of [7]), or if signaling message encryption was activated (see 2.3.12.2.1 and 6.3.12.2 of [1] or 2.3.12.2 of [7]) before the re-authentication operation, the Private Long Code Mask active at that time shall remain unchanged for the duration of the call.

Otherwise, the Private Long Code Mask shall be recalculated during the re-authentication operation. In this case, the data used to initialize the algorithm for calculating the Private Long Code Mask is computed based on parameters in effect at the time the AUTHR included in the *Re-Authenticate Response Message* was computed.

3.3.5 System Selection for Preferred Roaming

The goal of System Selection for Preferred Roaming (SSPR) is for the mobile station to acquire the most preferred system using the information from the preferred roaming list (PR_LIST_{S-p}) stored in the mobile station (see 3.5.5). Annex C contains information on the recommended use of the preferred roaming list.

3.3.6 Service Programming Lock

Access to the mobile station programming module containing NAM indicators and parameters (see 4.5.2, 4.5.3 and 4.5.4) that can be assigned values using Over-the-Air Service Provisioning is protected by the service programming lock. The service programming lock parameter contains the Service Programming Code (SPC) used for unlocking the mobile station parameters for programming or reprogramming.

The service programming lock based on a single SPC protects parameters of all NAMs in the mobile station.

1 The SPC has values defined in the Table 3.3.6-1.

2

Table 3.3.6-1 Service Programming Code Values

Service Programming Code Type	SPC Value
Default	0
Active	1 through 999,999

3 The mobile station should provide the user a means to program the mobile station to
 4 accept or deny the SPC change from the default value to a non-default value. The mobile
 5 station should be programmed by default to deny the SPC change from the default value
 6 to a non-default value.

7 When SPC is set to the default value, all programmable modules in the mobile station are
 8 unlocked, unless protected by SPASM (see 3.3.7). When programmable modules are
 9 unlocked, access and programming of all NAM indicators and parameters are allowed.

10 When SPC is set to any value other than the default value, the programming module in
 11 the mobile station is locked, and access to NAM indicators and parameters can be allowed
 12 only if correct value of the SPC is received from the base station within the current OTASP
 13 session.

14 3.3.7 Subscriber Parameter Administration Security Mechanism

15 In order to validate SPASM, the mobile station shall set the input parameters of the
 16 Auth_Signature procedure (see “Interface Specifications for Common Cryptographic
 17 Algorithms, section 2.3) as follows:

18 The mobile station shall set the RAND_CHALLENGE input parameter to the 32-bit random
 19 value that is sent to the base station in the RAND_OTAPA field of the *OTAPA Response*
 20 *Message*, the AUTH_DATA input parameter as defined in 6.3.12.1.7 of TIA/EIA-95B, the
 21 SSD_AUTH input parameter to the exclusive OR of SSD_A_{S-p} and A_KEY, the ESN input
 22 parameter to the mobile station ESN and the SAVE_REGISTERS input parameter to
 23 FALSE. If the mobile station only supports MEID, then Pseudo-ESN shall be used as the
 24 ESN.

25 The mobile station shall execute the Auth_Signature procedure. The AUTH_OTAPA_S is
 26 set to the computed 18-bit result AUTH_SIGNATURE.

27 Upon receiving the RAND_OTAPA from the mobile station in the *OTAPA Response*
 28 *Message*, the base station shall compute AUTH_OTAPA as described above with the
 29 exception of using the SSD_AUTH input parameter set to the exclusive OR of the
 30 internally stored value of SSD_A and A_KEY.

31 The AUTH_OTAPA is set to the computed 18-bit result AUTH_SIGNATURE and is sent to
 32 the mobile station in the Validate SPASM Parameter Block of the *Validation Request*
 33 *Message*.

34 The mobile station validates SPASM by comparing the AUTH_OTAPA_R received in the
 35 message to its locally computed value of the AUTH_OTAPA_S.

1 3.3.8 Secure Mode

2 To enhance security of the programming session and to protect sensitive subscriber
3 information, a method is provided to encrypt PARAM_DATA fields of Parameter Blocks in
4 OTASP messages irrespective of the air interface message encryption described in 3.3.3.
5 This method allows setting up a secure “tunnel” between the mobile station and the
6 network based Over-The-Air Service Provisioning entity.

7 If the mobile station supports Secure Mode, it shall indicate it to the base station in the
8 *Protocol Capability Response Message* by setting appropriate feature-related fields.

9 When the mobile station is unlocked, i.e. when both SP_LOCK_STATE_s and
10 NAM_LOCK_STATE_s are equal to ‘0’, the base station can initiate the Secure Mode by
11 sending the *Secure Mode Request Message* to the mobile station with the START_STOP
12 field set to ‘1’.

13 The mobile station shall use the RAND_SM_r received in the message and the SSD_{s-p} to
14 compute the Secure Mode Ciphering Key SMCK_s as specified in 3.3.8.1.

15 The mobile station shall use the SMCK_s as a key for encryption and decryption, as
16 specified in 3.3.8.2, of all PARAM-DATA of all Parameter Blocks sent and received by the
17 mobile station in the OTASP Data Messages while the Secure mode is active.

18 When encrypting the message, the mobile station shall select a value of FRESH associated
19 with this message and unique for the duration of Secure Mode session. The value of
20 FRESH can be selected at random, or can be set to a monotonically increasing counter.

21 When decrypting the message, the mobile station shall use the value of FRESH_r received
22 in the message.

23 The base station can terminate the Secure Mode by sending the *Secure Mode Request*
24 *Message* to the mobile station with the START_STOP field set to ‘0’. When Secure Mode
25 session is terminated, the mobile station shall reset the SMCK_s to NULL.

26 3.3.8.1 Generation of Secure Mode Ciphering Key

27 The Secure Mode Ciphering Key Generation SMCK_s is generated by the algorithmic
28 function specified in Section 2.2.2.6 of [8].

29 If KEY_IN_USE = ‘0000’, the input parameters to the algorithmic function *f3* shall be set as
30 follows:

- 31 • The K parameter shall be set to SSD-A_{s-p} | SSD-B_{s-p}.
- 32 • The fi parameter shall be set to 0x45.
- 33 • The RAND parameter shall be set to RAND_SM_r | RAND_SM_r.
- 34 • The Fmk parameter shall be set to 0x41484147.

35 If KEY_IN_USE = ‘0001’, the input parameters to the algorithmic function *f3* shall be set as
36 follows:

- 37 • The K parameter shall be set to the 128-bit Root Key K.
- 38 • The fi parameter shall be set to 0x45.

- 1 • The RAND parameter shall be set to RAND_SM_r|RAND_SM_r.
- 2 • The Fmk parameter shall be set to 0x41484147.

3 The mobile station shall execute the Ciphering Key Generation Procedure as specified in
4 2.2.2.6 of [8]. The mobile station shall set SMCK_s to the computed 128-bit output of *f3*.

5 The mobile station shall set input parameter to the *ESP_privacykey Procedure* as follows:

- 6 • The *key* parameter shall be set to SMCK_s.

7 The mobile station shall execute the *ESP_privacykey Procedure*.

8 3.3.8.2 Encryption and Decryption of messages in Secure Mode

9 Encryption and decryption of PARAM_DATA information is performed by the Enhanced
10 Privacy Algorithm specified in 2.3.2.2 of [8].

11 The mobile station shall set input parameters to the Enhanced Privacy Algorithm as
12 follows:

- 13
- 14 • If the mobile station presents the data for encryption, the mobile station shall set
15 the *fresh* parameter to FRESH|'0'|BLOCK_ID; otherwise, if the mobile station
16 presents the data for decryption, the mobile station shall set the *fresh* parameter
17 to FRESH_r|'1'|BLOCK_ID;
- 18 • The *freshsize* parameter shall be set to 3;
- 19 • The *buf* parameter shall be set to address of the octet containing the first bit of the
20 buffer that contains the data to be encrypted or decrypted.
- 21 • The *bit_offset* parameter shall be set to the offset between the bit position of the
22 most significant bit of the data to be encrypted/decrypted and the bit position of
23 the most significant bit of the buffer (e.g., if the bit position of the most significant
24 bit of the data to be encrypted/decrypted and the bit position of the most
25 significant bit of the buffer are equal, *bit_offset* shall be set to 0).
- 26 • The *bit_count* parameter shall be set to the number of bits of the data to be
27 encrypted/decrypted.

28 The mobile station shall execute the *ESP_maskbits Procedure*.

29 3.3.9 System Tag Indicator

30 The goal of the System Tag capability is to increase the functionality of the Roaming
31 Indicators (ROAM_IND) listed within the Preferred Roaming List. This capability allows the
32 downloading and synchronization of a file of operator-customizable roaming indicators,
33 tailored to the specific capabilities of the mobile station, representing the operator-specific
34 roaming indicators.

35 Once configured with a compatible System Tag file associated with the Preferred Roaming
36 List stored within the mobile station, the mobile station shall determine the roaming
37 indicator (ROAM_IND) listed within the System Record or Extended System Record entry

1 (see 3.5.5.3.1 and 3.5.5.3.2, respectively) corresponding to the SID of the system in which
2 the mobile station is operating. The mobile station shall then use this ROAM_IND to
3 determine the appropriate user interface actions (graphical and/or textual display) to take
4 as defined by the corresponding ROAM_IND entry within the System Tag file.

5 3.3.10 Generation of Service Keys

6 Generation of service keys consists of generating an intermediate key and using the
7 intermediate key to generate service keys.

8 3.3.10.1 Generation of Intermediate Key

9 The Intermediate value ITM RAND is generated by the algorithmic function specified in
10 Section 2.2.2.2 of [8].

11 The input parameters to the algorithmic function f_0 shall be set as follows:

- 12 • The K parameter shall be set to RK_p .
- 13 • The f_i parameter shall be set to 0x41.
- 14 • The Fmk parameter shall be set to 0x534B474B.

15 The mobile station shall execute f_0 twice. ITM RAND is set to the 128-bit output of f_0 .

16 3.3.10.2 Generation of Service Keys

17 For each bit in the bitmap as illustrated in Table 4.5.1.17-1 that is turned on, the base
18 station shall generate the service key by invoking the key generation function as specified
19 in Section 2.2.2.6 of [8].

20 The input parameters to the algorithmic function f_3 shall be set as follows:

- 21 • The K parameter shall be set to ITM RAND.
- 22 • The f_i parameter shall be set to 0x45.
- 23 • The RAND parameter shall be set according to table 4.3.6.2-1, with remaining least
24 significant bits padded with '0', for each service requested.
- 25 • The Fmk parameter shall be set to 0x534B474B.

26 The mobile station shall execute f_3 to produce 128-bit service root key.

Table 3.3.10.2-1 Key Identifier Table

Service Key Requested	RAND Value
IMS ROOT KEY	0x494D53
BCMCS ROOT KEY	0x42434D4353
WLAN ROOT KEY	0x574C414E

3.4 Termination of the Programming Procedure

If the mobile station does not support concurrent services, if the mobile station enters any substate or task other than the CDMA *Conversation Substate* or the analog *Conversation Task*, the mobile station shall terminate the programming session.

Following a CDMA-to-analog handoff, the mobile station may terminate the programming session; however, the mobile station shall not autonomously release the call.

If the mobile station receives more than five *Validation Request Messages* during the same programming session with the SPC_r value not equal to the SPC_p , the mobile station should terminate the programming session and should not begin another session until after the mobile station power is cycled.

If more than five validations of SPASM (see 3.3.7) result in a mismatch during the same programming session, the mobile station should terminate the programming session and should not begin another session until after the mobile station power is cycled.

The mobile station shall provide a means for the user to end the programming session. If the user directs the mobile station to end the programming process, the mobile station shall release the call and shall terminate the programming session.

If the programming session was initiated by the network as described in 3.2.2, and if the mobile station is directed by the user to initiate a call during the OTAPA session, the mobile station may initiate the call by sending an Enhanced Origination Message if both mobile station and the base station supports concurrent service; otherwise, the mobile station shall terminate the OTAPA session and release the OTAPA call prior to proceeding with the origination procedure.

If the mobile station receives the *OTAPA Request Message* with the $START_STOP_r$ equal to '0', it shall terminate the OTAPA session.

If the programming session is terminated, the mobile station shall discard all the NAM indicator values that are not stored in permanent memory.

1 **3.5 Reverse Link Message Formats**

2 The reverse link *OTASP Data Messages* are summarized in Table 3.5-1.

3 **Table 3.5-1 Reverse Link Messages**

Message Name	OTASP_MSG_TYPE	Reference
<i>Configuration Response Message</i>	'00000000'	3.5.1.1
<i>Download Response Message</i>	'00000001'	3.5.1.2
<i>MS Key Response Message</i>	'00000010'	3.5.1.3
<i>Key Generation Response Message</i>	'00000011'	3.5.1.4
<i>Re-Authenticate Response Message</i>	'00000100'	3.5.1.5
<i>Commit Response Message</i>	'00000101'	3.5.1.6
<i>Protocol Capability Response Message</i>	'00000110'	3.5.1.7
<i>SSPR Configuration Response Message</i>	'00000111'	3.5.1.8
<i>SSPR Download Response Message</i>	'00001000'	3.5.1.9
<i>Validation Response Message</i>	'00001001'	3.5.1.10
<i>OTAPA Response Message</i>	'00001010'	3.5.1.11
<i>PUZL Configuration Response Message</i>	'00001011'	3.5.1.12
<i>PUZL Download Response Message</i>	'00001100'	3.5.1.13
<i>3GPD Configuration Response Message</i>	'00001101'	3.5.1.14
<i>3GPD Download Response Message</i>	'00001110'	3.5.1.15
<i>Secure Mode Response Message</i>	'00001111'	3.5.1.16
<i>Extended Protocol Capability Response Message</i>	'00010000'	3.5.1.17
<i>MMD Configuration Response Message</i>	'00010001'	3.5.1.18
<i>MMD Download Response Message</i>	'00010010'	3.5.1.19
<i>System Tag Configuration Response Message</i>	'00010011'	3.5.1.20

<i>System Tag Download Response Message</i>	'00010100'	3.5.1.21
<i>Service Key Generation Response Message</i>	'00010101'	3.5.1.22
<i>MMS Configuration Response Message</i>	'00010110'	3.5.1.23
<i>MMS Download Response Message</i>	'00010111'	3.5.1.24
Reserved for future standardization	'00011000' through '10111111'	
Available for manufacturer-specific <i>OTASP Data Message</i> definition	'11000000' through '11111110'	See [4]
Reserved	'11111111'	

1 3.5.1 Message Contents

2 3.5.1.1 Configuration Response Message

3 The *Configuration Response Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000000')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

NUM_BLOCKS occurrences of the following field

RESULT_CODE	8
-------------	---

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

4

- 5 OTASP_MSG_TYPE - *OTASP Data Message* type.
- 6 The mobile station shall set this field to '00000000'.
- 7 NUM_BLOCKS - Number of parameter blocks.
- 8 The mobile station shall set this field to the number of
- 9 parameter blocks contained in the *Configuration Response*
- 10 *Message*.
- 11 BLOCK_ID - Parameter block identifier.
- 12 The mobile station shall set this field to the value of the
- 13 BLOCK_ID field of the corresponding parameter block in the
- 14 *Configuration Request Message* that is being confirmed (see
- 15 Table 3.5.2-1).
- 16 BLOCK_LEN - Parameter block length.
- 17 The mobile station shall set this field to the number of octets
- 18 in the parameter block, not including the BLOCK_ID and
- 19 BLOCK_LEN fields.
- 20 PARAM_DATA - Parameter data fields.
- 21 The mobile station shall include the parameter block (see
- 22 3.5.2) specified by the BLOCK_ID field. If SECURE_MODE_IND_S
- 23 = '1', PARAM_DATA fields shall be encrypted as specified in
- 24 3.3.8.

- 1 RESULT_CODE - Configuration result code.
- 2 The mobile station shall include one instance of this field for
- 3 each parameter block included in the message, in the same
- 4 order of appearance. The mobile station shall set this field to
- 5 indicate acceptance or rejection status of the request for the
- 6 corresponding parameter block in the *Configuration Request*
- 7 *Message*, using the values defined in Table 3.5.1.2-1.
- 8 FRESH_INCL - FRESH included indicator.
- 9 If SECURE_MODE_IND_s = '1', the mobile station shall set this
- 10 field to '1'; otherwise the mobile station shall set this field to
- 11 '0'.
- 12 FRESH - Cryptographic Synchronizer (crypto-sync) selected for
- 13 encrypting PARAM_DATA fields of the message.
- 14 If FRESH_INCL = '1', the mobile station shall include this field
- 15 and set it to a 15-bit value chosen according to requirements
- 16 set in 3.3.8 for encrypting the PARAM_DATA fields of all
- 17 Parameter Data blocks included in the message; otherwise
- 18 the mobile station shall omit this field.
- 19 RESERVED - Reserved bits.
- 20 If FRESH_INCL = '1', the mobile station shall omit this field;
- 21 otherwise, the mobile station shall set all the bits of this field
- 22 to '0'.

23 3.5.1.2 Download Response Message

24 The *Download Response Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000001')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following confirmation block:

BLOCK_ID	8
RESULT_CODE	8

- 25 OTASP_MSG_TYPE - *OTASP Data Message* type.
- 26 The mobile station shall set this field to '00000001'.
- 27 NUM_BLOCKS - Number of parameter blocks.
- 28 The mobile station shall set this field to the number of
- 29 parameter blocks contained in the *Download Request*
- 30 *Message* that is being confirmed.
- 31 BLOCK_ID - Parameter block identifier.

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Table 3.5.1.2-1 Result Codes

RESULT_CODE	Message Parameter Description
'00000000'	Accepted - Operation successful
'00000001'	Rejected - Unknown reason
'00000010'	Rejected - Data size mismatch
'00000011'	Rejected - Protocol version mismatch
'00000100'	Rejected - Invalid parameter
'00000101'	Rejected - SID/NID length mismatch
'00000110'	Rejected - Message not expected in this mode
'00000111'	Rejected - BLOCK_ID value not supported
'00001000'	Rejected - Preferred roaming list length mismatch
'00001001'	Rejected - CRC error
'00001010'	Rejected - Mobile station locked
'00001011'	Rejected - Invalid SPC
'00001100'	Rejected - SPC change denied by the user
'00001101'	Rejected - Invalid SPASM
'00001110'	Rejected - BLOCK_ID not expected in this mode
'00001111'	Rejected - User Zone already in PUZL
'00010000'	Rejected - User Zone not in PUZL
'00010001'	Rejected - No entries in PUZL
'00010010'	Rejected - Operation Mode mismatch
'00010011'	Rejected - SimpleIP MAX_NUM_NAI mismatch
'00010100'	Rejected - SimpleIP MAX_NAI_LENGTH mismatch
'00010101'	Rejected - MobileIP MAX_NUM_NAI mismatch
'00010110'	Rejected - MobileIP MAX_NAI_LENGTH mismatch
'00010111'	Rejected - SimpleIP PAP MAX_SS_LENGTH mismatch
'00011000'	Rejected - SimpleIP CHAP MAX_SS_LENGTH mismatch
'00011001'	Rejected - MobileIP MAX_MN-AAA_SS_LENGTH mismatch
'00011010'	Rejected - MobileIP MAX_MN-HA_SS_LENGTH mismatch

'00011011'	Rejected - MobileIP MN- AAA_AUTH_ALGORITHM mismatch
'00011100'	Rejected - MobileIP MN- HA_AUTH_ALGORITHM mismatch
'00011101'	Rejected - SimpleIP ACT_NAI_ENTRY_INDEX mismatch
'00011110'	Rejected - MobileIP ACT_NAI_ENTRY_INDEX mismatch
'00011111'	Rejected - SimpleIP PAP NAI_ENTRY_INDEX mismatch
'00100000'	Rejected - SimpleIP CHAP NAI_ENTRY_INDEX mismatch
'00100001'	Rejected - MobileIP NAI_ENTRY_INDEX mismatch
'00100010'	Rejected - Unexpected PRL_BLOCK_ID change
'00100011'	Rejected - PRL format mismatch
'00100100'	Rejected - HRPD Access Authentication MAX_NAI_LENGTH mismatch
'00100101'	Rejected - HRPD Access Authentication CHAP MAX_SS_LENGTH mismatch

'00100110'	Rejected – MMD MAX_NUM_IMPU mismatch
'00100111'	Rejected – MMD MAX_IMPU_LENGTH mismatch
'00101000'	Rejected – MMD MAX_NUM_P-CSCF mismatch
'00101001'	Rejected – MMD MAX_P-CSCF_LENGTH mismatch
'00101010'	Rejected – Unexpected System Tag BLOCK_ID Change
'00101011'	Rejected – System Tag Format mismatch
'00101100'	Rejected – NUM_MMS_URI mismatch
'00101101'	Rejected – MMS_URI_LENGTH mismatch
'00101110'	Rejected – Invalid MMS_URI
'00101111' - '01111111'	Reserved for future standardization
'10000000' - '11111110'	Available for manufacturer-specific Result Code definitions. See [4].
'11111111'	Reserved

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2 3.5.1.3 MS Key Response Message

3 The *MS Key Response Message* has the following fixed-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000010')	8
RESULT_CODE	8

4

5 OTASP_MSG_TYPE - *OTASP Data Message* type.

6 The mobile station shall set this field to '00000010'.

7 RESULT_CODE - Key exchange result code.

8 The mobile station shall set this field to indicate acceptance
9 or rejection status, using the values defined in Table 3.5.1.2-
10 1.

11 3.5.1.4 Key Generation Response Message

12 The *Key Generation Response Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('0000011')	8
RESULT_CODE	8
MS_RESULT_LEN	8
MS_RESULT	8 × MS_RESULT_LEN

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- OTASP_MSG_TYPE - *OTASP Data Message* type.
The mobile station shall set this field to '0000011'.
- RESULT_CODE - Key exchange result code.
The mobile station shall set this field to indicate acceptance or rejection status, using the values defined in Table 3.5.1.2-1.
- MS_RESULT_LEN - Length of MS_RESULT field.
The mobile station shall set this field to the number of octets in the MS_RESULT field.
- MS_RESULT - Mobile station calculation result.
If A_KEY_P_REV received in the *MS Key Request Message* is equal to '0000010', the mobile station shall set this field equal to the value of MS_RESULT as described in 5.1.2. If A_KEY_P_REV received in the *MS Key Request Message* is equal to '0000011' or '00000100', the mobile station shall set this field equal to the value of MS_RESULT as described in 5.3.2. If A_KEY_P_REV received in the *MS Key Request Message* is equal to '00000101', the mobile station shall set this field to the value of MS_RESULT as described in 5.5.2.

3.5.1.5 Re-Authenticate Response Message

The *Re-Authenticate Response Message* has the following fixed-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000100')	8
AUTHR	18
RANDC	8
COUNT	6
AUTH_DATA	24

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27

- OTASP_MSG_TYPE - *OTASP Data Message* type.
The mobile station shall set this field to '00000100'.
- AUTHR - Authentication signature data.

1		The mobile station shall set this field to '00000110'.
2	MOB_FIRM_REV	- Mobile station firmware revision number.
3		The mobile station shall set this field to the value of the
4		MOB_FIRM_REV _p permanent mobile station indicator (see
5		F.2.1 of [1, 7]).
6	MOB_MODEL	- Mobile station manufacturer's model number.
7		The mobile station shall set this field to the value of the
8		MOB_MODEL _p permanent mobile station indicator (see F.2.1
9		of [1, 7]).
10	NUM_FEATURES	- Number of Features.
11		The mobile station shall set this field to the number of
12		features supported by the mobile station using the OTASP
13		protocol.
14	FEATURE_ID	- Feature Identifier.
15		The mobile station shall set this field according to Table
16		3.5.1.7-1 to indicate the feature supported by the mobile
17		station.
18	FEATURE_P_REV	- Feature protocol version.
19		The mobile station shall set this field according to Table
20		3.5.1.7-1 to indicate the protocol version of the feature
21		supported by the mobile station.
22		

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Table 3.5.1.7-1 Feature Identifier

Features	FEATURE_ID	FEATURE_P_REV	FEATURE_P_REV Description
NAM Download (DATA_P_REV)	'00000000'	'00000010'	NAM Download as specified in this document
Key Exchange (A_KEY_P_REV)	'00000001'	'00000010'	A key provisioning as specified in this document
		'00000011'	A key and 3G Root Key provisioning as specified in this document
		'00000100'	3G Root Key provisioning as specified in this document
		'00000101'	Enhanced 3G Root Key provisioning as specified in this document
		'00000110'	Service Key Generation as specified in this document
System Selection for Preferred Roaming (SSPR_P_REV)	'00000010'	'00000001'	System Selection for Preferred Roaming using Preferred Roaming List
		'00000010'	Reserved
		'00000011'	System Selection for Preferred Roaming using Extended Preferred Roaming List associated with SSPR_P_REV of '00000011'
Service Programming Lock (SPL_P_REV)	'00000011'	'00000001'	Service Programming Lock as specified in this document
Over-The-Air Parameter Administration (OTAPA_P_REV)	'00000100'	'00000001'	Over-The-Air Parameter Administration as specified in this document
Preferred User Zone List (PUZL_P_REV)	'00000101'	'00000001'	Preferred User Zone List as specified in this document

3G Packet Data (3GPD)	'00000110'	'00000010'	3G Packet Data as specified in this document
Secure MODE (SECURE_MODE_P_REV)	'00000111'	'00000001'	Secure Mode as specified in this document when root key K is not available
		'00000010'	Secure Mode as specified in this document when root key K is available
Multimedia Domain (MMD)	'00001000'	'00000001'	MMD as specified in this document
System Tag Download (TAG_P_REV)	'00001001'	'00000001'	System Tag Download as specified in this document
Multimedia Messaging Service (MMS)	'00001010'	'00000001'	MMS as specified in this document
Reserved for future standardization	'00001011' through '10111111'		
Available for manufacturer-specific features	'11000000' through '11111110'	See [4]	
Reserved	'11111111'		

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- ADD_LENGTH - Number of octets in the additional fields.
The mobile station shall set this field to the number of octets included in the Additional fields.
- Additional fields - Additional fields.
The mobile station shall include the following field as the first octet of the additional fields.

Field	Length (bits)
BAND_MODE_CAP	8

- BAND_MODE_CAP - Band/mode Capability Information.

The mobile station shall set this field to indicate band and mode capabilities supported by the mobile station. This field consists of the fields as shown in Table 3.5.1.7-2. The mobile station shall set each field to '1' if the corresponding band/mode is supported by the mobile station; otherwise, the mobile station shall set the corresponding field to '0'. All bits of the RESERVED field of the BAND_MODE_CAP field shall be set to '0'.

Table 3.5.1.7-2 Band/mode Capability Information

Description	Length (bits)
Band Class 0 Analog	1
Band Class 0 CDMA	1
Band Class 1 CDMA	1
Band Class 3 CDMA	1
Band Class 6 CDMA	1
RESERVED	3

3.5.1.8 SSPR Configuration Response Message

The *SSPR Configuration Response Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000111')	8
BLOCK_ID	8
RESULT_CODE	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN
FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

OTASP_MSG_TYPE - *OTASP Data Message* type.

The mobile station shall set this field to '00000111'.

BLOCK_ID - Parameter Block identifier.

The mobile station shall set this field to the value of the BLOCK_ID of the parameter block being returned in this message (see Table 3.5.3-1).

- 1 RESULT_CODE - SSPR Configuration result code.
- 2 The mobile station shall set this field to indicate acceptance
- 3 or rejection status of the request for corresponding
- 4 parameter block in the *SSPR Configuration Request Message*,
- 5 using the values defined in Table 3.5.1.2-1.
- 6 BLOCK_LEN - Parameter block length.
- 7 The mobile station shall set this field to the number of octets
- 8 in the parameter block, not including the BLOCK_ID and
- 9 BLOCK_LEN fields.
- 10 PARAM_DATA - Parameter block data.
- 11 The mobile station shall include the parameter block
- 12 specified by the BLOCK_ID field. If SECURE_MODE_IND_S = '1',
- 13 PARAM_DATA fields shall be encrypted as specified in 3.3.8.
- 14 FRESH_INCL - FRESH included indicator.
- 15 If SECURE_MODE_IND_S = '1', the mobile station shall set this
- 16 field to '1'; otherwise the mobile station shall set this field to
- 17 '0'.
- 18 FRESH - Cryptographic Synchronizer (crypto-sync) selected for
- 19 encrypting PARAM_DATA fields of the message.
- 20 If FRESH_INCL = '1', the mobile station shall include this field
- 21 and set it to a 15-bit value chosen according to requirements
- 22 set in 3.3.8 for encrypting the PARAM_DATA fields of all
- 23 Parameter Data blocks included in the message; otherwise
- 24 the mobile station shall omit this field.
- 25 RESERVED - Reserved bits.
- 26 If FRESH_INCL = '1', the mobile station shall omit this field;
- 27 otherwise, the mobile station shall set all the bits of this
- 28 field to '0'.

29 3.5.1.9 SSPR Download Response Message

30 The *SSPR Download Response Message* has the following variable-length format:

31

Field	Length (bits)
OTASP_MSG_TYPE ('00001000')	8
BLOCK_ID	8
RESULT_CODE	8

32 If the BLOCK_ID being confirmed is either '00000000'

33 (Preferred Roaming List) or '00000001' (Extended Preferred

34 Roaming List), the mobile station shall also include the

35 following fields:

SEGMENT_OFFSET	16
SEGMENT_SIZE	8

1

2

OTASP_MSG_TYPE - *OTASP Data Message* type.

3

The mobile station shall set this field to '00001000'.

4

BLOCK_ID SSPR Parameter block identifier.

5

The mobile station shall set this field to the value of the BLOCK_ID field of the parameter block in the *SSPR Download Request Message* that is being confirmed (see Table 4.5.3-1).

6

7

8

RESULT_CODE - SSPR Download result code.

9

The mobile station shall set this field to indicate acceptance or rejection status of the parameter block in the *SSPR Download Request Message* that is being confirmed, using the values defined in Table 3.5.1.2-1.

10

11

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13

SEGMENT_OFFSET - Segment offset.

14

If the BLOCK_ID is either '00000000' (Preferred Roaming List) or '00000001' (Extended Preferred Roaming List), the mobile station shall include and set this field to the value of SEGMENT_OFFSET from the *SSPR Download Request Message* that is being confirmed; otherwise, the mobile station shall omit this field (See *SSPR Download Request Message* processing in 3.3.1 for more details).

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21

SEGMENT_SIZE - Segment size.

22

If the BLOCK_ID is either '00000000' (Preferred Roaming List) or '00000001' (Extended Preferred Roaming List), the mobile station shall include and set this field to the number of octets of the preferred roaming list (PR_LIST_{s-p}) included in SEGMENT_DATA of the *SSPR Download Request Message* that is being confirmed; otherwise, the mobile station shall omit this field (See *SSPR Download Request Message* processing in 3.3.1 for more details).

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3.5.1.10 Validation Response Message

32

The *Validation Response Message* shall have the following variable-length format:

1

Field	Length (bits)
OTASP_MSG_TYPE ('00001001')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
RESULT_CODE	8

2

3

OTASP_MSG_TYPE - OTASP Data Message type.

4

The mobile station shall set this field to '00001001'.

5

NUM_BLOCKS - Number of parameter blocks.

6

The mobile station shall set this field to the number of parameter blocks contained in the *Validation Request Message* that is being confirmed.

7

8

9

BLOCK_ID - Parameter block identifier.

10

The mobile station shall set this field to the value of the BLOCK_ID field of the corresponding parameter block in the *Validation Request Message* that is being confirmed (see Table 4.5.4-1).

11

12

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14

RESULT_CODE - Service programming lock result code.

15

The mobile station shall set this field to indicate acceptance or rejection status of the corresponding parameter block in the *Validation Request Message* that is being confirmed, using the values defined in Table 3.5.1.2-1.

16

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20 3.5.1.11 OTAPA Response Message

21

The *OTAPA Response Message* shall have the following variable-length format:

22

Field	Length (bits)
OTASP_MSG_TYPE ('00001010')	8
RESULT_CODE	8
RESERVED	7
NAM_LOCK_IND	1
RAND_OTAPA	0 or 32

23

24

OTASP_MSG_TYPE - OTASP Data Message type.

- 1 The mobile station shall set this field to '00001010'.
- 2 RESULT_CODE - OTAPA result code.
- 3 The mobile station shall set this field using the values
4 defined in Table 3.5.1.2-1.
- 5 RESERVED - Reserved field.
- 6 The mobile station shall set this field to '0000000'
- 7 NAM_LOCK_IND - NAM_LOCK indicator.
- 8 If the mobile station is sending this message in response to
9 the *OTAPA Request Message* containing the START_STOP
10 field equal to '1', the mobile station shall set this field to '1' if
11 the indicators and parameters of the active NAM are secured
12 by SPASM (see 3.3.7); otherwise, the mobile station shall set
13 this field to '0'.
- 14 If the mobile station is sending this message in response to
15 the *OTAPA Request Message* containing the START_STOP
16 field equal to '0', the mobile station shall set this field to '0'.
- 17 RAND_OTAPA - SPASM random challenge.
- 18 If the NAM_LOCK_IND is equal to '1', the mobile station shall
19 set this field as specified in 3.3.7; otherwise, the mobile
20 station shall omit this field.
- 21

22 3.5.1.12 PUZL Configuration Response Message

23 The *PUZL Configuration Response Message* shall have the following variable-length format:

24

Field	Length (bits)
OTASP_MSG_TYPE ('00001011')	8
BLOCK_ID	8
RESULT_CODE	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN
FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

25

- 26 OTASP_MSG_TYPE - *OTASP Data Message* type.
- 27 The mobile station shall set this field to '00001011'.
- 28 BLOCK_ID - Parameter block identifier.

1			The mobile station shall set this field to the value of the
2			BLOCK_ID field of the corresponding parameter block in the
3			<i>PUZL Configuration Request Message</i> that is being confirmed
4			(see Table 3.5.6-1).
5	BLOCK_LEN	-	Parameter block length.
6			The mobile station shall set this field to the number of octets
7			in the parameter block, not including the BLOCK_ID and
8			BLOCK_LEN fields.
9	PARAM_DATA	-	Parameter data fields.
10			The mobile station shall include the parameter block
11			specified by the BLOCK_ID field. If SECURE_MODE_IND _s = '1',
12			PARAM_DATA field shall be encrypted as specified in 3.3.8.
13	FRESH_INCL	-	FRESH included indicator.
14			If the mobile station supports Secure Mode and if
15			SECURE_MODE_IND _s = '1', the mobile station shall set this
16			field to '1'; otherwise the mobile station shall set this field to
17			'0'.
18	FRESH	-	Cryptographic Synchronizer (crypto-sync) selected for
19			encrypting PARAM_DATA fields of the message.
20			If the mobile station supports Secure Mode,
21			SECURE_MODE_IND _s = '1', and FRESH_INCL = '1', the mobile
22			station shall include this field and set it to a 15-bit value
23			chosen according to requirements set in 3.3.8 for encrypting
24			the PARAM_DATA fields of all Parameter Data blocks
25			included in the message; otherwise the mobile station shall
26			omit this field.
27	RESERVED	-	Reserved bits.
28			If FRESH_INCL = '1', the mobile station shall omit this field;
29			otherwise, the mobile station shall set all the bits of this field
30			to '0'.
31	RESULT_CODE	-	Configuration result code.
32			The mobile station shall include one instance of this field for
33			each parameter block included in the message, in the same
34			order of appearance. The mobile station shall set this field to
35			indicate acceptance or rejection status of the request for the
36			corresponding parameter block in the <i>PUZL Configuration</i>
37			<i>Request Message</i> , using the values defined in Table 3.5.1.2-1.

38

39 3.5.1.13 PUZL Download Response Message

40 The *PUZL Download Response Message* shall have the following variable-length format:

41

Field	Length (bits)
OTASP_MSG_TYPE ('00001100')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
RESULT_CODE	8
IDS_PRESENT	1
UZ_ID	0 or 16
UZ_SID	0 or 15
RESERVED	0 or 7

- 1
- 2 OTASP_MSG_TYPE - OTASP Data Message type.
- 3 The mobile station shall set this field to '00001100'.
- 4 NUM_BLOCKS - Number of parameter blocks.
- 5 The mobile station shall set this field to the number of
- 6 parameter blocks contained in the *PUZL Download Response*
- 7 *Message*.
- 8 BLOCK_ID - Parameter block identifier.
- 9 The mobile station shall set this field to the value of the
- 10 BLOCK_ID field of the corresponding parameter block in the
- 11 *PUZL Download Request Message* that is being confirmed (see
- 12 Table 4.5.6-1).
- 13 RESULT_CODE - PUZL Download result code.
- 14 The mobile station shall set this field to indicate acceptance
- 15 or rejection status of the corresponding parameter block in
- 16 the *PUZL Download Request Message* that is being confirmed,
- 17 using the values defined in Table 3.5.1.2-1.
- 18 IDS_PRESENT - Identifiers present flag.
- 19 The mobile station shall set this field to indicate whether or
- 20 not the UZ_ID and UZ_SID fields are included in the
- 21 parameter block. If the UZ_ID and UZ_SID fields are included,
- 22 IDS_PRESENT = '1'; otherwise, IDS_PRESENT = '0'.
- 23 UZ_ID - User Zone ID.
- 24 Identification number for the User Zone. This is used over the
- 25 air interface to identify the User Zone to the network and the
- 26 mobile station.
- 27 UZ_SID - User Zone System ID.
- 28 The System Identifier (SID) associated with the User Zone ID.
- 29 The User Zone ID and User Zone SID values together provide a
- 30 unique identifier for the user zone.

1 RESERVED - Reserved bits.

2

3 3.5.1.14 3GPD Configuration Response Message

4 The *3GPD Configuration Response Message* has the following variable-length format:

5

Field	Length (bits)
OTASP_MSG_TYPE ('00001101')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN
RESULT_CODE	8

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

6

7 OTASP_MSG_TYPE - *OTASP Data Message* type.

8 The mobile station shall set this field to '00001101'.

9 NUM_BLOCKS - Number of parameter blocks.

10 The mobile station shall set this field to the number of
11 parameter blocks contained in the *3GPD Configuration*
12 *Response Message*.

13 The mobile station shall set NUM_BLOCKS occurrences of the following fields:

14 BLOCK_ID - Parameter block identifier.

15 The mobile station shall set this field to the value of the
16 BLOCK_ID field of the corresponding parameter block in the
17 *3GPD Configuration Request Message* that is being confirmed
18 (see Table 3.5.8-1).

19 BLOCK_LEN - Parameter block length.

20 The mobile station shall set this field to the number of octets
21 in the parameter block, not including the BLOCK_ID and
22 BLOCK_LEN fields.

23 PARAM_DATA - Parameter data fields.

- 1 The mobile station shall include the parameter block (see
 2 3.5.8) specified by the BLOCK_ID field. If
 3 SECURE_MODE_IND_S = '1', PARAM_DATA fields shall be
 4 encrypted as specified in 3.3.8.
- 5 RESULT_CODE - Configuration result code.
- 6 The mobile station shall set this field to indicate acceptance
 7 or rejection status of the request for the corresponding
 8 parameter block in the *3GPD Configuration Request Message*,
 9 using the values defined in Table 3.5.1.2-1.
- 10 FRESH_INCL - FRESH included indicator.
- 11 If SECURE_MODE_IND_S = '1', the mobile station shall set this
 12 field to SECURE_MODE_IND; otherwise the mobile station
 13 shall set this field to '0'.
- 14 FRESH - Cryptographic Synchronizer (crypto-sync) selected for
 15 encrypting PARAM_DATA fields of the message.
- 16 If FRESH_INCL = '1', the mobile station shall include this field
 17 and set it to a 15-bit value chosen according to requirements
 18 set in 3.3.8 for encrypting the PARAM_DATA fields of all
 19 Parameter Data blocks included in the message; otherwise
 20 the mobile station shall omit this field.
- 21 RESERVED - Reserved bits.
- 22 If FRESH_INCL = '1', the mobile station shall omit this field;
 23 otherwise, the mobile station shall set all the bits of this field
 24 to '0'.

25

26 3.5.1.15 3GPD Download Response Message

27 The *3GPD Download Response Message* has the following variable-length format:

28

Field	Length (bits)
OTASP_MSG_TYPE ('00001110')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following confirmation block:

BLOCK_ID	8
RESULT_CODE	8

- 29 OTASP_MSG_TYPE - *OTASP Data Message* type.
- 30 The mobile station shall set this field to '00001110'.
- 31 NUM_BLOCKS - Number of parameter blocks.

1 The mobile station shall set this field to the number of
 2 parameter blocks contained in the 3GPD *Download Request*
 3 *Message* that is being confirmed.

4 The mobile station shall set NUM_BLOCKS occurrences of the following fields:

5 BLOCK_ID - Parameter block identifier.

6 The mobile station shall set this field to the value of the
 7 BLOCK_ID field of the corresponding parameter block in the
 8 3GPD *Download Request Message* that is being confirmed (see
 9 Table 4.5.7-1).

10 RESULT_CODE - Download result code.

11 The mobile station shall set this field to indicate acceptance
 12 or rejection status of the corresponding parameter block in
 13 the 3GPD *Download Request Message* that is being confirmed,
 14 using the values defined in Table 3.5.1.2-1.

15 3.5.1.16 Secure Mode Response Message

16 The *Secure Mode Response Message* shall have the following variable-length format:

17

Field	Length (bits)
OTASP_MSG_TYPE ('00001111')	8
RESULT_CODE	8

18

19 OTASP_MSG_TYPE - *OTASP Data Message* type.

20 The mobile station shall set this field to '00001111'.

21 RESULT_CODE - Secure Mode result code.

22 The mobile station shall set this field using the values
 23 defined in Table 3.5.1.2-1.

24 The mobile station shall add reserved bits, if necessary, in order to make the length of the
 25 entire parameter block equal to an integer number of octets. The mobile station shall set
 26 these bits to '0000000'.

27 3.5.1.17 Extended Protocol Capability Response Message

28 The *Extended Protocol Capability Response Message* has the following variable-length
 29 format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010000')	8
OTASP_MOB_P_REV	8
MOB_FIRM_REV	16
MOB_MODEL	8
NUM_FEATURES	8

NUM_FEATURES occurrences of the following features:

FEATURE_ID	8
FEATURE_P_REV	8

NUM_CAP_RECORDS	8
-----------------	---

NUM_CAP_RECORDS occurrences of the following records:

CAP_RECORD_TYPE	8
CAP_RECORD_LEN	8
Type-specific field	8 × RECORD_LEN

1

- 2 OTASP_MSG_TYPE - OTASP Data Message type.
3 The mobile station shall set this field to '00010000'.
- 4 OTASP_MOB_P_REV - OTASP Mobile Protocol Revision.
5 The mobile station shall set this field to '00000100'.
- 6 MOB_FIRM_REV - Mobile station firmware revision number.
7 The mobile station shall set this field to the value of the
8 MOB_FIRM_REV_p permanent mobile station indicator (see
9 F.2.1 of [1, 7]).
- 10 MOB_MODEL - Mobile station manufacturer's model number.
11 The mobile station shall set this field to the value of the
12 MOB_MODEL_p permanent mobile station indicator (see F.2.1
13 of [1, 7]).
- 14 NUM_FEATURES - Number of Features.
15 The mobile station shall set this field to the number of
16 features supported by the mobile station using the OTASP
17 protocol.
- 18 FEATURE_ID - Feature Identifier.
19 The mobile station shall set this field according to Table
20 3.5.1.7-1 to indicate the feature supported by the mobile
21 station.
- 22 FEATURE_P_REV - Feature protocol version.

3.5.1.17.1 Capability Information Record

Table 3.5.1.17.1-1 lists the information record type values that can be used in the *Extended Protocol Capability Response Message*. The following sections describe the contents of each of the record types in detail.

Table 3.5.1.17.1-1 Capability Information Record Types

Capability Information Record	Record Type (binary)
Operating Mode Information	'00000000'
CDMA Band Class Information	'00000001'
MEID	'00000010'
<i>ICCID</i>	<i>'00000011'</i>
<i>EXT_UIM_ID</i>	<i>'00000100'</i>
<i>MEID_ME</i>	<i>'00000101'</i>
All other values are reserved.	

3.5.1.17.1.1 Operating Mode Information

This capability information record is used to return operating mode information supported by the mobile station.

Type-Specific Field	Length (bits)
OP_MODE_INFO	8 × CAP_RECORD_LEN

OP_MODE_INFO – Operating mode information.

This field indicates which operating modes are supported by the mobile station in the band class for which information is requested.

This field currently consists of the following subfields which are included in the information record in the order shown in Table 3.5.1.17.1.1-1.

1

Table 3.5.1.17.1.1-1. OP_MODE

Subfield	Length (bits)	Subfield Description	Standards
OP_MODE0	1	Analog mode	[22]
OP_MODE1	1	CDMA mode	[7]
OP_MODE2	1	HRPD mode	[9]
RESERVED	5	–	–

2

3

4

5

6

The mobile station shall set each subfield to ‘1’, if the corresponding operating mode is supported by the mobile station; otherwise, the mobile station shall set the subfield to ‘0’.

7

RESERVED – Reserved bits.

8

The mobile station shall set each bit in this field to ‘0’.

9

10

11

12

13

When more operating modes are defined, the reserved bits will be used for the new corresponding subfields. Sufficient octets will also be added to this field to accommodate the corresponding new subfields. All the undefined bits in an additional octet will be reserved bits.

14

15

16

If all bits are set to ‘0’ in an octet and all succeeding octets, the mobile station shall omit the octet and the succeeding octets.

17

18

3.5.1.17.1.2 CDMA Band Class Information

19

20

This capability information record is used to return band class information about the mobile station.

21

Type-Specific Field	Length (bits)
BAND_CLASS_INFO	8 × CAP_RECORD_LEN

22

23

BAND_CLASS_INFO – Band class information.

24

25

This field indicates which band classes are supported by the mobile station.

1 The mobile station shall set the Nth significant bit of this
 2 field to '1' if the Nth band class defined in [23] is supported by
 3 the mobile station; otherwise, the mobile station shall set
 4 the Nth most significant bit of this field to '0'.

5 The mobile station shall add reserved bits as needed in order
 6 to make the length of the entire information record equal to
 7 an integer number of octets. The mobile station shall set
 8 these bits to '0'.

9

10 3.5.1.17.1.3 MEID

11 This capability information record is used to return the mobile station MEID *or R-UIM's*
 12 *SF_EUIMID based on the SF_EUIMID Usage Indicator as defined in [24].*

13

Type-Specific Field	Length (bits)
MEID	56

14

15 MEID – Mobile Equipment Identifier.

16 The mobile station shall set this field ~~to its Mobile Equipment~~
 17 ~~Identifier~~ according to Table 3.5.1.17.1.3-1.

18 **Table 3.5.1.17.1.3-1. MEID Field Setting**

<i>SF_EUIMID Usage Indicator</i>	<i>MEID</i>
<i>0</i>	<i>MEID</i>
<i>1</i>	<i>SF_EUIMID</i>

19 3.5.1.17.1.4 ICCID

20 This capability information record is used to return the ICCID in the R-UIM.

21

Type-Specific Field	Length (bits)
ICCID	80

22

23 ICCID – Integrated Circuit Card Identifier.

24 The mobile station shall set this field to the Integrated Circuit
 25 Card Identifier (LF_EUIMID) stored in the R-UIM.

3.5.1.17.1.5 EXT_UIM_ID

This capability information record is used to return the EXT_UIM_ID in the R-UIM based on the SF_EUIMID-based EUIMID service as defined in [24].

Type-Specific Field	Length (bits)
EXT_UIM_ID	8 × CAP_RECORD_LEN

EXT_UIM_ID – Mobile station Extended User Identity Module identifier.
The mobile station shall set this field according to Table 3.5.1.17.1.5-1.

Table 3.5.1.17.1.5-1. EXT_UIM_ID Field Setting

SF_EUIMID-based EUIMID	EXT_UIM_ID	Length (bits)
0	LF_EUIMID	80
1	SF_EUIMID	56

3.5.1.17.1.6 MEID_ME

This capability information record is used to return the mobile station MEID.

Type-Specific Field	Length (bits)
MEID_ME	56

MEID_ME – Mobile Equipment Identifier of ME.
The mobile station shall set this field to its Mobile Equipment Identifier.

3.5.1.18 MMD Configuration Response Message

The MMD Configuration Response Message has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010001')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN
RESULT_CODE	8

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

1

2 OTASP_MSG_TYPE - OTASP Data Message type.

3 The mobile station shall set this field to '00010001'.

4 NUM_BLOCKS - Number of parameter blocks.

5 The mobile station shall set this field to the number of
6 parameter blocks contained in the *MMD Configuration*
7 *Response Message*.

8 The mobile station shall set NUM_BLOCKS occurrences of the following fields:

9 BLOCK_ID - Parameter block identifier.

10 The mobile station shall set this field to the value of the
11 BLOCK_ID field of the corresponding parameter block in the
12 *MMD Configuration Request Message* that is being confirmed
13 (see Table 3.5.9-1).

14 BLOCK_LEN - Parameter block length.

15 The mobile station shall set this field to the number of octets
16 in the parameter block, not including the BLOCK_ID and
17 BLOCK_LEN fields.

18 PARAM_DATA - Parameter data fields.

19 The mobile station shall include the parameter block (see
20 3.5.9) specified by the BLOCK_ID field. If
21 SECURE_MODE_IND_s = '1', PARAM_DATA fields shall be
22 encrypted as specified in 3.3.8.

23 RESULT_CODE - Configuration result code.

- 1 The mobile station shall set this field to indicate acceptance
 2 or rejection status of the request for the corresponding
 3 parameter block in the *MMD Configuration Request Message*,
 4 using the values defined in Table 3.5.1.2-1.
- 5 FRESH_INCL - FRESH included indicator.
- 6 If SECURE_MODE_IND_S = '1', the mobile station shall set this
 7 field to SECURE_MODE_IND; otherwise the mobile station
 8 shall set this field to '0'.
- 9 FRESH - Cryptographic Synchronizer (crypto-sync) selected for
 10 encrypting PARAM_DATA fields of the message.
- 11 If FRESH_INCL = '1', the mobile station shall include this field
 12 and set it to a 15-bit value chosen according to requirements
 13 set in 3.3.8 for encrypting the PARAM_DATA fields of all
 14 Parameter Data blocks included in the message; otherwise
 15 the mobile station shall omit this field.
- 16 RESERVED - Reserved bits.
- 17 If FRESH_INCL = '1', the mobile station shall omit this field;
 18 otherwise, the mobile station shall set all the bits of this field
 19 to '0'.

20 3.5.1.19 MMD Download Response Message

21 The *MMD Download Response Message* has the following variable-length format:

22

Field	Length (bits)
OTASP_MSG_TYPE ('00010010')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following confirmation block:

BLOCK_ID	8
RESULT_CODE	8

- 23 OTASP_MSG_TYPE - *OTASP Data Message* type.
- 24 The mobile station shall set this field to '00010010'.
- 25 NUM_BLOCKS - Number of parameter blocks.
- 26 The mobile station shall set this field to the number of
 27 parameter blocks contained in the *MMD Download Request*
 28 *Message* that is being confirmed.
- 29 The mobile station shall set NUM_BLOCKS occurrences of the following fields:
- 30 BLOCK_ID - Parameter block identifier.

1 The mobile station shall set this field to the value of the
 2 BLOCK_ID field of the corresponding parameter block in the
 3 *MMD Download Request Message* that is being confirmed (see
 4 Table 4.5.8-1).

5 RESULT_CODE - Download result code.

6 The mobile station shall set this field to indicate acceptance
 7 or rejection status of the corresponding parameter block in
 8 the *MMD Download Request Message* that is being confirmed,
 9 using the values defined in Table 3.5.1.2-1.

10 3.5.1.20 System Tag Configuration Response Message

11 The *System Tag Configuration Response Message* shall have the following variable-length
 12 format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010011')	8
BLOCK_ID	8
RESULT_CODE	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

13 OTASP_MSG_TYPE - *OTASP Data Message* type.

14 The mobile station shall set this field to '00010011'.

15 BLOCK_ID - The mobile station shall set this field to the value of the
 16 BLOCK_ID field of the corresponding parameter block in the
 17 *System Tag Configuration Request Message* that is being
 18 confirmed (see Table 3.5.10-1).

19 RESULT_CODE - System Tag result code.

20 The mobile station shall set this field to indicate acceptance
 21 or rejection status of the request for corresponding
 22 parameter block in the *System Tag Configuration Request*
 23 *Message*, using the values defined in Table 3.5.1.2-1.

24 BLOCK_LEN - Parameter block length.

25 The mobile station shall set this field to the number of octets
 26 in the parameter block, not including the BLOCK_ID and
 27 BLOCK_LEN fields.

28 PARAM_DATA - Parameter block data.

29 The mobile station shall include the parameter block
 30 specified by the BLOCK_ID field.

31

3.5.1.21 System Tag Download Response Message

The *System Tag Download Response Message* shall have the following format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010100')	8
BLOCK_ID	8
RESULT_CODE	8

If the BLOCK_ID being confirmed is '00000001' (Group Tag List), '00000010' (Specific Tag List), or '00000011' (Call Prompt List), the mobile station shall also include the following fields:

SEGMENT_OFFSET	16
SEGMENT_SIZE	8

- OTASP_MSG_TYPE - *OTASP Data Message type.*
The mobile station shall set this field to '00010100'.
- BLOCK_ID - System Tag Parameter block identifier.
The mobile station shall set this field to the value of the BLOCK_ID field of the parameter block in the *System Tag Download Request Message* that is being confirmed (see Table 4.5.9-1).
- RESULT_CODE - System Tag Download result code.
The mobile station shall set this field to indicate acceptance or rejection status of the parameter block in the *System Tag Download Request Message* that is being confirmed, using the values defined in Table 3.5.1.2-1.
- SEGMENT_OFFSET - Segment offset.
If the BLOCK_ID being confirmed is '00000001' (Group Tag List), '00000010' (Specific Tag List), or '00000011' (Call Prompt List), the mobile station shall include and set this field to the value of SEGMENT_OFFSET from the *System Tag Download Request Message* that is being confirmed; otherwise, the mobile station shall omit this field.
- SEGMENT_SIZE - Segment size.
If the BLOCK_ID being confirmed is '00000001' (Group Tag List), '00000010' (Specific Tag List), or '00000011' (Call Prompt List), the mobile station shall set this field to the number of octets of the group tag list (GROUP_TAG_LIST_{s-p}), specific tag list (SPEC_TAG_LIST_{s-p}), or call prompt list (CALL_PRMPPT_LIST_{s-p}) included in SEGMENT_DATA of the *System Tag Download Request Message* that is being confirmed; otherwise, the mobile station shall omit this field.

1 3.5.1.22 Service Key Generation Response Message

2 The *Service Key Generation Response Message* shall have the following format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010101')	8
RESULT_CODE	8

4
5 OTASP_MSG_TYPE - *OTASP Data Message* type.

6 The mobile station shall set this field to '00010101'.

7 RESULT_CODE - Service Key Generation result code.

8 The mobile station shall set this field using the values
9 defined in Table 3.5.1.2-1.

10
11 3.5.1.23 MMS Configuration Response Message

12 The *MMS Configuration Response Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010110')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN
RESULT_CODE	8

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

14
15 OTASP_MSG_TYPE - *OTASP Data Message* type.

16 The mobile station shall set this field to '00010110'.

17 NUM_BLOCKS - Number of parameter blocks.

18 The mobile station shall set this field to the number of
19 parameter blocks contained in the *MMS Configuration*
20 *Response Message*.

1	BLOCK_ID	-	Parameter block identifier.
2			The mobile station shall set this field to the value of the
3			parameter block type being included in the message (see
4			Table 3.5.12-1).
5	BLOCK_LEN	-	Parameter block length.
6			The mobile station shall set this field to the number of octets
7			in the parameter block, not including the BLOCK_ID and
8			BLOCK_LEN fields.
9	PARAM_DATA	-	Parameter data fields.
10			The mobile station shall include the parameter block
11			specified by the BLOCK_ID field. If Secure Mode is active,
12			PARAM_DATA fields shall be encrypted as specified in 3.3.8.
13	<i>RESULT_CODE</i>	-	<i>Configuration result code.</i>
14			<i>The mobile station shall set this field to indicate acceptance or</i>
15			<i>rejection status of the corresponding parameter block in the</i>
16			<i>MMS Configuration Request Message that is being confirmed,</i>
17			<i>using the values defined in Table 3.5.1.2-1.</i>
18	FRESH_INCL	-	FRESH included indicator.
19			If Secure Mode is active (See 3.3.8), the mobile station shall
20			set this field to '1'; otherwise the mobile station shall set this
21			field to '0'.
22	FRESH	-	Cryptographic Synchronizer (crypto-sync) selected for
23			encrypting PARAM_DATA fields of the message.
24			If FRESH_INCL = '1', the mobile station shall include this field
25			and set it to a 15-bit value chosen as specified in 3.3.8 for
26			encrypting the PARAM_DATA fields of all Parameter Data
27			blocks included in the message; otherwise the mobile station
28			shall omit this field.
29	RESERVED	-	Reserved bits.
30			If FRESH_INCL= '1', the mobile station shall omit this field;
31			otherwise, the mobile station shall set all the bits of this field
32			to '0'.
33			

1 3.5.1.24 MMS Download Response Message

2 The *MMS Download Response Message* has the following variable-length format:

3

Field	Length (bits)
OTASP_MSG_TYPE ('00010111')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following confirmation block:

BLOCK_ID	8
RESULT_CODE	8

4 OTASP_MSG_TYPE - *OTASP Data Message* type.

5 The mobile station shall set this field to '00010111'.

6 NUM_BLOCKS - Number of parameter blocks.

7 The mobile station shall set this field to the number of
8 parameter blocks contained in the *MMS Download Request*
9 *Message* that is being confirmed.

10 The mobile station shall set NUM_BLOCKS occurrences of the following fields:

11 BLOCK_ID - Parameter block identifier.

12 The mobile station shall set this field to the value of the
13 BLOCK_ID field of the corresponding parameter block in the
14 *MMS Download Request Message* that is being confirmed (see
15 Table 4.5.10-1).

16 RESULT_CODE - Download result code.

17 The mobile station shall set this field to indicate acceptance
18 or rejection status of the corresponding parameter block in
19 the *MMS Download Request Message* that is being confirmed,
20 using the values defined in Table 3.5.1.2-1.

21

22 3.5.2 NAM Parameter Blocks

23 Table 3.5.2-1 lists the types of parameter blocks used in the *Configuration Request*
24 *Message* and the *Configuration Response Message*.

25

1

Table 3.5.2-1 NAM Parameter Block Types

Parameter Block Type	BLOCK_ID	Reference
CDMA/Analog NAM	'00000000'	3.5.2.1
Mobile Directory Number	'00000001'	3.5.2.2
CDMA NAM	'00000010'	3.5.2.3
IMSI_T	'00000011'	3.5.2.4
Reserved for future standardization	'00000100' through '01111111'	
Available for manufacturer-specific parameter block definitions	'10000000' through '11111110'	See [4]
Reserved	'11111111'	

2

3 3.5.2.1 CDMA/Analog NAM Parameter Block

4 The PARAM_DATA field of this Parameter Block consists of the following fields:

Field	Length (bits)
FIRSTCHP	11
HOME_SID	15
EX	1
SCM	8
MOB_P_REV	8
IMSI_M_CLASS	1
IMSI_M_ADDR_NUM	3
MCC_M	10
IMSI_M_11_12	7
IMSI_M_S	34
ACCOLC	4
LOCAL_CONTROL	1
MOB_TERM_HOME	1
MOB_TERM_FOR_SID	1
MOB_TERM_FOR_NID	1
MAX_SID_NID	8
STORED_SID_NID	8

STORED_SID_NID occurrences of the following SID/NID pair:

SID	15
NID	16

The parameter block ends with the following field:

RESERVED	0 to 7 (as needed)
----------	--------------------

- 1
- 2 FIRSTCHP - First paging channel used in the home system.
- 3 The mobile station shall set this field to the value of the
- 4 FIRSTCHP_p NAM indicator (see F.3 of [1, 7]).
- 5 HOME_SID - Home system identification.
- 6 The mobile station shall set this field to the value of the
- 7 HOME_SID_p NAM indicator (see F.3 of [1, 7]).
- 8 EX - Extended address indicator.
- 9 The mobile station shall set this field to the value of the Exp
- 10 NAM indicator (see F.3 of [1, 7]).
- 11 SCM - Station class mark.

1		The mobile station shall set this field to the value of the
2		SCM _p permanent mobile station indicator (see F.2.1 of [1, 7]).
3	MOB_P_REV	- Mobile station protocol revision number.
4		The mobile station shall set this field to the value of the
5		MOB_P_REV _p permanent mobile station indicator (see F.2.1
6		of [1, 7]).
7	IMSI_M_CLASS	- IMSI_M Class assignment of the mobile station.
8		If the mobile station's IMSI_M is a class 0 IMSI, the mobile
9		station shall set this field to '0'; otherwise, the mobile station
10		shall set this field to '1'.
11	IMSI_M_ADDR_NUM	- Number of IMSI_M address digits.
12		If the mobile station has been assigned a class 1 IMSI_M (see
13		F.3 and 6.3.1 of [1] or F.3 and 2.3.1 of [7]), the mobile station
14		shall set this field to four less than the number of digits in
15		the NMSI; otherwise, the mobile station shall set this field to
16		'000'.
17	MCC_M	- Mobile country code.
18		The mobile station shall set this field to the value of the
19		MCC_M _p NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and
20		2.3.1 of [7]).
21	IMSI__M_11_12	- 11 th and 12 th digits of the IMSI_M.
22		The mobile station shall set this field to the value of the
23		IMSI_M_11_12 _p NAM indicator (see F.3 and 6.3.1 of [1] or F.3
24		and 2.3.1 of [7]).
25	IMSI_M_S	- The least significant 10 digits of the IMSI_M.
26		The mobile station shall set this field to the value of the
27		IMSI_M_S _p NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and
28		2.3.1 of [7]).
29	ACCOLC	- Access overload class.
30		The mobile station shall set this field to the value of the
31		ACCOLC _p NAM indicator (see F.3 of [1, 7]).
32	LOCAL_CONTROL	- Local control status.
33		If the local control status is enabled (see 2.6.1.2.2 of [1]), the
34		mobile station shall set this field to '1'; otherwise, the mobile
35		station shall set this field to '0'.
36	MOB_TERM_HOME	- Termination indicator for the home system.
37		The mobile station shall set this field to the value of the
38		MOB_TERM_HOME _p NAM indicator (see F.3 of [1, 7]).
39	MOB_TERM_FOR_SID	- Termination indicator for SID roaming.
40		The mobile station shall set this field to the value of the
41		MOB_TERM_FOR_SID _p NAM indicator (see F.3 of [1, 7]).
42	MOB_TERM_FOR_NID	- Termination indicator for NID roaming.

- 1 The mobile station shall set this field to the value of the
 2 MOB_TERM_FOR_NID_p NAM indicator (see F.3 of [1, 7]).
- 3 MAX_SID_NID - Maximum stored SID/NID pairs.
- 4 The mobile station shall set this field to the maximum
 5 number of SID/NID pairs that it can store in the NAM.
- 6 STORED_SID_NID - Number of stored SID/NID pairs.
- 7 The mobile station shall set this field to the number of
 8 SID/NID pairs stored in the NAM. All SID/NID pairs stored in
 9 the NAM shall be included in the parameter block.
- 10 SID - System identification.
- 11 The mobile station shall include one occurrence of this field
 12 for each SID/NID pair stored in the NAM. The mobile station
 13 shall set this field to the value of the SID_p NAM indicator (see
 14 F.3 of [1, 7]).
- 15 NID - Network identification.
- 16 The mobile station shall include one occurrence of this field
 17 for each SID/NID pair stored in the NAM. The mobile station
 18 shall set this field to the value of the NID_p NAM indicator (see
 19 F.3 of [1, 7]).
- 20 RESERVED - Reserved bits.
- 21 The mobile station shall add reserved bits as needed in order
 22 to make the length of the entire parameter block equal to an
 23 integer number of octets. The mobile station shall set these
 24 bits to '0'.

25

26 3.5.2.2 Mobile Directory Number

27 The PARAM_DATA field of the Mobile Directory Number Parameter Block consists of the
 28 following fields:

Field	Length (bits)
N_DIGITS	4
N_DIGITS occurrences of the following field:	
DIGIT _n	4
The parameter block ends with the following field:	
RESERVED	0 or 4

29

- 30 N_DIGITS - Number of digits.
- 31 The mobile station shall set this field to the number of digits
 32 included in the parameter block.
- 33 DIGIT_n - Digit.

1 The mobile station shall set these fields to the digits of the
 2 mobile station directory number. Each digit shall be encoded
 3 according to Table 6.7.1.3.2.4-4 of [1] or Table 2.7.1.3.2.4-4 of
 4 [7].

5 RESERVED - Reserved bits.

6 The mobile station shall add reserved bits as needed in order
 7 to make the length of the entire parameter block equal to an
 8 integer number of octets. The mobile station shall set these
 9 bits to '0'.

11 3.5.2.3 CDMA NAM Parameter Block

12 The PARAM_DATA field of this Parameter Block consists of the following fields:

Field	Length (bits)
RESERVED	2
SLOTTED_MODE	1
RESERVED	5
MOB_P_REV	8
IMSI_M_CLASS	1
IMSI_M_ADDR_NUM	3
MCC_M	10
IMSI_M_11_12	7
IMSI_M_S	34
ACCOLC	4
LOCAL CONTROL	1
MOB_TERM_HOME	1
MOB_TERM_FOR_SID	1
MOB_TERM_FOR_NID	1
MAX_SID_NID	8
STORED_SID_NID	8

STORED_SID_NID occurrences of the following SID/NID pair:

SID	15
NID	16

The parameter block ends with the following field:

RESERVED	0 to 7 (as needed)
----------	--------------------

13

14 RESERVED - Reserved bits.

1		The mobile station shall set this field to '00'.
2	SLOTTED_MODE	- Slotted mode.
3		If the mobile station is operating in the slotted mode, the
4		mobile station shall set this field to '1'; otherwise, the mobile
5		station shall set this field to '0'.
6	RESERVED	- Reserved bits.
7		The mobile station shall set this field to '00000'.
8	MOB_P_REV	- Mobile station protocol revision number.
9		The mobile station shall set this field to the value of the
10		MOB_P_REV _p permanent mobile station indicator (see F.2.1
11		of [1, 7]).
12	IMSI_M_CLASS	- IMSI_M Class assignment of the mobile station.
13		If the mobile station's IMSI_M is a class 0 IMSI, the mobile
14		station shall set this field to '0'; otherwise, the mobile station
15		shall set this field to '1'.
16	IMSI_M_ADDR_NUM	- Number of IMSI_M address digits.
17		If the mobile station has been assigned a class 1 IMSI_M (see
18		F.3 [1, 7]), the mobile station shall set this field to four less
19		than the number of digits in the NMSI; otherwise, the mobile
20		station shall set this field to '000'.
21	MCC_M	- Mobile country code.
22		The mobile station shall set this field to the value of the
23		MCC_M _p NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and
24		2.3.1 of [7]).
25	IMSI_M_11_12	- 11 th and 12 th digits of the IMSI.
26		The mobile station shall set this field to the value of the
27		IMSI_M_11_12 _p NAM indicator (see F.3 and 6.3.1 of [1] or F.3
28		and 2.3.1 of [7]).
29	IMSI_M_S	- The least significant 10 digits of the IMSI.
30		The mobile station shall set this field to the value of the
31		IMSI_M_S _p NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and
32		2.3.1 of [7]).
33	ACCOLC	- Access overload class.
34		The mobile station shall set this field to the value of the
35		ACCOLC _p NAM indicator (see F.3 of [1, 7]).
36	LOCAL CONTROL	- Local control status.
37		If the local control status is enabled (see 6.3.9 of [1] or 2.3.9
38		of [7]), the mobile station shall set this field to '1'; otherwise,
39		the mobile station shall set this field to '0'.
40	MOB_TERM_HOME	- Termination indicator for the home system.
41		The mobile station shall set this field to the value of the
42		MOB_TERM_HOME _p NAM indicator (see F.3 of [1, 7]).

- 1 MOB_TERM_FOR_SID - Termination indicator for SID roaming.
 2 The mobile station shall set this field to the value of the
 3 MOB_TERM_FOR_SID_p NAM indicator (see F.3 of [1, 7]).
- 4 MOB_TERM_FOR_NID - Termination indicator for NID roaming.
 5 The mobile station shall set this field to the value of the
 6 MOB_TERM_FOR_NID_p NAM indicator (see F.3 of [1, 7]).
- 7 MAX_SID_NID - Maximum stored SID/NID pairs.
 8 The mobile station shall set this field to the maximum
 9 number of SID/NID pairs that it can store in the NAM.
- 10 STORED_SID_NID - Number of stored SID/NID pairs.
 11 The mobile station shall set this field to the number of
 12 SID/NID pairs stored in the NAM. All SID/NID pairs stored in
 13 the NAM shall be included in the parameter block.
- 14 SID - System identification.
 15 The mobile station shall include one occurrence of this field
 16 for each SID/NID pair stored in the NAM. The mobile station
 17 shall set this field to the value of the SID_p NAM indicator (see
 18 F.3 of [1, 7]).
- 19 NID - Network identification.
 20 The mobile station shall include one occurrence of this field
 21 for each SID/NID pair stored in the NAM. The mobile station
 22 shall set this field to the value of the NID_p NAM indicator (see
 23 F.3 of [1, 7]).
- 24 RESERVED - Reserved bits.
 25 The mobile station shall add reserved bits as needed in order
 26 to make the length of the entire parameter block equal to an
 27 integer number of octets. The mobile station shall set these
 28 bits to '0'.

29

30 3.5.2.4 IMSI_T Parameter Block

31 The PARAM_DATA field of the IMSI_T Parameter Block consists of the following fields:

32

Field	Length (bits)
IMSI_T_CLASS	1
IMSI_T_ADDR_NUM	3
MCC_T	10
IMSI_T_11_12	7
IMSI_T_S	34
RESERVED	1

- 1 IMSI_T_CLASS - IMSI_T Class assignment of the mobile station.
2
3 If the mobile station's IMSI_T is a class 0 IMSI, the mobile
4 station shall set this field to '0'; otherwise, the mobile station
5 shall set this field to '1'.
6
7 IMSI_T_ADDR_NUM - Number of IMSI_T address digits.
8
9 If the mobile station has been assigned a class 1 IMSI_T (see
10 6.3.1 of [1] or 2.3.1 of [7]), the mobile station shall set this
11 field to four less than the number of digits in the NMSI;
12 otherwise, the mobile station shall set this field to '000'.
13
14 MCC_T - Mobile country code.
15 The mobile station shall set this field to the value of the
16 MCC_T_p NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and
17 2.3.1 of [7]).
18 IMSI_T_11_12 - 11th and 12th digits of the IMSI_T.
19 The mobile station shall set this field to the value of the
20 IMSI_T_11_12_p NAM indicator (see F.3 and 6.3.1 of [1] or F.3
21 and 2.3.1 of [7]).
22 IMSI_T_S - The least significant 10 digits of the IMSI_T.
23 The mobile station shall set this field to the value of the
24 IMSI_T_S_p NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and
25 2.3.1 of [7]).
26 RESERVED - Reserved bits.
27 The mobile station shall set this field to '0'.

25 3.5.3 SSPR Parameter Blocks

26 Table 3.5.3-1 lists the types of parameter blocks used in the *SSPR Configuration Request*
27 *Message* and the *SSPR Configuration Response Message*.

28

1

Table 3.5.3-1 SSPR Parameter Block Types

SSPR Parameter Block Type	BLOCK_ID	Reference
Preferred Roaming List Dimensions	'00000000'	3.5.3.1
Preferred Roaming List	'00000001'	3.5.3.2
Extended Preferred Roaming List Dimensions	'00000010'	3.5.3.3
Reserved for future standardization	'00000011' - '01111111'	
Available for manufacturer-specific parameter block definitions	'10000000'- '11111110'	See [4]
Reserved	'11111111'	

2

3 3.5.3.1 Preferred Roaming List Dimensions Parameter Block

4 The PARAM_DATA field of the Preferred Roaming List Dimensions Parameter Block
5 consists of the following fields:

6

Field	Length (bits)
MAX_PR_LIST_SIZE	16
CUR_PR_LIST_SIZE	16
PR_LIST_ID	16
RESERVED	1
NUM_ACQ_RECS	9
NUM_SYS_RECS	14

7

8 MAX_PR_LIST_SIZE - Maximum preferred roaming list size.
9 The mobile station shall set this field to the maximum size,
10 in octets, that the mobile station can support for the
11 preferred roaming list (PR_LIST_{S-p}).

12 CUR_PR_LIST_SIZE - Current preferred roaming list size.
13 The mobile station shall set this field to the size, in octets, of
14 the current preferred roaming list.

15 PR_LIST_ID Preferred Roaming List Identification.
16 The mobile station shall set this field to the value of the
17 Preferred Roaming List Identification assigned for the
18 preferred roaming list (PR_LIST_{S-p}) by the base station.

19 RESERVED - Reserved bit.

- 1 The mobile station shall set this field to '0'.
- 2 NUM_ACQ_RECS - Number of acquisition records.
- 3 The mobile station shall set this field to the number of
4 acquisition records contained in the ACQ_TABLE field of the
5 current preferred roaming list.
- 6 NUM_SYS_RECS - Number of system records.
- 7 The mobile station shall set this field to the number of
8 system records contained in the SYS_TABLE field of the
9 current preferred roaming list.

10

11 3.5.3.2 Preferred Roaming List Parameter Block

12 The PARAM_DATA field of the Preferred Roaming List Parameter Block consists of the
13 following fields:

14

Field	Length (bits)
RESERVED	7
LAST_SEGMENT	1
SEGMENT_OFFSET	16
SEGMENT_SIZE	8
SEGMENT_DATA	8 × SEGMENT_SIZE

15

- 16 RESERVED - Reserved bits.
- 17 The mobile station shall set this field to '0000000'.
- 18 LAST_SEGMENT - Last segment indicator bit.
- 19 The mobile station shall set this field to '1' if
20 SEGMENT_DATA contains the last octet of the preferred
21 roaming list (PR_LIST_{s-p}); otherwise, the mobile station shall
22 set this field to '0'.
- 23 SEGMENT_OFFSET - Segment offset.
- 24 The mobile station shall set this field to the value of
25 REQUEST_OFFSET from the corresponding *SSPR*
26 *Configuration Request Message*.
- 27 SEGMENT_SIZE - Segment size.
- 28 The mobile station shall set this field to the number of octets
29 of the preferred roaming list (PR_LIST_{s-p}) included in
30 SEGMENT_DATA.
- 31 SEGMENT_DATA - Segment of the preferred roaming list (PR_LIST_{s-p}) data.

1
2
3
4
5
6
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9
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11
12

If REQUEST_OFFSET from the corresponding *SSPR Configuration Request Message* specifies an offset that is invalid for the current preferred roaming list, the mobile station shall include no octets in this field.

If REQUEST_OFFSET specifies an offset that is valid for the current preferred roaming list, the mobile station shall include at most REQUEST_MAX_SIZE sequential octets of the preferred roaming list in this field. The octets shall be equal to the octets starting at the offset within the preferred roaming list specified by SEGMENT_OFFSET.

3.5.3.3 Extended Preferred Roaming List Dimensions Parameter Block

The PARAM_DATA field of the Extended Preferred Roaming List Dimensions Parameter Block consists of the following fields:

Field	Length (bits)
MAX_PR_LIST_SIZE	16
CUR_PR_LIST_SIZE	16
PR_LIST_ID	16
CUR_SSPR_P_REV	8
CUR_SSPR_P_REV-specific fields	variable

If CUR_SSPR_P_REV is '00000001' the CUR_SSPR_P_REV-specific fields also include the following fields:

RESERVED	1
NUM_ACQ_RECS	9
NUM_SYS_RECS	14

If CUR_SSPR_P_REV is '00000011' the CUR_SSPR_P_REV-specific fields also include the following fields:

NUM_ACQ_RECS	9
NUM_COMMON_SUBNET_RECS	9
NUM_EXT_SYS_RECS	14

5

- 6 MAX_PR_LIST_SIZE - Maximum preferred roaming list size.
- 7 The mobile station shall set this field to the maximum size,
8 in octets, that the mobile station can support for the
9 preferred roaming list (PR_LIST_{S-p}).
- 10 CUR_PR_LIST_SIZE - Current preferred roaming list size.
- 11 The mobile station shall set this field to the size, in octets, of
12 the current preferred roaming list.
- 13 PR_LIST_ID Preferred Roaming List Identification.
- 14 The mobile station shall set this field to the value of the
15 Preferred Roaming List Identification assigned for the
16 preferred roaming list (PR_LIST_{S-p}) by the base station.
- 17 CUR_SSPR_P_REV - Protocol revision of the mobile station's current preferred
18 roaming list.
- 19 The mobile station shall set this field to the value of the
20 SSPR_P_REV associated with its current preferred roaming
21 list.

- 1 RESERVED - Reserved bit.
2 The mobile station shall set this field to '0'.
3 NUM_ACQ_RECS - Number of acquisition records.
4 The mobile station shall set this field to the number of
5 acquisition records contained in the ACQ_TABLE field of the
6 current preferred roaming list.
7 NUM_SYS_RECS - Number of system records.
8 The mobile station shall set this field to the number of
9 system records contained in the SYS_TABLE field of the
10 current preferred roaming list.
11 NUM_COMMON_SUBNET_RECS
12 - Number of records in the Common Subnet Table.
13 This field is set to the number of records contained in the
14 Common Subnet Table.
15 NUM_EXT_SYS_RECS - Number of extended system records.
16 The mobile station shall set this field to the number of
17 extended system records contained in the EXT_SYS_TABLE
18 field of the current preferred roaming list.
19

20 3.5.4 Reserved

21 Reserved.
22

23 3.5.5 Preferred Roaming List and Extended Preferred Roaming List

24 The preferred roaming list (PR_LIST_{s-p}) contains information to assist the mobile station
25 system selection and acquisition process, particularly when the mobile station is roaming.
26 The preferred roaming list can be sent to the mobile station using Over-the-Air Service
27 Provisioning (OTASP). The preferred roaming list is retained by the mobile station when
28 power is turned off. Two categories of the preferred roaming list are defined: The Preferred
29 Roaming List and the Extended Preferred Roaming List.

30 The Preferred Roaming List is associated with SSPR_P_REV equal to '00000001' and has
31 the following variable length format:
32

Preferred Roaming List Field	Length (bits)
PR_LIST_SIZE	16
PR_LIST_ID	16
PREF_ONLY	1
DEF_ROAM_IND	8
NUM_ACQ_RECS	9
NUM_SYS_RECS	14
ACQ_TABLE	variable
SYS_TABLE	variable
RESERVED	0 to 7
PR_LIST_CRC	16

- 1
- 2 PR_LIST_SIZE - Preferred roaming list size.
- 3 This field is set to the total size, in octets, of the preferred
- 4 roaming list, including the PR_LIST_SIZE and PR_LIST_CRC
- 5 fields.
- 6 PR_LIST_ID Preferred Roaming List Identification.
- 7 The mobile station shall set this field to the value of the
- 8 Preferred Roaming List Identification assigned for the
- 9 preferred roaming list (PR_LIST_{s-p}) by the base station.
- 10 PREF_ONLY - Preferred only.
- 11 This field is set to '1' if the mobile station is to operate only
- 12 on systems that are specified in SYS_TABLE with PREF_NEG
- 13 set to '1'. This field is set to '0' if the mobile station is to
- 14 operate on systems that are specified in SYS_TABLE with
- 15 PREF_NEG set to '1' or on systems that are not specified in
- 16 SYS_TABLE².
- 17 DEF_ROAM_IND - Default roaming indication.
- 18 This field is set to the roaming indication value the mobile
- 19 station is to use when operating on systems not specified in
- 20 SYS_TABLE (see [4]).
- 21 NUM_ACQ_RECS - Number of acquisition records.
- 22 This field is set to the number of acquisition records
- 23 contained in ACQ_TABLE (see Table 3.5.5.2-1).
- 24 NUM_SYS_RECS - Number of system records.

² For emergency access (911) the mobile station may ignore restrictions set by the PREF_ONLY and PREF_NEG fields and access any available system.

- 1 This field is set to the number of system records contained in
- 2 SYS_TABLE.
- 3 ACQ_TABLE - Acquisition Table.
- 4 This field contains the Acquisition Records. The number of
- 5 acquisition records is specified by NUM_ACQ_RECS. The
- 6 acquisition record formats are specified in 3.5.5.2.1.
- 7 SYS_TABLE - System Table.
- 8 This field contains system records. The number of system
- 9 records is specified by NUM_SYS_RECS. The system record
- 10 format is specified in 3.5.5.3.1.
- 11 RESERVED - Reserved bits.
- 12 This field is populated with '0' bits as necessary to make the
- 13 length of the entire preferred roaming list equal to an integer
- 14 number of octets.
- 15 PR_LIST_CRC - CRC for preferred roaming list.
- 16 This field is set to the 16-bit CRC calculated according to
- 17 3.5.5.1.

18 The Extended Preferred Roaming List is associated with SSPR_P_REV greater than or
 19 equal to '00000010' and has the following variable length format:

20

Extended Preferred Roaming List Field	Length (bits)
PR_LIST_SIZE	16
PR_LIST_ID	16
CUR_SSPR_P_REV	8
CUR_SSPR_P_REV-specific	variable

- 21 PR_LIST_SIZE - Extended Preferred Roaming List size.
- 22 This field is set to the total size, in octets, of the Extended
- 23 Preferred Roaming List, including the PR_LIST_SIZE and
- 24 PR_LIST_CRC fields.
- 25 PR_LIST_ID Preferred Roaming List Identification.
- 26 The mobile station shall set this field to the value of the
- 27 Extended Preferred Roaming List identification assigned for
- 28 the preferred roaming list (PR_LIST_{s-p}) by the base station.
- 29 CUR_SSPR_P_REV - Protocol revision for the PRL format.
- 30 This field is used to specify the format of the rest of the
- 31 Extended Preferred Roaming List.

32 The format of the Extended Preferred Roaming List associated with the SSPR_P_REV equal
 33 to '00000011' has the following format:

34

1			This field is set to '1' if the mobile station is to operate only
2			on systems that are specified in SYS_TABLE with PREF_NEG
3			set to '1'. This field is set to '0' if the mobile station is to
4			operate on systems that are specified in SYS_TABLE with
5			PREF_NEG set to '1' or on systems that are not specified in
6			SYS_TABLE ³ .
7	DEF_ROAM_IND	-	Default roaming indication.
8			This field is set to the roaming indication value the mobile
9			station is to use when operating on systems not specified in
10			SYS_TABLE (see TSB58).
11	NUM_ACQ_RECS	-	Number of acquisition records.
12			This field is set to the number of acquisition records
13			contained in ACQ_TABLE (see Table 3.5.5.2-1).
14	NUM_COMMON_SUBNET_RECS		
15		-	Number of records in the Common Subnet Table.
16			This field is set to the number of records contained in the
17			Common Subnet Table.
18	NUM_SYS_RECS	-	Number of system records.
19			This field is set to the number of Extended System Records
20			contained in EXT_SYS_TABLE.
21	EXT_ACQ_TABLE	-	Extended Acquisition Table.
22			This field contains the Extended Acquisition Records. The
23			number of acquisition records is specified by
24			NUM_ACQ_RECS. The Extended Acquisition Record format is
25			specified in 3.5.5.2.2.
26	COMMON_SUBNET_TABLE	-	
27			Common Subnet Table.
28			This field contains the Common Subnet Records defined in
29			3.5.5.3.2.1. The number of acquisition records is specified by
30			NUM_COMMON_SUBNET_RECS.
31	EXT_SYS_TABLE	-	Extended System Table.
32			This field contains Extended System Records. The number of
33			Extended system records is specified by NUM_SYS_RECS.
34			The Extended system record format is specified in 3.5.5.3.2.
35	RESERVED	-	Reserved bits.

³ For emergency access (911) the mobile station may ignore restrictions set by the PREF_ONLY and PREF_NEG fields and access any available system.

1 This field is populated with '0' bits as necessary to make the
 2 length of the entire preferred roaming list equal to an integer
 3 number of octets. This field may be extended for future use.
 4 The mobile station shall be able to parse the entire Extended
 5 PRL even if this field is more than 7 bits.

6 PR_LIST_CRC - CRC for preferred roaming list.

7 This field is set to the 16-bit CRC calculated according to 3.5.5.1.

8

9 3.5.5.1 Preferred Roaming List CRC Calculation

10 The 16-bit preferred roaming list CRC field PR_LIST_CRC is calculated on all bits of the
 11 Preferred Roaming List/Extended Preferred Roaming List excluding the bits of the
 12 PR_LIST_CRC field itself. The generator polynomial for this CRC is
 13 $g(x) = x^{16} + x^{12} + x^5 + x^0$.

14 The 16-bit CRC is calculated according to the following procedure using the logic shown in
 15 Figure 2.2.1-2:

- 16 • Initially, all shift register elements are set to logical one and the switches are set in
 17 the position A.
- 18 • The register is clocked with each preferred roaming list bit as an input, from the
 19 most significant bit of the PR_LIST_SIZE field through the least significant bit of the
 20 RESERVED field.
- 21 • The switches are set in the position B, and the register is clocked an additional 16
 22 times. The 16 additional output bits constitute the CRC.

23

24 3.5.5.2 Acquisition Records

25 An acquisition record contains parameters that the mobile station can use to acquire a
 26 system. Each type of acquisition record is tailored for use in acquiring a particular kind of
 27 system.

28 Two categories of acquisition records are defined; Acquisition Records and Extended
 29 Acquisition Records. Table 3.5.5.2-1 defines the types of Acquisition Records. The
 30 Acquisition Records shall be used only in a Preferred Roaming List associated with the
 31 SSPR_P_REV equal to '00000001'.

32

1

Table 3.5.5.2-1 Acquisition Record Type Values

Acquisition Record Type	Value
Reserved	'0000'
Cellular Analog	'0001'
Cellular CDMA (Standard Channels)	'0010'
Cellular CDMA (Custom Channels)	'0011'
Cellular CDMA Preferred	'0100'
PCS CDMA (Using Blocks)	'0101'
PCS CDMA (Using Channels)	'0110'
JTACS CDMA (Standard Channels)	'0111'
JTACS CDMA (Custom Channels)	'1000'
2GHz Band (Using Channels)	'1001'
Reserved	'1010' - '1111'

2 Table 3.5.5.2-2 defines the types of Extended Acquisition Records. The Extended
3 Acquisition Records shall be used only in an Extended Preferred Roaming List associated
4 with the SSPR_P_REV equal to '00000011'.

5

6

Table 3.5.5.2-2 Extended Acquisition Record Type Values

Acquisition Record Type	Value
Reserved	'00000000'
Cellular Analog	'00000001'
Cellular CDMA (Standard Channels)	'00000010'
Cellular CDMA (Custom Channels)	'00000011'
Cellular CDMA Preferred	'00000100'
PCS CDMA (Using Blocks)	'00000101'
PCS CDMA (Using Channels)	'00000110'
JTACS CDMA (Standard Channels)	'00000111'
JTACS CDMA (Custom Channels)	'00001000'
2GHz Band (Using Channels)	'00001001'
Generic Acquisition Record for IS-2000 and IS-95	'00001010'
Generic Acquisition Record for HRPD	'00001011'
Reserved	All other values

7

1 If ACQ_TABLE contains more than one acquisition record, these records should be listed
 2 in priority order (highest priority first) according to the desired mobile station system
 3 selection scanning priorities.

5 3.5.5.2.1 Acquisition Record Formats

6 3.5.5.2.1.1 Cellular Analog System Acquisition Record

7 This acquisition record type is for use in acquiring a cellular analog system, and has the
 8 following fixed length format:

Acquisition Record Field	Length (bits)
ACQ_TYPE ('0001')	4
A_B	2

10
 11 ACQ_TYPE - Acquisition record type.

12 This field is set to '0001' (see Table 3.5.5.2-1).

13 A_B - System A/B selection type.

14 The values for this field are specified in Table 3.5.5.2.1.1-1.

15
 16 **Table 3.5.5.2.1.1-1 Cellular System A/B Selection Type Values**

System A/B Selection Type	Value
System A	'00'
System B	'01'
Reserved	'10'
System A or B	'11'

17 18 3.5.5.2.1.2 Cellular CDMA and JTACS CDMA System Acquisition (Standard Channels) 19 Record

20 This acquisition record type is for use in acquiring a cellular CDMA and JTACS CDMA
 21 system on the primary or secondary CDMA channels, and has the following fixed length
 22 format:

Acquisition Record Field	Length (bits)
ACQ_TYPE ('0010')	4
A_B	2
PRI_SEC	2

1
2
3
4
5
6
7
8

- ACQ_TYPE - Acquisition record type.
This field is set to '0010' (see Table 3.5.5.2-1).
- A_B - System A/B selection type.
The values for this field are specified in Table 3.5.5.2.1.1-1.
- PRI_SEC - Standard CDMA Channel selection type.
The values for this field are specified in Table 3.5.5.2.1.2-1.

9 **Table 3.5.5.2.1.2-1 Cellular CDMA and JTACS CDMA Standard Channel Selection**
10 **Type Values**

Standard Channel Selection Type	Value
Reserved	'00'
Primary CDMA Channel	'01'
Secondary CDMA Channel	'10'
Primary or Secondary CDMA Channel	'11'

11

12 3.5.5.2.1.3 Cellular CDMA and JTACS CDMA System Acquisition (Custom Channels)
13 Record

14 This acquisition record type is for use in acquiring a cellular CDMA and JTACS CDMA
15 system using a list of CDMA channels, and has the following variable length format:

16

Acquisition Record Field	Length (bits)
ACQ_TYPE ('0011')	4
NUM_CHANS	5
NUM_CHANS occurrences of the following field:	
CHAN	11

17
18

- ACQ_TYPE - Acquisition record type.

- 1 This field is set to '0011' (see Table 3.5.5.2-1).
- 2 NUM_CHANS - Number of CDMA channels.
- 3 This field is set to the number of cellular CDMA and JTACS
- 4 CDMA channels included in this record.
- 5 CHAN - Cellular CDMA and JTACS CDMA channel.
- 6 This field specifies a cellular CDMA and JTACS CDMA
- 7 channel number (see 6.1.1.1 of [1] or 2.1.1.1 of [5]). The CHAN
- 8 fields should be listed in priority order (highest priority first)
- 9 according to the desired mobile station system selection
- 10 scanning priorities.

11

12 3.5.5.2.1.4 Cellular CDMA Preferred System Acquisition Record

13 This acquisition record type is for use in acquiring a cellular system (CDMA first, then

14 Analog), and has the following fixed length format:

15

Acquisition Record Field	Length (bits)
ACQ_TYPE ('0100')	4
A_B	2

16

- 17 ACQ_TYPE - Acquisition record type.
- 18 This field is set to '0100' (see Table 3.5.5.2-1).
- 19 A_B - System A/B selection type.
- 20 The values for this field are specified in Table 3.5.5.2.1.1-1.

21

22 3.5.5.2.1.5 PCS CDMA System Acquisition (Using Blocks) Record

23 This acquisition record type is for use in acquiring a PCS CDMA system using a list of

24 CDMA frequency blocks, and has the following variable length format:

25

Acquisition Record Field	Length (bits)
ACQ_TYPE ('0101')	4
NUM_BLOCKS	3

NUM_BLOCKS occurrences of the following field:

BLOCK	3
-------	---

26

- 27 ACQ_TYPE - Acquisition record type.
- 28 This field is set to '0101' (see Table 3.5.5.2-1).

- 1 NUM_BLOCKS - Number of frequency blocks.
- 2 This field is set to the number of PCS frequency blocks
- 3 included in this record.
- 4 BLOCK - PCS frequency block.
- 5 The values for this field are specified in Table 3.5.5.2.1.5-1.
- 6 The BLOCK fields should be listed in priority order (highest
- 7 priority first) according to the desired mobile station system
- 8 selection scanning priorities.

10 **Table 3.5.5.2.1.5-1 PCS CDMA Frequency Blocks**

PCS CDMA Frequency Block	Value
Block A	'000'
Block B	'001'
Block C	'010'
Block D	'011'
Block E	'100'
Block F	'101'
Reserved	'110'
Any Block	'111'

11

12 3.5.5.2.1.6 PCS CDMA and 2 GHz Band CDMA System Acquisition (Using Channels) Record

13 This acquisition record type is for use in acquiring a PCS CDMA and a 2 GHz Band CDMA

14 system using a list of CDMA channels, and has the following variable length format:

Acquisition Record Field	Length (bits)
ACQ_TYPE ('0110')	4
NUM_CHANS	5
NUM_CHANS occurrences of the following field:	
CHAN	11

- 16 ACQ_TYPE - Acquisition record type.
- 17 This field is set to '0110' (see Table 3.5.5.2-1).
- 18 NUM_CHANS - Number of CDMA channels.
- 19 This field is set to the number of PCS CDMA and 2 GHz band
- 20 CDMA channels included in this record.
- 21

1 CHAN - PCS CDMA channel.

2 This field specifies a PCS CDMA and a 2 GHz Band CDMA
3 channel number (see 6.1.1.1 of [1] or 2.1.1.1 of [5]). The CHAN
4 fields should be listed in priority order (highest priority first)
5 according to the desired mobile station system selection
6 scanning priorities.

7 3.5.5.2.1.7 JTACS CDMA System Acquisition (Standard Channels) Record

8 This acquisition record type is for use in acquiring a JTACS CDMA system on the primary
9 or secondary CDMA channels, and has the following fixed length format:

Acquisition Record Field	Length (bits)
ACQ_TYPE ('0111')	4
A_B	2
PRI_SEC	2

11 ACQ_TYPE - Acquisition record type.

12 This field is set to '0111' (see Table 3.5.5.2-1).

13 A_B - System A/B selection type.

14 The values for this field are specified in Table 3.5.5.2.1.1-1.

15 PRI_SEC - Standard CDMA Channel selection type.

16 The values for this field are specified in Table 3.5.5.2.1.7-1.

17
18
19 **Table 3.5.5.2.1.7-1 JTACS CDMA Standard Channel Selection Type Values**

Standard Channel Selection Type	Value
Reserved	'00'
Primary CDMA Channel	'01'
Secondary CDMA Channel	'10'
Primary or Secondary CDMA Channel	'11'

20 21 3.5.5.2.1.8 JTACS CDMA System Acquisition (Custom Channels) Record

22 This acquisition record type is for use in acquiring a JTACS CDMA system using a list of
23 custom CDMA channels, and has the following variable length format:

Acquisition Record Field	Length (bits)
ACQ_TYPE ('1000')	4
NUM_CHANS	5

NUM_CHANS occurrences of the following field:

CHAN	11
------	----

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12

- ACQ_TYPE - Acquisition record type.
This field is set to '1000' (see Table 3.5.5.2-1).
- NUM_CHANS - Number of CDMA channels.
This field is set to the number of JTACS CDMA channels included in this record.
- CHAN - JTACS CDMA channel.
This field specifies a JTACS CDMA channel number (2.1.1.1 of [5]). The CHAN fields should be listed in priority order (highest priority first) according to the desired mobile station system selection scanning priorities.

3.5.5.2.1.9 2 GHz Band CDMA System Acquisition (Using Channels) Record

This acquisition record type is for use in acquiring a 2 GHz Band CDMA system using a list of CDMA channels, and has the following variable length format:

16

Acquisition Record Field	Length (bits)
ACQ_TYPE ('1001')	4
NUM_CHANS	5

NUM_CHANS occurrences of the following field:

CHAN	11
------	----

17
18
19
20
21
22
23

- ACQ_TYPE - Acquisition record type.
This field is set to '1001' (see Table 3.5.5.2-1).
- NUM_CHANS - Number of CDMA channels.
This field is set to the number of 2 GHz Band CDMA channels included in this record.
- CHAN - 2 GHz Band CDMA channel.

1 This field specifies a PCS CDMA channel number (see 2.1.1.1
 2 of [5]). The CHAN fields should be listed in priority order
 3 (highest priority first) according to the desired mobile station
 4 system selection scanning priorities.

5 3.5.5.2.2 Extended Acquisition Record Format

6 The format of the Extended Acquisition Record is as follows:

7

Type-specific Record	Length (bits)
ACQ_TYPE	8
LENGTH	8
Type-specific	8 × LENGTH

8 ACQ_TYPE - Acquisition record type.
 9 This field is set to the Extended Acquisition Record type (see
 10 Table 3.5.5.2-2) and identifies the type-specific fields.
 11 LENGTH - Length of the Type-specific fields.
 12 This field is set to the length of the Type-specific record in
 13 octets.

14 The contents of the type-specific fields determined by the ACQ_TYPE field and are
 15 specified as follows.

16 3.5.5.2.2.1 Cellular Analog System Acquisition Record

17 If the ACQ_TYPE field is set to '00000001', the type-specific record specifies the acquisition
 18 record for use in acquiring a cellular analog system. The type-specific record has the
 19 following fixed-length format:

20

Type-specific Record	Length (bits)
A_B	2
RESERVED	6

21

22 A_B - System A/B selection type.
 23 The values for this field are specified in Table 3.5.5.2.1.1-1.
 24 RESERVED - The value of this field shall be set to zero.

25 3.5.5.2.2.2 Cellular CDMA System Acquisition (Standard Channels) Record

26 If the ACQ_TYPE field is set to '00000010', the type-specific record specifies the acquisition
 27 record for use in acquiring a cellular CDMA system on the primary or secondary CDMA
 28 channels. The type-specific record has the following fixed-length format:

29

Type-specific Record	Length (bits)
A_B	2
PRI_SEC	2
RESERVED	4

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8
9
10
11
12
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24
25
26

- A_B - System A/B selection type.
The values for this field are specified in Table 3.5.5.2.1.1-1.
- PRI_SEC - Standard CDMA Channel selection type.
The values for this field are specified in Table 3.5.5.2.1.2-1.
- RESERVED - The value of this field shall be set to zero.

3.5.5.2.2.3 Cellular CDMA System Acquisition (Custom Channels) Record

If the ACQ_TYPE field is set to '00000011', the type-specific record specifies the acquisition record for use in acquiring a cellular CDMA system using a list of CDMA channels. The type-specific record has the following variable-length format:

Type-specific Record	Length (bits)
NUM_CHANS	5
NUM_CHANS occurrences of the following field:	
CHAN	11
RESERVED	As required

- NUM_CHANS - Number of CDMA channels.
This field is set to the number of cellular CDMA channels included in this record.
- CHAN - Cellular CDMA channel.
This field specifies a cellular CDMA channel number (see 6.1.1.1 of [1] or 2.1.1.1 of [5]). The CHAN fields should be listed in priority order (highest priority first) according to the desired mobile station system selection scanning priorities.
- RESERVED - The length of this field shall be the smallest number of bits that is required to make the total length of the Type-specific record and integer multiple of octets. The value of this field shall be set to zero.

3.5.5.2.2.4 Cellular CDMA Preferred System Acquisition Record

If the ACQ_TYPE field is set to '00000100', the type-specific record specifies the acquisition record for use in acquiring a cellular system (CDMA first, then Analog). The type-specific record has the following fixed-length format:

Type-specific Record	Length (bits)
A_B	2
RESERVED	6

A_B - System A/B selection type.

The values for this field are specified in Table 3.5.5.2.1.1-1.

RESERVED - The value of this field shall be set to zero.

3.5.5.2.2.5 PCS CDMA System Acquisition (Using Blocks) Record

If the ACQ_TYPE field is set to '00000101', the type-specific record specifies the acquisition record for use in acquiring a PCS CDMA system using a list of CDMA frequency blocks. The type-specific record has the following variable-length format:

Type-specific Record	Length (bits)
NUM_BLOCKS	3
NUM_BLOCKS occurrences of the following field:	
BLOCK	3
RESERVED	As required

NUM_BLOCKS - Number of frequency blocks.

This field is set to the number of PCS frequency blocks included in this record.

BLOCK - PCS frequency block.

The values for this field are specified in Table 3.5.5.2.1.5-1. The BLOCK fields should be listed in priority order (highest priority first) according to the desired mobile station system selection scanning priorities.

RESERVED - The length of this field shall be the smallest number of bits that is required to make the total length of the Type-specific record and integer multiple of octets. The value of this field shall be set to zero.

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3.5.5.2.2.6 PCS CDMA System Acquisition (Using Channels) Record

If the ACQ_TYPE field is set to '00000110', the type-specific record specifies the acquisition record for use in acquiring a PCS CDMA system using a list of CDMA channels. The type-specific record has the following variable-length format:

Type-specific Record	Length (bits)
NUM_CHANS	5
NUM_CHANS occurrences of the following field:	
CHAN	11
RESERVED	As required

- NUM_CHANS - Number of CDMA channels.
This field is set to the number of PCS CDMA channels included in this record.
- CHAN - PCS CDMA channel.
This field specifies a PCS CDMA channel number (see 6.1.1.1 of [1] or 2.1.1.1 of [5]). The CHAN fields should be listed in priority order (highest priority first) according to the desired mobile station system selection scanning priorities.
- RESERVED - The length of this field shall be the smallest number of bits that is required to make the total length of the Type-specific record and integer multiple of octets. The value of this field shall be set to zero.

3.5.5.2.2.7 JTACS CDMA System Acquisition (Standard Channels) Record

If the ACQ_TYPE field is set to '00000111', the type-specific record specifies the acquisition record for use in acquiring a JTACS CDMA system on the primary or secondary CDMA channels. The type-specific record has the following fixed-length format:

Type-specific Record	Length (bits)
A_B	2
PRI_SEC	2
RESERVED	4

- A_B - System A/B selection type.
The values for this field are specified in Table 3.5.5.2.1.1-1.
- PRI_SEC - Standard CDMA Channel selection type.

The values for this field are specified in Table 3.5.5.2.1.7-1.

RESERVED - The value of this field shall be set to zero.

3.5.5.2.2.8 JTACS CDMA System Acquisition (Custom Channels) Record

If the ACQ_TYPE field is set to '00001000', the type-specific record specifies the acquisition record for use in acquiring a JTACS CDMA system using a list of custom CDMA channels. The type-specific record has the following variable-length format:

Type-specific Record	Length (bits)
NUM_CHANS	5
NUM_CHANS occurrences of the following field:	
CHAN	11
RESERVED	As required

NUM_CHANS - Number of CDMA channels.

This field is set to the number of JTACS CDMA channels included in this record.

CHAN - JTACS CDMA channel.

This field specifies a JTACS CDMA channel number (2.1.1.1 of [5]). The CHAN fields should be listed in priority order (highest priority first) according to the desired mobile station system selection scanning priorities.

RESERVED - The length of this field shall be the smallest number of bits that is required to make the total length of the Type-specific record and integer multiple of octets. The value of this field shall be set to zero.

3.5.5.2.2.9 2 GHz Band CDMA System Acquisition (Using Channels) Record

If the ACQ_TYPE field is set to '00001001', the type-specific record specifies the acquisition record for use in acquiring a 2 GHz Band CDMA system using a list of CDMA channels. The type-specific record has the following variable-length format:

This acquisition record type is for use in acquiring, and has the following variable length format:

Type-specific Record	Length (bits)
NUM_CHANS	5

NUM_CHANS occurrences of the following field:	
CHAN	11

RESERVED	As required
----------	-------------

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4
5
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9
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13

- NUM_CHANS - Number of CDMA channels.
This field is set to the number of 2 GHz Band CDMA channels included in this record.
- CHAN - 2 GHz Band CDMA channel.
This field specifies a PCS CDMA channel number (see 2.1.1.1 of [5]). The CHAN fields should be listed in priority order (highest priority first) according to the desired mobile station system selection scanning priorities.
- RESERVED - The length of this field shall be the smallest number of bits that is required to make the total length of the Type-specific record and integer multiple of octets. The value of this field shall be set to zero.

3.5.5.2.2.10 Generic Acquisition Record for IS-2000 and IS-95

If the ACQ_TYPE field is set to '00001010', the type-specific record specifies the acquisition record for use in acquiring IS-2000 and IS-95 systems using band-class and channel number. The type-specific record has the following variable-length format:

This acquisition record type is for use in acquiring, and has the following variable length format:

20

Type-specific Record	Length (bits)
LENGTH/2 occurrences of the following two fields:	
BAND_CLASS	5
CHANNEL_NUMBER	11

21
22
23
24
25

- BAND_CLASS - This field is set to the Band Class number corresponding to the frequency assignment of the channel specified by this record.
- CHANNEL_NUMBER - This field is set to the channel number corresponding to the Band Class specified by this record.

3.5.5.2.2.11 Generic Acquisition Record for HRPD

If the ACQ_TYPE field is set to '00001011', the type-specific record specifies the acquisition record for use in acquiring HRPD systems using band-class and channel number. The type-specific record has the following variable-length format:

26
27
28
29

1 This acquisition record type is for use in acquiring, and has the following variable length
2 format:

Type-specific Record	Length (bits)
-----------------------------	----------------------

LENGTH/2 occurrences of the following two fields:

BAND_CLASS	5
CHANNEL_NUMBER	11

4 BAND_CLASS - This field is set to the Band Class number corresponding to
5 the frequency assignment of the channel specified by this
6 record.

7 CHANNEL_NUMBER - This field is set to the channel number corresponding to the
8 Band Class specified by this record.

10 3.5.5.3 System Record and Extended System Record Format

11 A system record contains parameters that the mobile station can use for identifying an
12 acquired system, for determining whether an acquired system is the optimal system on
13 which to operate and for determining the mobile station's roaming status.

14 Two categories of system records are defined: System Records and Extended System
15 Records. A System Record defined in section 3.5.5.3.1 shall be included only in a Preferred
16 Roaming List associated with the SSPR_P_REV equal to '00000001'. An Extended System
17 Record defined in section 3.5.5.3.2 shall be included only in an Extended Preferred
18 Roaming List associated with the SSPR_P_REV equal to or greater than '00000011'.

19 3.5.5.3.1 System Record Format

20 Each System Record has the following variable length format:

System Record Field	Length (bits)
SID	15
NID_INCL	2
NID	0 or 16
PREF_NEG	1
GEO	1
PRI	0 or 1
ACQ_INDEX	9
ROAM_IND	0 or 8

22
23 SID - System identification.

1 This field is set to the SID of the system associated with this
 2 record.

3 The value '0000000000000000' denotes a system with any SID
 4 (i.e., serves as a SID wildcard) not specifically included
 5 elsewhere in SYS_TABLE, provided that the system is found
 6 on a channel or in a block specified in the acquisition record
 7 corresponding to ACQ_INDEX. Any other value of this field
 8 denotes a system with that specific SID found on any
 9 channel.

10 NID_INCL - NID included.

11 This field is set to the value defined in Table 3.5.5.3-1.

12 **Table 3.5.5.3-1 NID_INCL Values**

NID_INCL Value	Parameter Description
'00'	NID not included. Assume NID value '1111111111111111'
'01'	NID included
'10'	NID not included. Assume NID value '0000000000000000'
'11'	Reserved

13
 14 NID - Network identification.

15 If the NID_INCL field of this record is equal to '01', this field is
 16 included and is set to the NID of the network associated with
 17 this record; otherwise, this field is omitted.

18 The value '1111111111111111' denotes any NID (i.e., serves
 19 as a NID wildcard). Not including the NID field is equivalent
 20 to including it and setting it to '1111111111111111'.

21 The value '0000000000000000' denotes a NID of the public
 22 system (see 6.6.5.2 of [1] or 2.6.5.2 of [7])

23 PREF_NEG - Preferred/negative system.

24 This field is set to '1' if the mobile station is allowed to
 25 operate on the system associated with this record. This field
 26 is set to '0' if the mobile station is not allowed to operate on
 27 the system associated with this record.

28 GEO - Geographical region indicator.

29 If this is the first system record, this field is set to '0'.

30 If this is not the first system record, then this field is set as
 31 follows: If the system associated with this record is in the
 32 same geographical region as the system associated with the
 33 previous system record, this field is set to '1'; otherwise, this
 34 field is set to '0'.

35 PRI - Relative priority indicator.

1 If the PREF_NEG field of this system record is equal to '0', this
 2 field is omitted; otherwise this field is included and is set as
 3 follows:

4 If this is the last system record in the specific geographical
 5 region, or if the PREF_NEG field in the next system record is
 6 equal to '0', this field is set to '0' and has no meaning.

7 If the system associated with this system record is more
 8 desirable than the system associated with the next system
 9 record, this field is set to '1'.

10 If the system associated with this system record is as
 11 desirable as the system associated with the next system
 12 record, this field is set to '0'.

13 ACQ_INDEX - Acquisition record index.

14 This field is set to the index of the acquisition record that
 15 specifies the acquisition parameters for the system
 16 associated with this record.

17 Note: The index of the nth acquisition record is n-1. For
 18 example, the index of the first acquisition record in
 19 ACQ_TABLE is 0, and the index for the fourth acquisition
 20 record is 3.

21 ROAM_IND - If the PREF_NEG field of this record is equal to '1', this field is
 22 included and is set to the roaming indication value (see [4])
 23 for the system associated with this record; otherwise, this
 24 field is omitted.

25 3.5.5.3.2 Extended System Record Format

26 Each Extended System Record has the following variable length format:

27

System Record Field	Length (bits)
SYS_RECORD_LENGTH	5
SYS_RECORD_TYPE	4
SYS_RECORD_TYPE specific fields	variable

28 SYS_RECORD_LENGTH - Extended System Record Length.

29 This field is set to the length of the Extended System Record
 30 in octets.

31 SYS_RECORD_TYPE - Extended System Record Type.

32 The value of this field specifies the format of the rest of this
 33 record.

34 The following table specifies the format of the Extended System Record for the values of
 35 the SYS_RECORD_TYPE specified in Table 3.5.5.3.2-1. All other values for the
 36 SYS_RECORD_TYPE are reserved.

1

System Record Field	Length (bits)
SYS_RECORD_LENGTH	5
SYS_RECORD_TYPE	4
PREF_NEG	1
GEO	1
PRI	1
ACQ_INDEX	9
Type-specific system ID record	variable
ROAM_IND	0 or 8
ASSOCIATION_INC	1
ASSOCIATION_TAG	0 or 8
PN_ASSOCIATION	0 or 1
DATA_ASSOCIATION	0 or 1
RESERVED	As required

2

3 SYS_RECORD_LENGTH - Extended System Record Length.

4 This field is set to the length of the Extended System Record
5 in octets.

6 SYS_RECORD_TYPE - Extended System Record Type.

7 This field is set to the type of this Extended System Record
8 (see Table 3.5.5.3.2-1).

9

Table 3.5.5.3.2-1 Type-specific system ID record

SYS_RECORD_TYPE	Parameter Description
'0000'	IS-2000 and IS-95 Systems
'0001'	HRPD System

10 PREF_NEG - Preferred/negative system.

11 This field is set to '1' if the mobile station is allowed to
12 operate on the system associated with this record. This field
13 is set to '0' if the mobile station is not allowed to operate on
14 the system associated with this record.

15 GEO - Geographical region indicator.

16 If this is the first system record, this field is set to '0'.

1 If this is not the first system record, then this field is set as
 2 follows: If the system associated with this record is in the
 3 same geographical region as the system associated with the
 4 previous system record, this field is set to '1'; otherwise, this
 5 field is set to '0'.

6 PRI - Relative priority indicator.

7 This field is set as follows:

8 If this is the last system record in the specific geographical
 9 region, or if the PREF_NEG field in the next system record is
 10 equal to '0', this field is set to '0' and has no meaning.

11 If the system associated with this system record is more
 12 desirable than the system associated with the next system
 13 record, this field is set to '1'.

14 If the system associated with this system record is as
 15 desirable as the system associated with the next system
 16 record, this field is set to '0'.

17 ACQ_INDEX - Acquisition record index.

18 This field is set to the index of the acquisition record that
 19 specifies the acquisition parameters for the system
 20 associated with this record.

21 Note: The index of the n^{th} acquisition record is $n-1$. For
 22 example, the index of the first acquisition record in
 23 ACQ_TABLE is 0, and the index for the fourth acquisition
 24 record is 3.

25 RESERVED - This field shall be set to zero.

26 The type-specific system ID record is set according to the value of the SYS_RECORD_TYPE
 27 field as follows:

28 If the SYS_RECORD_TYPE is set to '0000', the type-specific system ID is as specified in
 29 Table 3.5.5.3.2-2:

30 **Table 3.5.5.3.2-2 Type-specific system ID record**

System ID Record Field	Length (bits)
RESERVED	1
NID_INCL	2
SID	15
NID	0 or 16

31 RESERVED - This field shall be set to zero.

32 NID_INCL - NID included.

33 This field is set to the value defined in Table 3.5.5.3.2-3.

1

Table 3.5.5.3.2-3 NID_INCL Values

NID_INCL Value	Parameter Description
'00'	NID not included. Assume NID value '1111111111111111'
'01'	NID included
'10'	NID not included. Assume NID value '0000000000000000'
'11'	Reserved

2

3

SID - System identification.

4

This field is set to the SID of the system associated with this record.

5

6

The value '0000000000000000' denotes a system with any SID (i.e., serves as a SID wildcard) not specifically included elsewhere in SYS_TABLE, provided that the system is found on a channel or in a block specified in the acquisition record corresponding to ACQ_INDEX. Any other value of this field denotes a system with that specific SID found on any channel.

7

8

9

10

11

12

13

NID - Network identification.

14

If the NID_INCL field of this record is equal to '01', this field is included and is set to the NID of the network associated with this record; otherwise, this field is omitted.

15

16

17

The value '1111111111111111' denotes any NID (i.e., serves as a NID wildcard). Not including the NID field is equivalent to including it and setting it to '1111111111111111'.

18

19

20

The value '0000000000000000' denotes a NID of the public system (see 6.6.5.2 of [1])

21

22

If the SYS_RECORD_TYPE is set to '0001', the type-specific system ID is as specified in Table 3.5.5.3.2-4:

23

24

Table 3.5.5.3.2-4 Type-specific System ID Record

System ID Record Field	Length (bits)
RESERVED	3
SUBNET_COMMON_INCLUDED	1
SUBNET_LSB_LENGTH	7
SUBNET_LSB	SUBNET_LSB_LENGTH
SUBNET_COMMON_OFFSET	0 or 12

25

RESERVED - This field shall be set to zero.

26

SUBNET_COMMON_INCLUDED

1		-	Common part of the HRPD subnet included indicator.
2			This field is set to '1' if the SUBNET_COMMON_OFFSET field
3			is included. Otherwise this field is set to '0'.
4	SUBNET_LSB_LENGTH	-	This field is set to the length of the least significant bits of
5			the HRPD subnet. If SUBNET_COMMON_INCLUDED is set to
6			'0', this field is set to the length of the HRPD subnet
7			associated with this system record.
8	SUBNET_LSB	-	This field is set to the least significant bits of the HRPD
9			subnet of length specified by SUBNET_LSB_LENGTH. If
10			SUBNET_COMMON_INCLUDED is set to '0', this field is set to
11			the entire HRPD subnet associated with this system record.
12	SUBNET_COMMON_OFFSET		
13		-	Common part of the HRPD subnet.
14			If included, this field is set to the offset into the Common
15			Subnet Table (see Table 3.5.5.3.2.1-1), in octets, that
16			specifies the most significant bits of the subnet associated
17			with this system record (e.g., a value of zero for this field
18			points to the beginning of the Common Subnet Table).
19	ROAM_IND	-	If the PREF_NEG field of this record is equal to '1', this field is
20			included and is set to the roaming indication value (see
21			TSB58) for the system associated with this record; otherwise,
22			this field is omitted.
23	ASSOCIATION_INC	-	Association tag included flag.
24			This field is set to '1' if the next three fields are included.
25			Otherwise, this field is set to '0'.
26	ASSOCIATION_TAG	-	If included, this field is set to the 8-bit number that specifies
27			the set to which this system record belongs. The value of the
28			ASSOCIATION_TAG field is only unique within a GEO. The
29			set is defined as a set of systems (specified by the system
30			records) for which at least one the following two conditions
31			hold:
32		•	The members of the set have the same PN offset assignment (i.e., collocated), or
33		•	The members of the set can reach the same set of PDSNs (i.e., associated).
34	PN_ASSOCIATION	-	PN association flag.
35			This field is only included if the ASSOCIATION_INC field is
36			set to '1'. If included, this field shall be set to '1' if the system
37			identified by this system record has the same PN assignment
38			as other systems in the same GEO that are members of the
39			set identified by ASSOCIATION_TAG and whose
40			PN_ASSOCIATION field is also set to '1'. Otherwise, this field
41			shall be set to '0'.
42	DATA_ASSOCIATION	-	Data association flag.

1

2 3.5.5.3.2.1 Common Subnet Table for the HRPD Extended System Record

3 The Common Subnet Table for the HRPD Extended System Record consists of records
4 with the following format:

5

Table 3.5.5.3.2.1-1 Common Subnet Record

System ID Record Field	Length (bits)
RESERVED	4
SUBNET_COMMON_LENGTH	4
SUBNET_COMMON	8 × SUBNET_COMMON_LENGTH

6 SUBNET_COMMON_LENGTH

7 - Length of the common part of the HRPD subnet.

8 This field is set to the length of the most significant bits of
9 the HRPD subnet which is included in this record.

10 SUBNET_COMMON - Common part of the HRPD subnet.

11 This field is set to the most significant bits of the HRPD
12 subnet which is included in this record.

13 RESERVED - The size of this field is such that the total length of this
14 record (including the RESERVED field) is an integer number of
15 octets. This field is set to all zeros.

16

17 3.5.6 PUZL Parameter Blocks

18 Table 3.5.6-1 lists the types of parameter blocks used in the *PUZL Configuration Request*
19 *Message* and the *PUZL Configuration Response Message*.

1

Table 3.5.6-1. PUZL Parameter Block Types

PUZL Parameter Block Type	BLOCK_ID	Reference
PUZL Dimensions	'00000000'	3.5.6.1
PUZL Priorities	'00000001'	3.5.6.2
User Zone	'00000010'	3.5.6.3
Preferred User Zone List	'00000011'	3.5.6.4
Reserved for future standardization	'00000100' through '01111111'	
Available for manufacturer-specific parameter block definitions	'10000000' through '11111110'	See [4]
Reserved	'11111111'	

2

3 3.5.6.1 PUZL Dimensions Parameter Block

4 The PARAM_DATA field of the PUZL Dimensions Parameter Block consists of the following
5 fields:

6

Field	Length (bits)
MAX_UZ_LIST_SIZE	24
CUR_UZ_LIST_SIZE	24
MAX_UZ	12
CUR_UZ	12
UZ_ORIG_ONLY	1
UZ_TEMP_SUBSC	1
UZ_CIRCLE_FLAG	1
UZ_POLYGON_FLAG	1
UZ_LINEAR_FLAG	1
RESERVED	3

7

8 MAX_UZ_LIST_SIZE - Maximum preferred user zone list size.

9 The mobile station shall set this field to the maximum size,
10 in octets, that the mobile station can support for the
11 preferred user zone list (PUZL_{S-p}).

1	CUR_UZ_LIST_SIZE	-	Current preferred user zone list size.
2			The mobile station shall set this field to the size, in octets, of
3			the current preferred user zone list.
4	MAX_UZ	-	Maximum number of User Zone entries.
5			The mobile station shall set this field to the maximum
6			number of user zone entries that the mobile station can
7			support.
8	CUR_UZ	-	Current number of User Zone entries.
9			The mobile station shall set this field to the number of user
10			zone entries currently stored in the preferred user zone list
11			in the mobile station.
12	UZ_ORIG_ONLY	-	User Zone Origination Only Flag.
13			The mobile station shall set this field corresponding to its
14			current setting to indicate whether or not the mobile station is
15			permitted to originate calls only when within the serving area
16			of a currently assigned User Zone. If call origination is only
17			allowed within an assigned user zone, UZ_ORIG_ONLY = '1';
18			otherwise, UZ_ORIG_ONLY = '0'.
19	UZ_TEMP_SUBSC	-	User Zone Temporary Subscription Flag.
20			The mobile station shall set this field corresponding to its
21			current setting to indicate whether or not it is permitted to
22			access User Zones that offer temporary subscription. If
23			allowed, UZ_TEMP_SUBSC = '1'; otherwise, UZ_TEMP_SUBSC
24			= '0'.
25	UZ_CIRCLE_FLAG	-	User Zone Circle Flag.
26			The mobile station shall set this field corresponding to its
27			capability to support the Circle User Zone Type. If supported,
28			UZ_CIRCLE_FLAG = '1'; otherwise, UZ_CIRCLE_FLAG = '0'.
29	UZ_POLYGON_FLAG	-	User Zone Polygon Flag.
30			The mobile station shall set this field corresponding to its
31			capability to support the Polygon User Zone Type. If
32			supported, UZ_POLYGON_FLAG = '1'; otherwise,
33			UZ_POLYGON_FLAG = '0'.
34	UZ_LINEAR_FLAG	-	User Zone Segmented Linear Flag.
35			The mobile station shall set this field corresponding to its
36			capability to support the Segmented Linear User Zone Type.
37			If supported, UZ_LINEAR_FLAG = '1'; otherwise,
38			UZ_LINEAR_FLAG = '0'.
39	RESERVED	-	Reserved bits.
40			The mobile station shall set this field to '000'.
41			

3.5.6.2 PUZL Priorities Parameter Block

The PARAM_DATA field of the PUZL Priorities Parameter Block consists of the following fields:

Field	Length (bits)
LAST_SEGMENT	1
SEGMENT_INDEX	12
NUM_ENTRIES	8

NUM_ENTRIES occurrences of the following parameters:

UZ_ID	16
UZ_SID	15
UZ_PRIORITY	4

The parameter block ends with the following field:

RESERVED	0 to 7
----------	--------

5

6 LAST_SEGMENT - Last segment indicator bit.

7

8

9

10

11

12

SEGMENT_INDEX - Segment index.

13

14

15

16

NUM_ENTRIES - Number of entries.

17

18

19

20

21

22

23

24

25

26

27

28

29

30

UZ_ID - User Zone ID.

The mobile station shall set this field to '1' if this parameter block contains the user zone ID, SID and priority information for the last entry of the current preferred user zone list (PUZL_{s-p}); otherwise, the mobile station shall set this field to '0'.

The mobile station shall set this field to the value of REQUEST_INDEX from the corresponding *PUZL Configuration Request Message*.

The mobile station shall set this field to the number of user zone entries included in the parameter block.

If REQUEST_INDEX from the corresponding *PUZL Configuration Request Message* specifies an index that is invalid for the current preferred user zone list, the mobile station shall set this field to zero. No UZ_ID, UZ_SID and UZ_PRIORITY fields shall be included.

If REQUEST_INDEX from the corresponding *PUZL Configuration Request Message* specifies an index that is valid for the current preferred user zone list, the mobile station shall include the UZ_ID, UZ_SID and UZ_PRIORITY values from at most REQUEST_MAX_ENTRIES user zone entries from the current preferred user zone list.

- 1 Identification number for the User Zone. This is used over
 2 the air interface to identify the User Zone to the network and
 3 the mobile station.
- 4 UZ_SID - User Zone System ID.
- 5 The System Identifier (SID) associated with the User Zone ID.
 6 The User Zone ID and User Zone SID values together provide a
 7 unique identifier for the user zone.
- 8 UZ_PRIORITY - User Zone priority.
- 9 The priority by which User Zones are selected by the mobile
 10 station when more than one User Zone is present. A priority
 11 of null indicates that a User Zone is for manual selection
 12 only. A mobile station will never automatically select a User
 13 Zone of priority 'null' unless initiated manually by the user.
 14 Note that the value of User Zone Priority is non-exclusive.
 15 Normally two User Zones of the same priority would not
 16 occupy the same geographical area. When two User Zones of
 17 the same priority overlap and they are the highest priority to
 18 be selected, the mobile station shall offer the user a choice of
 19 the user zones via the Mobile Station's user interface.
- 20 RESERVED - Reserved bits.
- 21 The mobile station shall add reserved bits in order to make
 22 the length of the entire parameter block equal to an integer
 23 number of octets. The mobile station shall set these bits to
 24 '0'.
- 25

26 3.5.6.3 User Zone Parameter Block

27 The PARAM_DATA field of the User Zone Parameter Block consists of the following fields:

28

Field	Length (bits)
UZ_ID	16
UZ_SID	15
LAST_SEGMENT	1
SEGMENT_OFFSET	12
RESERVED	4
SEGMENT_SIZE	8
SEGMENT_DATA	8 × SEGMENT_SIZE

29

- 30 UZ_ID - User Zone ID.
- 31 Identification number for the User Zone. This is used over
 32 the air interface to identify the User Zone to the network and
 33 the mobile station.

1	UZ_SID	-	User Zone System ID.
2			The System Identifier (SID) associated with the User Zone ID.
3			The User Zone ID and User Zone SID values together provide a
4			unique identifier for the user zone.
5	LAST_SEGMENT	-	Last segment indicator bit.
6			The mobile station shall set this field to '1' if
7			SEGMENT_DATA contains the last octet of the user zone
8			entry; otherwise, the mobile station shall set this field to '0'.
9	SEGMENT_OFFSET	-	Segment offset.
10			The mobile station shall set this field to the value of
11			REQUEST_OFFSET from the corresponding <i>PUZL</i>
12			<i>Configuration Request Message</i> .
13	RESERVED	-	Reserved bits.
14			The mobile station shall set this field to '0000'.
15	SEGMENT_SIZE	-	Segment size.
16			The base station shall set this field to the number of octets
17			of the user zone entry included in SEGMENT_DATA.
18	SEGMENT_DATA	-	Segment of the specified user zone entry of the PUZL.
19			Refer to Section 3.5.7.
20			If REQUEST_OFFSET from the corresponding <i>PUZL</i>
21			<i>Configuration Request Message</i> specifies an offset that is
22			invalid for the user zone entry of the current preferred user
23			zone list, the mobile station shall include no octets in this
24			field.
25			If REQUEST_OFFSET specifies an offset that is valid for the
26			specified user zone entry of the preferred user zone list, the
27			mobile station shall include at most REQUEST_MAX_SIZE
28			sequential octets of the user zone entry from the preferred
29			user zone list in this field. The octets shall be equal to the
30			octets starting at the offset within the user zone entry of the
31			preferred user zone list specified by SEGMENT_OFFSET.
32			

33 3.5.6.4 Preferred User Zone List Parameter Block

34 The PARAM_DATA field of the Preferred User Zone List Parameter Block consists of the
35 following fields:

36

1 If REQUEST_OFFSET specifies an offset that is valid for the
2 specified user zone entry of the preferred user zone list, the
3 mobile station shall include at most REQUEST_MAX_SIZE
4 sequential octets of the user zone entry from the preferred
5 user zone list in this field. The octets shall be equal to the
6 octets starting at the offset within the user zone entry of the
7 preferred user zone list specified by SEGMENT_OFFSET.

8

9 3.5.7 Preferred User Zone List (PUZL)

10 The Preferred User Zone List provides the mobile station with the priority and
11 characteristics of the User Zones to which the mobile station is subscribed. The PUZL is
12 used after the mobile station has completed system acquisition using the PRL or other
13 techniques. Once a mobile station has found its preferred system, the PUZL is used to
14 select the most preferred User Zone on that system. It should be noted that PUZL could
15 have up to 4095 User Zone entries. A User Zone entry includes all of the information
16 associated with the definition of a single user zone that is uniquely identified by the
17 combination of User Zone ID and User Zone SID.

18 The following sections define the parameters that are stored in the PUZL:

19

Field	Length (bits)
RESERVED	2
UZ_TEMP_SUBSC	1
UZ_ORIG_ONLY	1
NUM_UZ_ENTRIES	12

NUM_UZ_ENTRIES occurrences of the following User Zone entry:

UZ_PRIORITY	4
UZ_ID	16
UZ_SID	15
UZ_NAME_ENCODING	8
N_OCTETS	5
UZ_NAME	8 × N_OCTETS
ACTIVE_FLAG	1
PRIORITY_CONTROL	3
NOTIFICATION_FLAG	1
UZ_REVISION	4
UZ_TYPE	3
NUM_ELEMENTS	4

NUM_ELEMENTS occurrences of the following:

UZ Type Specific Fields	Variable
-------------------------	----------

The User Zone entry ends with the following field:

RESERVED	0 to 7
----------	--------

1
2
3
4
5
6
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10

- RESERVED - Reserved bits.
The mobile station shall set this field to '00'.
- UZ_TEMP_SUBSC - User Zone Temporary Subscription Flag.
This flag indicates whether or not the mobile station is permitted to access User Zones that offer temporary subscription. This field does not apply to a specific User Zone and is per MS. If allowed, UZ_TEMP_SUBSC = '1'; otherwise, UZ_TEMP_SUBSC = '0'.
- UZ_ORIG_ONLY - User Zone Origination Only Flag.

1			This flag indicates whether or not the mobile station is
2			permitted to originate calls only when within the serving area
3			of a currently assigned User Zone. If call origination is only
4			allowed within an assigned user zone, UZ_ORIG_ONLY = '1';
5			otherwise, UZ_ORIG_ONLY = '0'.
6	NUM_UZ_ENTRIES	-	Current number of User Zone entries.
7			Number of User Zone entries currently in the mobile's PUZL.
8	UZ_PRIORITY	-	User Zone priority.
9			The priority by which User Zones are selected by the mobile
10			station when more than one User Zone is present. A priority
11			of null indicates that a User Zone is for manual selection
12			only. A mobile station will never automatically select a User
13			Zone of priority 'null' unless initiated manually by the user.
14			Note that the value of User Zone Priority is non-exclusive.
15			Normally two User Zones of the same priority would not
16			occupy the same geographical area. When two User Zones of
17			the same priority overlap and they are the highest priority to
18			be selected, the mobile station shall offer the user a choice of
19			the user zones via the Mobile Station's user interface.
20	UZ_ID	-	User Zone ID.
21			Identification number for the User Zone. This is used over
22			the air interface to identify the User Zone to the network and
23			the mobile station.
24	UZ_SID	-	User Zone System ID.
25			The System Identifier (SID) associated with the User Zone ID.
26			The User Zone ID and User Zone SID values together provide a
27			unique identifier for the user zone.
28	UZ_NAME_ENCODING	-	User Zone name encoding.
29			A field indicating the character set the User Zone Name is
30			encoded in as per ANSI-41 (TSB-58).
31	N_OCTETS	-	Number of octets.
32			Number of octets in the User Zone name.
33	UZ_NAME	-	User Zone name.
34			Up to 12-character field used in the mobile station to indicate
35			to the mobile station the Name of the User Zone the mobile
36			station is currently subscribed to. Encoded as per the
37			previous field.
38	ACTIVE_FLAG	-	Active flag.
39			With this flag set to '1', the mobile station must register upon
40			entering or exiting this particular User Zone. If allowed,
41			ACTIVE_FLAG = '1'; otherwise, ACTIVE_FLAG = '0'.
42	PRIORITY_CONTROL	-	Priority Control.
43			A 3 bit field that controls the ability of the user to modify
44			PUZL priorities using the user interface of the mobile. The
45			following states are defined at this time:

1

State	Value	Description
No changes permitted	'000'	The user may not modify or override the PUZL priorities in any way.
Manual	'001'	Permitted to select manually amongst the User Zones present. Upon exiting the User Zone the Mobile will revert back to the PUZL priorities.
Manual and Temporary	'010'	The user is also permitted to change the priorities of the PUZL for this User Zone. The change will remain in effect until the next power down.
Reserved	'011' through '111'	

2

3

NOTIFICATION_FLAG - Notification flag.

4

5

6

7

8

9

When this flag is set to '1' and a mobile station moves within the coverage area of a User Zone, this flag can be used to indicate to the user that the User Zone is present. This flag would typically be used for User Zones that are set for manual selection only (User Zone Priority = null) but that the subscriber wishes to be informed of its presence.

10

UZ_REVISION - User Zone revision.

11

12

13

14

This indicates the current revision of this entry in the PUZL. For Broadcast User Zones, the mobile station uses this value to determine if the network has more current information about the particular User Zone.

15

UZ_TYPE - User Zone type.

16

17

This field is used to distinguish between the following types of User Zones:

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9
10
11
12
13
14
15
16

Table 3.5.7-1 User Zone Type Values

User Zone Type	Value
Broadcast – RF Coverage Based	‘000’
Broadcast – Geo-Based	‘001’
Mobile Specific – RF Coverage Based - Overhead Parameter Determined	‘010’
Mobile Specific – Geo-Based	‘011’
Mobile Specific - Geo Based - Separate Carrier	‘100’
Reserved	‘101’ through ‘111’

NUM_ELEMENTS - Number of elements.
This is the number of User Zone type specific fields that follow according to the following table.

User Zone Type	NUM_ELEMENTS	Type of Elements
000	0	None
001	Variable	Geo Types
010	Variable	OHP Types
011	Variable	Geo Types
100	1	Geo-Based – Separate Carrier

UZ Type Specific Fields - User Zone type specific fields.
Refer to Section 3.5.7.1.

3.5.7.1 User Zone Type Specific Fields

This section describes User Zone Type specific fields associated with a User Zone.

3.5.7.1.1 User Zone Type: Broadcast – RF Coverage Based

No data required.

1 3.5.7.1.2 User Zone Type: Broadcast – Geo-based

2 Table 3.5.7.1.2-1 below lists all the supporting Geo Types and corresponding values.

3
4 **Table 3.5.7.1.2-1 Geo Type Values**

Geo Type	Value
Circle	'000'
Segmented Linear	'001'
Polygon	'010'
Reserved	'011' through '100'

5
6 For Geo Type Specific Fields see 3.5.7.1.2.1 – 3.5.7.1.2.3.

7
8 3.5.7.1.2.1 Circle

9 The “Circle” Geo Type has the following format:

10

Geo Type Field	Length (bits)
GEO_TYPE ('000')	3
ANCHOR_LATITUDE	23
ANCHOR_LONGITUDE	22
RADIUS	10
HYSTERESIS	4

11
12 GEO_TYPE - Geo Type.

13 This field is set to '000' (see Table 3.5.7.1.2-1).

14 ANCHOR_LATITUDE - Anchor latitude.

15 Latitude of the center of the circle in units of 0.25 second,
16 expressed as a two's complemented signed number with
17 positive numbers signifying North latitudes. Values over the
18 range of -1296000 to 1296000 inclusive (corresponding to a
19 range of -90° to +90°) are valid.

20 ANCHOR_LONGITUDE - Anchor longitude.

1 Longitude of the center of the circle in units of 0.25 second,
 2 expressed as a two's complemented signed number with
 3 positive numbers signifying East longitude. Values over the
 4 range of -2592000 to 2592000 inclusive (corresponding to a
 5 range of -180° to +180°) are valid.

6 RADIUS - Radius.
 7 Radius of the circle in units of 0.25 second. The 10 bits are
 8 divided into a 7-bit mantissa and a 3-bit exponent providing a
 9 range of 0 to $127 \times 2^7 \times 0.25$ seconds.

10 HYSTERESIS - Hysteresis.
 11 Hysteresis value expressed in units of 0.25 second. The
 12 mantissa is defined as '1' and the 4 bits represent the
 13 exponent. This provides hysteresis values of 1, 2, 4, 8 ...128
 14 x 0.25 sec. The hysteresis value delays the exiting of a user
 15 zone by a distance offset determined by the value of the
 16 hysteresis. The entry point for a user zone is the radius
 17 value.

18

19 3.5.7.1.2.2 Segmented Linear

20 The segmented linear user zone is defined by an anchor point and a series of points offset
 21 relative to each other. The area is formed by defining a distance (radius) offset from the
 22 line.

23 The "Segmented Linear" Geo Type has the following format:

24

Geo Type Field	Length (bits)
GEO_TYPE ('001')	3
ANCHOR_LATITUDE	23
ANCHOR_LONGITUDE	22
RADIUS	10
HYSTERESIS	4
N_POINTS	5

N_POINTS of the following:

LAT_OFFSET	11
LONG_OFFSET	11

25

26 GEO_TYPE - Geo Type.
 27 This field is set to '001' (see Table 3.5.7.1.2-1).

28 ANCHOR_LATITUDE - Anchor latitude.

1			Latitude of the anchor point for the line in units of 0.25
2			second, expressed as a two's complemented signed number
3			with positive numbers signifying North latitudes. Values over
4			the range of -1296000 to 1296000 inclusive (corresponding to
5			a range of -90° to +90°) are valid.
6	ANCHOR_LONGITUDE	-	Anchor longitude.
7			Longitude of the anchor point for the line in units of 0.25
8			second, expressed as a two's complemented signed number
9			with positive numbers signifying East longitude. Values over
10			the range of -2592000 to 2592000 inclusive (corresponding to
11			a range of -180° to +180°) are valid.
12	RADIUS	-	Radius.
13			Distance away from the line that the User Zone covers in
14			units of 0.25 second. The 10 bits are divided into a 7-bit
15			mantissa and a 3-bit exponent providing a range of 0 to 127 x
16			2 ⁷ x 0.25 seconds.
17	HYSTERESIS	-	Hysteresis.
18			Hysteresis value expressed in units of 0.25 second. The
19			mantissa is defined as '1' and the 4 bits represent the
20			exponent. This provides hysteresis values of 1, 2, 4, 8 ...128
21			x 0.25 sec. The hysteresis value delays the exiting of a user
22			zone by a distance offset from the radius determined by the
23			value of the hysteresis. The entry point for a user zone is
24			the radius value.
25	N_POINTS	-	Number of points.
26			Number of points of the following two values.
27	LAT_OFFSET	-	Latitude offset.
28			Latitude offset distance from the previous point in units of
29			0.25 seconds. The 11 bits are divided into an 8 bit mantissa
30			(2's complement representation) and a 3 bit exponent
31			providing a range of ± 0 to 127 x 2 ⁷ x 0.25 seconds.
32	LONG_OFFSET	-	Longitude offset.
33			Longitude offset distance from the previous point in units of
34			0.25 seconds. The 11 bits are divided into an 8 bit mantissa
35			(2's complement representation) and a 3 bit exponent
36			providing a range of ± 0 to 127 x 2 ⁷ x 0.25 seconds.

37 3.5.7.1.2.3 Polygon

38 The polygon is defined by an anchor vertex and a series of vertices offset from the anchor.
 39 The polygon is formed by lines formed between the vertices in the order they are
 40 provisioned starting with the anchor as the first vertex. A line is formed between the last
 41 point provisioned and the anchor to close the polygon.

42 The "Polygon" Geo Type has the following format:

43

Geo Type Field	Length (bits)
GEO_TYPE ('010')	3
ANCHOR_LATITUDE	23
ANCHOR_LONGITUDE	22
HYSTERESIS	4
N_POINTS	5

N_POINTS of the following:

LAT_OFFSET	11
LONG_OFFSET	11

1

2

GEO_TYPE - Geo Type.

3

This field is set to '010' (see Table 3.5.7.1.2-1).

4

ANCHOR_LATITUDE - Anchor latitude.

5

Latitude of the anchor point for one vertex on the polygon in units of 0.25 second, expressed as a two's complement signed number with positive numbers signifying North latitudes. Values over the range of -1296000 to 1296000 inclusive (corresponding to a range of -90° to +90°) are valid.

10

ANCHOR_LONGITUDE - Anchor longitude.

11

Longitude of the anchor point for one vertex on the polygon in units of 0.25 second, expressed as a two's complement signed number with positive numbers signifying East longitude. Values over the range of -2592000 to 2592000 inclusive (corresponding to a range of -180° to +180°) are valid.

16

17

HYSTERESIS - Hysteresis.

18

Hysteresis value expressed in units of 0.25 second. The mantissa is defined as '1' and the 4 bits represent the exponent. This provides hysteresis values of 1, 2, 4, 8 ...128 x 0.25 sec. The hysteresis value delays the exiting of a user zone by a distance offset from the polygon edge determined by the value of the hysteresis. The entry point for the polygon as defined by the lines joining the points on the polygon.

25

N_POINTS - Number of points.

26

Number of points of the following two values.

27

LAT_OFFSET - Latitude offset.

28

Latitude offset distance from the anchor point in units of 0.25 seconds. The 11 bits are divided into an 8 bit mantissa (2's complement representation) and a 3 bit exponent providing a range of ± 0 to $127 \times 2^7 \times 0.25$ seconds.

32

LONG_OFFSET - Longitude offset.

1 Longitude offset distance from the anchor point in units of 0.25
 2 seconds. The 11 bits are divided into an 8 bit mantissa (2's
 3 complement representation) and a 3 bit exponent providing a
 4 range of ± 0 to $127 \times 2^7 \times 0.25$ seconds.

5
 6 **3.5.7.1.3 User Zone Type: Mobile Specific – RF Coverage Based - Overhead Parameter**
 7 **Determined**

8 For this type of user zone, the mobile station matched parameters on the overhead
 9 channel with information in the PUZL.

10 Below describes all the supporting Overhead Parameter (OHP) Types and corresponding
 11 values:

12
 13 **Table 3.5.7.1.3-1 Overhead Parameter (OHP) Type Values**

OHP Type	Value
SID Only	'000'
SID and NID	'001'
SID and BASE_ID	'010'
Base station Latitude and Longitude	'011'
User Zone Center Point and Radius	'100'
Reserved	'101' through '111'

14
 15 **3.5.7.1.3.1 SID Only**

16 The SID comes from the common parameters defining the User Zone.

17 The "SID Only" OHP Type has the following format:

OHP Type Field	Length (bits)
OHP_TYPE ('000')	3
HYSTERESIS	4

18
 19
 20 OHP_TYPE - Overhead Parameter Type.

21 This field is set to '000' (see Table 3.5.7.1.3-1).

22 HYSTERESIS - Hysteresis.

1 Expressed in dB. See Section 2.6.9 of [7] for definition of
 2 hysteresis relative to CDMA Tiered Services.

3

4 3.5.7.1.3.2 SID and NID

5 The SID comes from the common parameters defining the User Zone.

6 The “SID and NID” OHP Type has the following format:

7

OHP Type Field	Length (bits)
OHP_TYPE ('001')	3
N_ITEMS	5

N_ITEMS occurrences of the following:

NID	16
HYSTERESIS	4

8

9 OHP_TYPE - Overhead Parameter Type.
 10 This field is set to '001' (see Table 3.5.7.1.3-1).

11 N_ITEMS - Number of items.
 12 Number of entries of the following two values.

13 NID - Network ID.
 14 See [7].

15 HYSTERESIS - Hysteresis.
 16 Expressed in dB. See Section 2.6.9 of [7] for definition of
 17 hysteresis relative to CDMA Tiered Services for RF coverage
 18 based user zones.

19

20 3.5.7.1.3.3 SID and BASE_ID

21 The SID comes from the common parameters defining the User Zone.

22 The “SID and BASE_ID” OHP Type has the following format:

23

OHP Type Field	Length (bits)
OHP_TYPE ('010')	3
N_ITEMS	5

N_ITEMS occurrences of the following:

BASE_ID	16
HYSTERESIS	4

- 1
- 2 OHP_TYPE - Overhead Parameter Type.
- 3 This field is set to '010' (see Table 3.5.7.1.3-1).
- 4 N_ITEMS - Number of items.
- 5 Number of entries of the following two values.
- 6 BASE_ID - Base Station ID.
- 7 See [7].
- 8 HYSTERESIS - Hysteresis.
- 9 Expressed in dB. See Section 2.6.9 of [7] for definition of
- 10 hysteresis relative to CDMA Tiered Services for RF coverage
- 11 based user zones.
- 12

13 3.5.7.1.3.4 Base Station Latitude and Longitude

14 The "Base Station Latitude and Longitude " OHP Type has the following format:

15

OHP Type Field	Length (bits)
OHP_TYPE ('011')	3
N_POINTS	5

N_POINTS occurrences of the following:

BASE_LAT	22
BASE_LONG	23
HYSTERESIS	4

16

- 17 OHP_TYPE - Overhead Parameter Type.
- 18 This field is set to '011' (see Table 3.5.7.1.3-1).
- 19 N_POINTS - Number of points.
- 20 Number of points of the following three values.
- 21 BASE_LAT - Base Station latitude.

- 1 See [7].
- 2 BASE_LONG - Base Station longitude.
- 3 See [7].
- 4 HYSTERESIS - Hysteresis.
- 5 Expressed in dB. See Section 2.6.9 of [7] for definition of
- 6 hysteresis relative to CDMA Tiered Services for RF coverage
- 7 based user zones.

8 3.5.7.1.3.5 User Zone Center Point and Radius

9 In this case, a circle is used to define the user zone. Any base station whose BASE_LAT
 10 and BASE_LONG fall within the circle are considered to define the user zone. The
 11 coverage area of these sites constitute the user zone.

12 The “User Zone Center Point and Radius “ HP Type has the following format:

13

OHP Type Field	Length (bits)
OHP_TYPE ('100')	3
CENTER_POINT_LAT	23
CENTER_POINT_LONG	22
RADIUS	10
HYSTERESIS	4

14

- 15 OHP_TYPE - Overhead Parameter Type.
- 16 This field is set to '100' (see Table 3.5.7.1.3-1).
- 17 CENTER_POINT_LAT - Center point latitude.
- 18 Latitude of the center of the circle in units of 0.25 second,
- 19 expressed as a two’s complemented signed number with
- 20 positive numbers signifying North latitudes. Values over the
- 21 range of -1296000 to 1296000 inclusive (corresponding to a
- 22 range of -90° to +90°) are valid.
- 23 CENTER_POINT_LONG - Center point longitude.
- 24 Longitude of the center of the circle in units of 0.25 second,
- 25 expressed as a two’s complemented signed number with
- 26 positive numbers signifying East longitude. Values over the
- 27 range of -2592000 to 2592000 inclusive (corresponding to a
- 28 range of -180° to +180°) are valid.
- 29 RADIUS - Radius.
- 30 Radius of the circle in units of 0.25 second. The 10 bits are
- 31 divided into a 7-bit mantissa and a 3-bit exponent providing a
- 32 range of 0 to 127 x 2⁷ x 0.25 seconds.
- 33 HYSTERESIS - Hysteresis.

1 Expressed in dB. See Section 2.6.9 of [7] for definition of
 2 hysteresis relative to CDMA Tiered Services for RF coverage
 3 based user zones.

4 3.5.7.1.4 User Zone Type: Mobile Specific – Geo-Based

5 See section 3.5.7.1.2. The parameters are identical.

6 3.5.7.1.5 User Zone Type: Mobile Specific – Geo-Based – Separate Carrier

7 This user zone type has the following format:

8

Field	Length (bits)
SID	15
NID	16
PN_INCLUDED	1
PRI_NGHR_PN	0 or 9
BAND_CLASS	5
NGHR_FREQ	5
NUM_ENTRIES	4

NUM_ENTRIES occurrences of the following:

Geo Type Specific Fields	Variable
--------------------------	----------

9

- 10 SID - System ID.
 11 The SID of the separate RF carrier.
- 12 NID - Network ID.
 13 The NID of the separate RF carrier.
- 14 PN_INCLUDED - Private neighbor PN included indicator.
 15 Set to '1' if the Private Neighbor PN is included. Otherwise
 16 the mobile should due a full search of the frequency.
- 17 PRI_NGHR_PN - Private neighbor PN offset.
 18 The PN offset of the private RF carrier.
- 19 BAND_CLASS - Private neighbor band class.
 20 The Band Class of the private RF carrier.
- 21 NGHR_FREQ - Private neighbor frequency.
 22 The frequency of the private RF carrier.
- 23 NUM_ENTRIES - Number of entries.
 24 The number of Geo Type specific fields that follow.
- 25 Geo Type Specific Fields - Geo Type specific fields.

1 One or more Geo Type specific fields (see Sections 3.5.7.1.2.1
2 – 3.5.7.1.2.3).

3 3.5.8 3GPD Parameter Blocks

4 Table 3.5.8-1 lists the types of parameter blocks used in the *3GPD Configuration Request*
5 *Message* and the *3GPD Configuration Response Message*.

6

7

Table 3.5.8-1 3GPD Parameter Block Types

Parameter Block Type	BLOCK_ID	Reference
3GPD Operation Capability Parameters	'00000000'	3.5.8.1
3GPD Operation Mode Parameters	'00000001'	3.5.8.2
SimpleIP Capability Parameters	'00000010'	3.5.8.3
MobileIP Capability Parameters	'00000011'	3.5.8.4
SimpleIP User Profile Parameters	'00000100'	3.5.8.5
Mobile IP User Profile Parameters	'00000101'	3.5.8.6
SimpleIP Status Parameters	'00000110'	3.5.8.7
MobileIP Status Parameters	'00000111'	3.5.8.8
SimpleIP PAP SS Parameters ¹	'00001000'	3.5.8.9
SimpleIP CHAP SS Parameters ¹	'00001001'	3.5.8.10
MobileIP SS Parameters ¹	'00001010'	3.5.8.11
HRPD Access Authentication Capability Parameters	'00001011'	3.5.8.12
HRPD Access Authentication User Profile Parameters	'00001100'	3.5.8.13
HRPD Access Authentication CHAP SS Parameters ¹	'00001101'	3.5.8.14
Reserved	'00001110' through '11111111'	
¹ The shared secret parameters shall not be transmitted over the air unencrypted.		

8 3.5.8.1 3GPD Operation Capability Parameters

9 The PARAM_DATA field of the 3GPD Operation Capability Parameters Block consists of the
10 following fields:

11

Field	Length
OP_MODE	8

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6

OP_MODE - Operation Mode Bitmap to indicate which operation modes are supported by the mobile station.

The mobile station shall set this field to the value in the form of bitmap as follows:

Subfield	Length (bits)	Subfield Description
SimpleIP	1	SimpleIP Supported
MobileIP	1	MobileIP Supported
MobileIP with SimpleIP fallback	1	MobileIP with SimpleIP fallback Supported
Reserved	5	-

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11

The Mobile Station shall set each subfield to '1', if the corresponding operating mode is supported by the mobile station; otherwise the mobile station shall set the subfield to '0'.

12
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16

RESERVED - Reserved bits.

The mobile station shall add reserved bits as needed in order to make the length of the entire parameter block equal to an integer number of octets.

The mobile station shall set this field to '00000'.

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18
19
20

3.5.8.2 3GPD Operation Mode Parameters

The PARAM_DATA field of the 3GPD Operation Mode Parameters Block consists of the following fields:

Field	Length
OP_MODE	2
RESERVED	6

21
22

OP_MODE - Active operation mode in the mobile station.

1 The mobile station shall set this field to the active operation
 2 mode in the mobile station as specified in Table 3.5.8.2-1.

3 **Table 3.5.8.2-1 Operation Mode**

Operation Mode	Binary Value
SimpleIP only	00
MobileIP with SimpleIP Fallback	01
MobileIP only	10
RESERVED	11

4
 5 RESERVED - Reserved bits.
 6 Additional reserved bits are needed in order to make the
 7 length of the entire parameter block equal to an integer
 8 number of octets.
 9 The mobile station shall set this field to '000000'.

10 **3.5.8.3 SimpleIP Capability Parameters**

11 The PARAM_DATA field of the SimpleIP Capability Parameters Block consists of the
 12 following fields:

13

Field	Length (bits)
MAX_NUM_NAI	4
MAX_NAI_LENGTH	8
MAX_SS_LENGTH	5
AUTH_ALGORITHM	8
RESERVED	7

14
 15 MAX_NUM_NAI - Maximum SimpleIP NAI Entries.
 16 The mobile station shall set this field to the maximum
 17 number of SimpleIP NAI entries supported by the mobile
 18 station.

19 MAX_NAI_LENGTH - Maximum SimpleIP NAI length.
 20 The mobile station shall set this field to the maximum
 21 length, in units of octets, of the SimpleIP NAIs supported by
 22 the mobile station. The mobile station shall support an NAI
 23 length of at least 72 octets. If multiple authentication
 24 algorithms support is indicated, the mobile station shall set
 25 this field to the maximum of the NAI lengths allocated for the
 26 supported algorithms.

- 1 MAX_SS_LENGTH - Maximum Length of the Shared Secret Data.
- 2 The mobile station shall set this field to the maximum
- 3 length, in units of octets, of the shared secret data supported
- 4 by the mobile station. The mobile station shall support an
- 5 SS length of at least 16 octets long. If multiple
- 6 authentication algorithms support is indicated, the mobile
- 7 station shall set this field to the maximum of the SS lengths
- 8 allocated for the supported algorithms.
- 9 AUTH_ALGORITHM - SimpleIP Authentication Algorithm supported by the mobile
- 10 station.
- 11 The mobile station shall set this field to the SimpleIP
- 12 authentication algorithms supported by the mobile station in
- 13 the form of bitmap. The Authentication Algorithm is encoded
- 14 as follows:
- 15

16 **Table 3.5.8.3-1 AUTH_ALGORITHM Parameter Values**

17

Subfield	Length (bits)	Subfield Description
PPP CHAP	1	CHAP mode-[11]
PPP_PAP	1	PAP mode- [10]
RESERVED	6	

- 18
- 19 RESERVED - Reserved bits.
- 20 The mobile station shall add reserved bits as needed in order
- 21 to make the length of the entire parameter block equal to an
- 22 integer number of octets.
- 23 The mobile station shall set all bits of this field to '0'.

24 3.5.8.4 MobileIP Capability Parameters

- 25 The PARAM_DATA field of the 3GPD MobileIP Capability Parameters Block consists of the
- 26 following fields:
- 27

Field	Length (bits)
MAX_NUM_NAI	4
MAX_NAI_LENGTH	8
MAX_MN-AAA_SS_LENGTH	5
MN-AAA_AUTH_ALGORITHM	8
MAX_MN-HA_SS_LENGTH	5
MN-HA_AUTH_ALGORITHM	8
RESERVED	2

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- MAX_NUM_NAI - Maximum MobileIP NAI Entries.
The mobile station shall set this field to the maximum number of MobileIP NAI entries supported by the mobile station.
- MAX_NAI_LENGTH - Maximum MobileIP NAI length.
The mobile station shall set this field to the maximum length, in units of octets, of the MobileIP NAIs supported by the mobile station. The mobile station shall support an NAI length of at least 72 octets. If multiple authentication algorithms support is indicated, the mobile station shall set this field to the maximum of the NAI lengths allocated for the supported algorithms.
- MAX_MN-AAA_SS_LENGTH - Maximum Length of the Shared Secret Data (MN-AAA).
The mobile station shall set this field to the maximum length, in units of octet, of the shared secret data (MN-AAA) supported by the mobile station. The mobile station shall support shared secret data of at least 16 octets long. If multiple authentication algorithms support is indicated, the mobile station shall set this field to the maximum of the MN-AAA SS lengths allocated for the supported algorithms.
- MN-AAA_AUTH_ALGORITHM - Authentication Algorithm (MN-AAA) supported by the mobile station.
The mobile station shall set this field to the MobileIP authentication algorithms (MN-AAA) supported by the mobile station in the form of bitmap. The Authentication Algorithm is encoded as follows:

Table 3.5.8.4-1 MN-AAA_AUTH_ALGORITHM Parameter Values

Subfield	Length (bits)	Subfield Description
MD5	1	[15]
RESERVED	7	

1

2 **MAX_MN-HA_SS_LENGTH** - Maximum Length of the Shared Secret Data (MN-HA).

3 The mobile station shall set this field to the maximum
4 length, in units of octet, of the shared secret data (MN-HA)
5 supported by the mobile station. The mobile station shall set
6 the shared secret data of at least 16 octets long. If multiple
7 authentication algorithms support is indicated, the mobile
8 station shall set this field to the maximum of the MN-HA SS
9 lengths allocated for the supported algorithms.

10 **MN-HA_AUTH_ALGORITHM** - Authentication Algorithm (MN-HA) supported by the mobile
11 station.

12 The mobile station shall set this field to the MobileIP
13 authentication algorithms (MN-HA) supported by the mobile
14 station in the form of bitmap. The Authentication Algorithm
15 is encoded as follows:
16

17 **Table 3.5.8.4-2 MN-HA_AUTH_ALGORITHM Parameter Values**

18

Subfield	Length (bits)	Subfield Description
MD5	1	[12]
RESERVED	7	

19

20 **RESERVED** - Reserved bits.

21 The mobile station shall add reserved bits as needed in order
22 to make the length of the entire parameter block equal to an
23 integer number of octets.

24 The mobile station shall set all bits of this field to '0'.

25

26 **3.5.8.5 SimpleIP User Profile Parameters**

27 The PARAM_DATA field of the SimpleIP User Profile Parameters Block consists of the
28 following fields:

29

Field	Length (bits)
NUM_NAI	4
NUM_NAI occurrences of the following fields:	
NAI_ENTRY_INDEX	4
NAI_LENGTH	8
NAI	8 × NAI_LENGTH
AUTH_ALGORITHM	4
RESERVED	0 to 7 (as needed)

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NUM_NAI - Number of SimpleIP NAI Entries.
The mobile station shall set this field to the number of SimpleIP NAI entries.

The mobile station shall include NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX - SimpleIP NAI entry index.
The mobile station shall set this field to the index in the SimpleIP NAI Table.

NAI_LENGTH - SimpleIP NAI length.
The mobile station shall set this field to the length of the NAI in units of octet.

NAI - Network Access Identifier.
The mobile station shall set this field to the Network Access Identifier (NAI), encoded in ASCII string, refer to [14]. The NAI is of the form [user@realm](#).

AUTH_ALGORITHM - Authentication Algorithm for SimpleIP.
The mobile station shall set this field to the authentication algorithm used to calculate the Simple IP Authentication. The Authentication Algorithm is specified in Table 3.5.8.5-1.

Table 3.5.8.5-1 Authentication Algorithm Parameter Values for SimpleIP

AUTH_ALGORITHM	Binary Value
None	'0000'
PPP CHAP	'0001'
PPP PAP	'0010'
PPP CHAP to PAP fallback	'0011'
RESERVED	'0100' to '1111'

RESERVED - Reserved bits.

Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets. The mobile station shall set these bits to '0'.

3.5.8.6 Mobile IP User Profile Parameters

The PARAM_DATA field of the Mobile IP User Profile Parameters Block consists of the following fields:

Field	Length (bits)
RETRY_INFO_INCLUDED	1
MAX_NUM_RETRY	0 or 2
FIRST_RETRY_TIMEOUT	0 or 3
REREG_THRESHOLD	0 or 6
NUM_NAI	4

NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX	4
NAI_LENGTH	8
NAI	8 × NAI_LENGTH
T_BIT	1
HOME_ADDRESS	32
PRIMARY_HOME_AGENT	32
SECONDARY_HOME_AGENT	32
MN-AAA_AUTH_ALGORITHM	4
MN-AAA-SPI_INDICATOR	1
MN-AAA_SPI	0 or 32
MN-HA_AUTH_ALGORITHM	4
MN-HA_SPI_INDICATOR	1
MN-HA_SPI	0 or 32

RESERVED	0 to 7 (as needed)
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- RETRY_INFO_INCLUDED - Indicate if the retry information is included or not.
If MAX_NUM_RETRY, FIRST_RETRY_TIMEOUT and REREG_THRESHOLD are included in this block, the mobile station shall set this field to '1'; otherwise, the mobile station shall set this field to '0'.
- MAX_NUM_RETRY - Maximum Number of Retry for the MobileIP Registration.
If RETRY_INFO_INCLUDED is set to '0', the mobile station shall omit this field; otherwise, the mobile station shall set this field as follows:
The mobile station shall set this field to the maximum number of retries for MobileIP registration.
- FIRST_RETRY_TIMEOUT - The amount of time elapsed between the first and second MobileIP Registration Requests, while the mobile station did not receive the MobileIP Registration Reply.

1		If RETRY_INFO_INCLUDED is set to '0', this field shall be omitted; otherwise, this field shall be set as follows:
2		
3		This field shall be set to one less than the number of amount
4		of time elapsed, in units of 250ms, between the first and
5		second MobileIP Registration Requests, while the mobile
6		station did not receive the MobileIP Registration Reply.
7	REREG_THRESHOLD	-Re-Registration Threshold.
8		If RETRY_INFO_INCLUDED is set to '0', the mobile station
9		shall omit this field; otherwise, the mobile station shall set
10		this field as follows:
11		The mobile station shall set this field to the time, in units of
12		minute, before the expiration of the registration lifetime that
13		the mobile will try to reregister.
14	NUM_NAI	- Number of MobileIP NAI Entries.
15		The mobile station shall set this field to the number of
16		MobileIP NAI entries.
17		The mobile station shall include NUM_NAI occurrences of the following fields:
18	NAI_ENTRY_INDEX	- MobileIP NAI entry index.
19		The mobile station shall set this field to the index in the
20		MobileIP NAI Table.
21	NAI_LENGTH	- MobileIP NAI length.
22		The mobile station shall set this field to the length of the
23		MobileIP NAI, in units of octet.
24	NAI	- Network Access Identifier.
25		The mobile station shall set this field to the Network Access
26		Identifier (NAI), encoded in ASCII string, refer to [14]. The NAI
27		is of the form user@realm .
28	T_BIT	- Reverse Tunneling.
29		The mobile station shall set this field to '1' if the reverse
30		tunneling is required or set to '0' if reverse tunneling is not
31		required, see [13].
32	HOME_ADDRESS	- Home Address.
33		The mobile station shall set this field to the IP address of the
34		mobile node in the form of network byte code.
35	PRIMARY_HOME_AGENT	- Primary Home Agent.
36		The mobile station shall set this field to the IP address of the
37		mobile node's primary home agent in the form of network
38		byte code.
39	SECONDARY_HOME_AGENT	- Secondary Home Agent.
40		The mobile station shall set this field to the IP address of the
41		mobile node's back-up/secondary home agent in the form of
42		network byte code.
43	MN-AAA_AUTH_ALGORITHM	- Authentication Algorithm (MN-AAA)

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The mobile station shall set this field to the authentication algorithm used to calculate the Mobile IP MN-AAA Authentication Extension as defined in [15]. The Authentication Algorithm is encoded corresponding to Table 3.5.8.6-1.

Table 3.5.8.6-1 Authentication Algorithm Parameter Values

MN-AAA_AUTH_ALGORITHM/ MA-HA_AUTH_ALGORITHM	Binary Value
None	'0000'
MD5	'0001'
RESERVED	'0010' to '1111'

- MN-AAA_SPI_INDICATOR - Indicator of SPI between MN and AAA.
The mobile station shall set this field to '1' if the Security Parameter Index is included; otherwise, the mobile station shall set this field to '0'.
- MN-AAA_SPI - SPI between MN and AAA.
If the MN-AAA_SPI_INDICATOR field is set to '1', the mobile station shall set this field to the Security Parameter Index (MN-AAA); otherwise, the mobile station shall omit this field.
- MN-HA_AUTH_ALGORITHM - Authentication Algorithm (MN-HA)
The mobile station shall set this field to the authentication algorithm used to calculate the Mobile IP MN-HA Authentication Extension as defined in [12]. The Authentication Algorithm is encoded according to Table 3.5.8.6-1.
- MN-HA_SPI_INDICATOR - Indicator of SPI between MN and HA.
The mobile station shall set this field to '1' if Security Parameter Index is included; otherwise, the mobile station shall set this field to '0'.
- MN-HA_SPI - SPI between MN and HA.
If the MN-HA_SPI_INDICATOR field is set to '1', the mobile station shall set this field to the Security Parameter Index between MN and HA; otherwise, mobile station shall omit this field.
- RESERVED - Reserved bits.
Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets. The mobile station shall set these bits to '0'.

1 3.5.8.7 SimpleIP Status Parameters

2

Field	Length (bits)
ACT_NAI_ENTRY_INDEX	4
RESERVED	4

3
4 ACT_NAI_ENTRY_INDEX - Active SimpleIP NAI entry index.

5 The mobile station shall set this field to the active SimpleIP
6 NAI entry index.

7 RESERVED - Reserved bits.

8 Additional reserved bits are needed in order to make the
9 length of the entire parameter block equal to an integer
10 number of octets.

11 The mobile station shall set this field to '0000'.

12 3.5.8.8 MobileIP Status Parameters

13

Field	Length (bits)
ACT_NAI_ENTRY_INDEX	4
NUM_ADD_ACT_NAI	4

NUM_ADD_ACT_NAI occurrences of the following field:

ADD_ACT_NAI_ENTRY_INDEX	4
-------------------------	---

RESERVED	0 or 4 (as needed)
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14
15 ACT_NAI_ENTRY_INDEX - Active MobileIP NAI entry index.

16 The mobile station shall set this field to the active MobileIP
17 NAI entry index.

18 NUM_ADD_ACT_NAI - Number of additional Active MobileIP NAI entries.

19 The mobile station shall set this field to the number of
20 additional active MobileIP NAI entries.

21 ADD_ACT_NAI_ENTRY - Additional Active MobileIP NAI entry index.

22 _INDEX The mobile station shall set this field to the active MobileIP
23 NAI entry index.

24 RESERVED - Reserved bits.

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Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets.

The mobile station shall set this field to '0000'.

3.5.8.9 SimpleIP PAP SS Parameters

Field	Length (bits)
NUM_NAI	4

NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX	4
SS_LENGTH	5
SS	8 × SS_LENGTH

RESERVED	0 to 7 (as needed)
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NUM_NAI - Number of SimpleIP NAI Entries.

The mobile station shall set this field to the number of SimpleIP NAI entries.

The mobile station shall include NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX - SimpleIP NAI entry index.

The mobile station shall set this field to the index in the SimpleIP NAI Table.

SS_LENGTH - Shared Secret Data Length.

The mobile station shall set this field to the length, in units of octet, of the shared secret data. The mobile station shall support the shared secret data of at least 16 octets long.

SS - Shared Secret Data.

The mobile station shall set this field to the Shared Secret Data.

RESERVED - Reserved bits.

Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets. The mobile station shall set these bits to '0'.

1 3.5.8.10 SimpleIP CHAP SS Parameters

2

Field	Length (bits)
NUM_NAI	4

NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX	4
SS_LENGTH	5
SS	8 × SS_LENGTH

RESERVED	0 to 7 (as needed)
----------	--------------------

3

4 NUM_NAI - Number of SimpleIP NAI Entries.

5 The mobile station shall set this field to the number of
6 SimpleIP NAI entries.

7 The mobile station shall include NUM_NAI occurrences of the following fields:

8 NAI_ENTRY_INDEX - SimpleIP NAI entry index.

9 The mobile station shall set this field to the index in the
10 SimpleIP NAI Table.

11 SS_LENGTH - Shared Secret Data Length.

12 The mobile station shall set this field to the length, in units
13 of octet, of the shared secret data. The mobile station shall
14 support the shared secret data of at least 16 octets long.

15 SS - Shared Secret Data

16 The mobile station shall set this field to the Shared Secret
17 Data.

18 RESERVED - Reserved bits.

19 Additional reserved bits are needed in order to make the
20 length of the entire parameter block equal to an integer
21 number of octets. The mobile station shall set these bits to
22 '0'.

23

24 3.5.8.11 MobileIP SS Parameters

25

Field	Length (bits)
NUM_NAI	4
NUM_NAI occurrences of the following fields:	
NAI_ENTRY_INDEX	4
MN-AAA_SS_LENGTH	5
MN-AAA_SS	8 × MN-AAA_SS_LENGTH
MN-HA_SS_LENGTH	5
MN-HA_SS	8 × MN-FA_SS_LENGTH
RESERVED	0 to 7 (as needed)

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NUM_NAI - Number of MobileIP NAI Entries.

The mobile station shall set this field to the number of MobileIP NAI entries.

The mobile station shall include NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX - MobileIP NAI entry index.

The mobile station shall set this field to the index in the MobileIP NAI Table.

MN-AAA_SS_LENGTH - Shared Secret Data Length between MN and AAA.

The mobile station shall set this field to the length, in units of octet, of the shared secret data between MN and AAA. The mobile station shall support the shared secret data of at least 16 octets long.

MN-AAA_SS - Shared Secret Data between MN and AAA.

The mobile station shall set this field to the Shared Secret Data between MN and AAA.

MN-HA_SS_LENGTH - Shared Secret Data Length between MN and HA.

The mobile station shall set this field to the length, in units of octet, of the shared secret data. The mobile station shall support the shared secret data of at least 16 octets long.

MN-HA_SS - Shared Secret Data between MN and HA.

The mobile station shall set this field to the Shared Secret Data between MN and HA.

RESERVED - Reserved bits.

Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets. The mobile station shall set these bits to '0'.

3.5.8.12 HRPD Access Authentication Capability Parameters

The PARAM_DATA field of the HRPD [9] Access Authentication Capability Parameters Block consists of the following fields:

Field	Length (bits)
MAX_NAI_LENGTH	8
MAX_SS_LENGTH	5
RESERVED	3
AUTH_ALGORITHM	8

MAX_NAI_LENGTH - Maximum Access Authentication NAI length.

The mobile station shall set this field to the maximum length, in units of octets, of the NAIs supported by the mobile station. The mobile station shall support an NAI length of at least 72 octets. If multiple authentication algorithms support is indicated, the mobile station shall set this field to the maximum of the NAI length allocated for the supported algorithms.

MAX_SS_LENGTH - Maximum Length of the Shared Secret Data.

The mobile station shall set this field to the maximum length, in units of octets, of the shared secret data supported by the mobile station. The mobile station shall support an SS length of at least 16 octets long. If multiple authentication algorithms support is indicated, the mobile station shall set this field to the maximum of the SS length allocated for the supported algorithms.

RESERVED - Reserved bits.

The mobile station shall add reserved bits as needed in order to make the length of the entire parameter block equal to an integer number of octets.

The mobile station shall set this field to '000'.

AUTH_ALGORITHM - HRPD Access Authentication Algorithm supported by the mobile station.

The mobile station shall set this field to the HRPD access authentication algorithms supported by the mobile station in the form of bitmap. The Authentication Algorithm is encoded as follows:

Table 3.5.8.12-1 AUTH_ALGORITHM Parameter Values

Subfield	Length (bits)	Subfield Description
PPP CHAP	1	CHAP mode-[11]
RESERVED	7	

The mobile station shall set each subfield to '1', if the corresponding authentication algorithm is supported by the mobile station; otherwise, the mobile station shall set the subfield to '0'.

3.5.8.13 HRPD Access Authentication User Profile Parameters

The PARAM_DATA field of the HRPD Access Authentication User Profile Parameters Block consists of the following fields:

Field	Length (bits)
NAI_LENGTH	8
NAI	8 × NAI_LENGTH
AUTH_ALGORITHM	4
RESERVED	4

NAI_LENGTH - NAI length.

The mobile station shall set this field to the length of the NAI in units of octet.

NAI - Network Access Identifier.

The mobile station shall set this field to the Network Access Identifier (NAI), encoded in ASCII string, refer to [14]. The NAI is of the form [user@realm](#).

AUTH_ALGORITHM - Authentication Algorithm for HRPD Access Authentication.

The mobile station shall set this field to the authentication algorithm used to calculate the HRPD Access Authentication. The Authentication Algorithm is specified in Table 3.5.8.13-1.

Table 3.5.8.13-1 Authentication Algorithm Parameter Values

AUTH_ALGORITHM	Binary Value
None	'0000'
PPP CHAP	'0001'
RESERVED	'0010' to '1111'

RESERVED - Reserved bits.

The mobile station shall set these bits to '0'.

1
2 3.5.8.14 HRPD Access Authentication CHAP SS Parameters

3

Field	Length (bits)
SS_LENGTH	5
SS	8 × SS_LENGTH
RESERVED	3

4 SS_LENGTH - Shared Secret Data Length.

5 The mobile station shall set this field to the length, in units
6 of octet, of the shared secret data. The mobile station shall
7 support the shared secret data of at least 16 octets long.

8 SS - Shared Secret Data

9 The mobile station shall set this field to the Shared Secret
10 Data.

11 RESERVED - Reserved bits.

12 Additional reserved bits are needed in order to make the
13 length of the entire parameter block equal to an integer
14 number of octets. The mobile station shall set these bits to
15 '0'.

16 3.5.9 MMD Parameter Block

17 Table 3.5.9-1 lists the types of parameter blocks used in the *MMD Configuration Request*
18 *Message* and the *MMD Configuration Response Message*.

19 **Table 3.5.9-1 MMD Parameter Block Types**

Parameter Block Type	BLOCK_ID	Reference
MMD Application Parameters	'00000000'	3.5.9.1
Reserved	'00000001' through '11111111'	

20 3.5.9.1 MMD Application Parameters

21 The PARAM_DATA field of the MMD Application Parameters Block consists of the following
22 fields:

1			The mobile station shall set this field to the IMS Public
2			Identity (IMPU), encoded in ASCII string, refer to [17].
3	SIP_URI_LENGTH	-	SIP Domain URI length.
4			The mobile station shall set this field to the length of the SIP
5			Domain URI.
6	SIP_DOMAIN_URI	-	SIP Domain URI.
7			The mobile station shall set this field to the SIP Domain URI,
8			encoded in ASCII string, refer to [17].
9	NUM_P-CSCF	-	Number of P-CSCF entries
10			The mobile station shall set this field to the number of P-
11			CSCF entries.
12	The mobile station shall include NUM_P-CSCF occurrences of the following fields:		
13	P-CSCF_ENTRY_IDX	-	P-CSCF entry index.
14			The mobile station shall set this field to the index in the P-
15			CSCF Table.
16	P-CSCF_LENGTH	-	P-CSCF length.
17			The mobile station shall set this field to the length of the P-
18			CSCF in units of octet.
19	P-CSCF_ADDRESS	-	P-CSCF address.
20			The mobile station shall set this field to the P-CSCF address,
21			encoded in ASCII string, refer to [17]
22	RESERVED	-	Reserved bits.
23			The mobile station shall add reserved bits as needed in order
24			to make the length of the entire parameter block equal to an
25			integer number of octets.
26			

27 3.5.10 System Tag Parameter Blocks

28 Table 3.5.10-1 lists the types of parameter blocks used in the *System Tag Configuration*
 29 *Request Message* and the *System Tag Configuration Response Message*.

30

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Table 3.5.10-1 System Tag Parameter Block Types

System Tag Parameter Block Type	BLOCK_ID	Reference
Home System Tag	'00000000'	3.5.10.1
Group Tag List Dimensions	'00000001'	3.5.10.2
Group Tag List	'00000010'	3.5.10.3
Specific Tag List Dimensions	'00000011'	3.5.10.4
Specific Tag List	'00000100'	3.5.10.5
Call Prompt List Dimensions	'00000101'	3.5.10.6
Call Prompt List	'00000110'	3.5.10.7
Reserved	'00000111' through '11111111'	

2 3.5.10.1 Home System Tag

3 The PARAM_DATA field of the Home System Tag Block consists of the following fields:

4

Field	Length (bits)
CALL_PRMPPT_INCL	1
CALL_PRMPPT	0 or 5
RESERVED	0 or 5
TAG_ENCODING	5
TAG_LEN	5
TAG	TAG_LEN × 8

5

- 6 **CALL_PRMPPT_INCL** - Call Prompt Included Flag.
7 The mobile station shall set this field to '1' if the
8 CALL_PRMPPT field is included in this parameter block.
9 Otherwise, the mobile station shall set this field to '0'
- 10 **CALL_PRMPPT** - Call prompt identifier.
11 If a Call Prompt is associated with the Home System Tag, the
12 mobile station shall set this field to the associated Call
13 Prompt Identifier (see 3.5.10.4). Otherwise, this field shall be
14 omitted.
- 15 **RESERVED** - Reserved bits.
16 If CALL_PRMPPT_INCL is set to '0', the mobile station shall set
17 this field to '00000'. Otherwise, this field shall be omitted.

- 1 TAG_ENCODING - Home system tag encoding.
 2 See [4]. This field shall be set to indicate the character set
 3 used in the TAG field included in this parameter block.
- 4 TAG_LEN - Length of home system tag.
 5 The mobile system shall set this field to the length of the
 6 home system tag in octets.
- 7 TAG - Home system tag.
 8 The mobile station shall set this field to characters based on
 9 the encoding method defined in TAG_ENCODING.

10 3.5.10.2 Group Tag List Dimensions

11 The PARAM_DATA field of the Group Tag List Dimensions Block consists of the following
 12 fields:

13

Field	Length (bits)
MAX_GROUP_TAG_LIST_SIZE	16
CUR_GROUP_TAG_LIST_SIZE	16
GROUP_TAG_LIST_ID	16
CUR_TAG_P_REV	8
NUM_GROUP_TAG_RECS	8

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- 15 MAX_GROUP_TAG_LIST_SIZE - Maximum group system tag list size.
 16 The mobile station shall set this field to the maximum size,
 17 in octets, that the mobile station can support for the group
 18 system tag list (GROUP_TAG_LIST_{s-p}).
- 19 CUR_GROUP_TAG_LIST_SIZE - Current group system tag list size.
 20 The mobile station shall set this field to the size, in octets, of
 21 the current group system tag list.
- 22 GROUP_TAG_LIST_ID - Group System Tag List Identification.
 23 The mobile station shall set this field to the value of the
 24 Group System Tag List Identification assigned for the group
 25 system tag indicator list (GROUP_TAG_LIST_{s-p}) by the base
 26 station.
- 27 CUR_TAG_P_REV - Protocol revision of the mobile station's current group tag list.
 28 The mobile station shall set this field to the value of the
 29 TAG_P_REV associated with its current group tag list.
- 30 NUM_GROUP_TAG_RECS - Number of Group System Tag Records.
 31 The mobile station shall set this field to the number of group
 32 system tag records contained within the GROUP_TAG_TABLE
 33 field of the current group tag list.

3.5.10.3 Group Tag List Parameter Block

The PARAM_DATA field of the Group Tag List Block consists of the following fields:

Field	Length (bits)
CUR_TAG_P_REV	8
RESERVED	7
LAST_SEGMENT	1
SEGMENT_OFFSET	16
SEGMENT_SIZE	8
SEGMENT_DATA	SEGMENT_SIZE × 8

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- CUR_TAG_P_REV - Protocol revision for the system tag.
This field is used to specify the format of the rest of the System Tag. The mobile station shall set this field to the value of the TAG_P_REV associated with its current group tag list.
- RESERVED - Reserved bits.
The mobile station shall set this field to '0000000'.
- LAST_SEGMENT - Last segment indicator bit.
The mobile station shall set this field to '1' if SEGMENT_DATA contains the last octet of the group tag list; otherwise, the mobile station shall set this field to '0'.
- SEGMENT_OFFSET - Segment offset.
The mobile station shall set this field to the value of REQUEST_OFFSET from the corresponding *System Tag Configuration Request Message*.
- SEGMENT_SIZE - Segment size.
The mobile station shall set this field to the number of octets of the group tag list included in SEGMENT_DATA.
- SEGMENT_DATA - Segment of the group tag list data.
If REQUEST_OFFSET from the corresponding *System Tag Configuration Request Message* specifies an offset that is invalid for the current group tag list, the mobile station shall include no octets in this field.
If REQUEST_OFFSET specifies an offset that is valid for the current group tag list, the mobile station shall include at most REQUEST_MAX_SIZE sequential octets of the group tag list in this field. The octets shall be equal to the octets starting at the offset within the group tag list specified by SEGMENT_OFFSET.

3.5.10.4 Specific Tag List Dimensions

The PARAM_DATA field of the Specific Tag List Dimensions Block consists of the following fields:

Field	Length (bits)
MAX_SPEC_TAG_LIST_SIZE	16
CUR_SPEC_TAG_LIST_SIZE	16
SPEC_TAG_LIST_ID	16
CUR_TAG_P_REV	8
NUM_SPEC_TAG_RECS	14
RESERVED	2

MAX_SPEC_TAG_LIST_SIZE - Maximum specific system tag list size.

The mobile station shall set this field to the maximum size, in octets, that the mobile station can support for the specific system tag list (SPEC_TAG_LIST_{s-p}).

CUR_SPEC_TAG_LIST_SIZE - Current specific system tag list size.

The mobile station shall set this field to the size, in octets, of the current specific system tag list.

SPEC_TAG_LIST_ID Specific System Tag List Identification.

The mobile station shall set this field to the value of the Specific System Tag List Identification assigned for the specific system tag indicator list (SPEC_TAG_LIST_{s-p}) by the base station.

CUR_TAG_P_REV - Protocol revision of the mobile station's current group tag list.

The mobile station shall set this field to the value of the TAG_P_REV associated with its current specific tag list.

NUM_SPEC_TAG_RECS - Number of Specific System Tag Records.

The mobile station shall set this field to the number of specific system tag records contained within its SPEC_TAG_TABLE field of the current specific tag list

RESERVED - Reserved bits.

The mobile station shall set this field to '00'.

3.4.10.5 Specific Tag List Parameter Block

The PARAM_DATA field of the Specific Tag List Block consists of the following fields:

Field	Length (bits)
CUR_TAG_P_REV	8
RESERVED	7
LAST_SEGMENT	1
SEGMENT_OFFSET	16
SEGMENT_SIZE	8
SEGMENT_DATA	SEGMENT_SIZE × 8

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- CUR_TAG_P_REV - Protocol revision for the system tag.
- This field is used to specify the format of the rest of the System Tag. The mobile station shall set this field to the value of the TAG_P_REV associated with its current specific tag list.
- RESERVED - Reserved bits.
- The mobile station shall set this field to '0000000'.
- LAST_SEGMENT - Last segment indicator bit.
- The mobile station shall set this field to '1' if SEGMENT_DATA contains the last octet of the specific tag list; otherwise, the mobile station shall set this field to '0'.
- SEGMENT_OFFSET - Segment offset.
- The mobile station shall set this field to the value of REQUEST_OFFSET from the corresponding *System Tag Configuration Request Message*.
- SEGMENT_SIZE - Segment size.
- The mobile station shall set this field to the number of octets of the specific tag list included in SEGMENT_DATA.
- SEGMENT_DATA - Segment of the specific tag list data.
- If REQUEST_OFFSET from the corresponding *System Tag Configuration Request Message* specifies an offset that is invalid for the current specific tag list, the mobile station shall include no octets in this field.
- If REQUEST_OFFSET specifies an offset that is valid for the current specific tag list, the mobile station shall include at most REQUEST_MAX_SIZE sequential octets of the specific tag list in this field. The octets shall be equal to the octets starting at the offset within the specific tag list specified by SEGMENT_OFFSET.

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2 3.4.10.6 Call Prompt List Dimensions

3 The PARAM_DATA field of the Call Prompt List Dimensions Block consists of the following
4 fields:

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Field	Length (bits)
MAX_CALL_PRMPT_LIST_SIZE	16
CUR_CALL_PRMPT_LIST_SIZE	16
CALL_PRMPT_LIST_ID	16
CUR_TAG_P_REV	8
NUM_CALL_PRMPT_RECS	8

6

7 MAX_CALL_PRMPT_LIST_SIZE - Maximum call prompt list size.

8 The mobile station shall set this field to the maximum size,
9 in octets, that the mobile station can support for the call
10 prompt list (CALL_PRMPT_LIST_{S-p}).

11 CUR_CALL_PRMPT_LIST_SIZE - Current call prompt list size.

12 The mobile station shall set this field to the size, in octets, of
13 the current call prompt list.

14 CALL_PRMPT_LIST_ID Call Prompt List Identification.

15 The mobile station shall set this field to the value of the Call
16 Prompt List Identification assigned for the call prompt list
17 (CALL_PRMPT_LIST_{S-p}) by the base station.

18 CUR_TAG_P_REV - Protocol revision for the system tag.

19 The mobile station shall set this field to the value of the
20 TAG_P_REV associated with its current call prompt list.

21 NUM_CALL_PRMPT_RECS - Number of Call Prompt Records.

22 The mobile station shall set this field to the number of call
23 prompt records contained within its CALL_PRMPT_TABLE
24 field of the call prompt list

25 3.4.10.7 Call Prompt Tag List Parameter Block

26 The PARAM_DATA field of the Call Prompt List Block consists of the following fields:

27

Field	Length (bits)
TAG_P_REV	8
RESERVED	7
LAST_SEGMENT	1
SEGMENT_OFFSET	16
SEGMENT_SIZE	8
SEGMENT_DATA	SEGMENT_SIZE × 8

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- CUR_TAG_P_REV** - Protocol revision for the system tag.
- This field is used to specify the format of the rest of the System Tag. The mobile station shall set this field to the value of the TAG_P_REV associated with its current specific tag list.
- RESERVED** - Reserved bits.
- The mobile station shall set this field to '0000000'.
- LAST_SEGMENT** - Last segment indicator bit.
- The mobile station shall set this field to '1' if SEGMENT_DATA contains the last octet of the call prompt list; otherwise, the mobile station shall set this field to '0'.
- SEGMENT_OFFSET** - Segment offset.
- The mobile station shall set this field to the value of REQUEST_OFFSET from the corresponding *System Tag Configuration Request Message*.
- SEGMENT_SIZE** - Segment size.
- The mobile station shall set this field to the number of octets of the call prompt list included in SEGMENT_DATA.
- SEGMENT_DATA** - Segment of the group tag list data.
- If REQUEST_OFFSET from the corresponding *System Tag Configuration Request Message* specifies an offset that is invalid for the current call prompt list, the mobile station shall include no octets in this field.
- If REQUEST_OFFSET specifies an offset that is valid for the current call prompt list, the mobile station shall include at most REQUEST_MAX_SIZE sequential octets of the call prompt list in this field. The octets shall be equal to the octets starting at the offset within the call prompt list specified by SEGMENT_OFFSET.

3.5.11 Group Tag List, Specific Tag List and Call Prompt List

The group tag list (GROUP_TAG_LIST_{S-p}) and the specific tag list (SPEC_TAG_LIST_{S-p}) contain information to be displayed on the mobile station when the mobile station is

1 obtaining a service in the roaming network. These information can be associated with
2 some parameters in the system record in the preferred roaming list.

3 The Group Tag List is associated with TAG_P_REV equal to '00000001' and has the
4 following variable length format:

5

Group Tag List Field	Length (bits)
GROUP_TAG_LIST_SIZE	16
GROUP_TAG_LIST_ID	16
TAG_P_REV	8
DEF_TAG_ENCODING	8
NUM_GROUP_TAG_RECS	8
GROUP_TAG_TABLE	variable
GROUP_TAG_CRC	16

6

7 GROUP_TAG_LIST_SIZE - Group tag list size.

8 This field is set to the total size, in octets, of the group tag
9 list, including the GROUP_TAG_LIST_SIZE and
10 GROUP_TAG_LIST_CRC fields.

11 GROUP_TAG_LIST_ID Group Tag List Identification.

12 The mobile station shall set this field to the value of the
13 Group Tag List Identification assigned for the group tag list
14 (GROUP_TAG_LIST_{s-p}) by the base station.

15 TAG_P_REV - Protocol revision of the Group Tag format.

16 This field is set to the value of the TAG_P_REV corresponding
17 this group tag list (GROUP_TAG_LIST_{s-p}) structure. This field
18 determines the parsing rules for the Group Tag List. The
19 base station shall set this field to '00000001' for this Group
20 Tag List structure.

21 DEF_TAG_ENCODING - Default tag encoding.

22 This field is set to the tag encoding method the mobile
23 station is to use when operating on group tags not specified
24 in GROUP_TAG_TABLE.

25 NUM_GROUP_TAG_RECS - Number of group tag records.

26 This field is set to the number of group tag records contained
27 in GROUP_TAG_TABLE (see Table 3.5.10.2-1).

28 GROUP_TAG_TABLE - Group Tag Table.

29 This field contains the Group Tag Records. The number of
30 group tag records is specified by NUM_GROUP_TAG_RECS.
31 The group tag record formats are specified in 3.5.10.2.1.

32 GROUP_TAG_LIST_CRC - CRC for group tag list.

1 This field is set to the 16-bit CRC calculated according to
 2 3.5.10.1.

3 The Specific Tag List is associated with TAG_P_REV equal to '00000001' and has the
 4 following variable length format:

5

Specific Tag List Field	Length (bits)
SPEC_TAG_LIST_SIZE	16
SPEC_TAG_LIST_ID	16
TAG_P_REV	8
DEF_TAG_ENCODING	8
NUM_SPEC_TAG_RECS	14
RESERVED	2
SPEC_TAG_TABLE	variable
SPEC_TAG_CRC	16

6

7 SPEC_TAG_LIST_SIZE - Specific tag list size.
 8 This field is set to the total size, in octets, of the specific tag
 9 list, including the SPEC_TAG_LIST_SIZE and
 10 SPEC_TAG_LIST_CRC fields.

11 SPEC_TAG_LIST_ID Specific Tag List Identification.
 12 The mobile station shall set this field to the value of the
 13 Specific Tag List Identification assigned for the specific tag list
 14 (SPEC_TAG_LIST_{s-p}) by the base station.

15 TAG_P_REV - Protocol revision of the Specific Tag format.
 16 This field is set to the value of the TAG_P_REV corresponding
 17 this specific tag list (SPEC_TAG_LIST_{s-p}) structure. This field
 18 determines the parsing rules for the Specific Tag List. The
 19 base station shall set this field to '00000001' for this Specific
 20 Tag List structure.

21 DEF_TAG_ENCODING - Default tag encoding.
 22 This field is set to the tag encoding method the mobile
 23 station is to use when operating on specific tags not specified
 24 in SPEC_TAG_TABLE.

25 NUM_SPEC_TAG_RECS - Number of specific tag records.
 26 This field is set to the number of specific tag records
 27 contained in SPEC_TAG_TABLE (see Table 3.5.10.3-1).

28 RESERVED - Reserved bits.
 29 This field shall be set to '00'.

30 SPEC_TAG_TABLE - Specific Tag Table.

1 This field contains the Specific Tag Records. The number of
 2 specific tag records is specified by NUM_SPEC_TAG_RECS.
 3 The specific tag record formats are specified in 3.5.10.3.1.

4 SPEC_TAG_LIST_CRC - CRC for group tag list.

5 This field is set to the 16-bit CRC calculated according to
 6 3.5.10.1.

7 The Call Prompt List is associated with TAG_P_REV equal to '00000001' and has the
 8 following variable length format:

9

Call Prompt List Field	Length (bits)
CALL_PRMPT_LIST_SIZE	16
CALL_PRMPT_LIST_ID	16
TAG_P_REV	8
DEF_TAG_ENCODING	8
NUM_CALL_PRMPT_RECS	14
RESERVED	2
CALL_PRMPT_TABLE	variable
CALL_PRMPT_CRC	16

10

11 CALL_PRMPT_LIST_SIZE - Call prompt list size.

12 This field is set to the total size, in octets, of the specific tag
 13 list, including the CALL_PRMPT_LIST_SIZE and
 14 CALL_PRMPT_LIST_CRC fields.

15 CALL_PRMPT_LIST_ID Call Prompt List Identification.

16 The mobile station shall set this field to the value of the Call
 17 Prompt List Identification assigned for the call prompt list
 18 (CALL_PRMPT_LIST_{s-p}) by the base station.

19 TAG_P_REV - Protocol revision of the Call Prompt format.

20 This field is set to the value of the TAG_P_REV corresponding
 21 this call prompt list (CALL_PRMPT_LIST_{s-p}) structure. This
 22 field determines the parsing rules for the Call Prompt List.
 23 The base station shall set this field to '00000001' for this Call
 24 Prompt List structure.

25 DEF_TAG_ENCODING - Default tag encoding.

26 This field is set to the tag encoding method the mobile
 27 station is to use when operating on call prompts not specified
 28 in CALL_PRMPT_TABLE.

29 NUM_CALL_PRMPT_RECS - Number of call prompt records.

30 This field is set to the number of call prompt records
 31 contained in CALL_PRMPT_TABLE (see Table 3.5.10.3-1).

1	RESERVED	-	Reserved bits.
2			This field shall be set to '00'.
3	CALL_PRMPPT_TABLE	-	Call Prompt Table.
4			This field contains the Call Prompt Records. The number of
5			call prompt records is specified by NUM_CALL_PRMPPT_RECS.
6			The call prompt record formats are specified in 3.5.10.3.1.
7	CALL_PRMPPT_LIST_CRC	-	CRC for call prompt list.
8			This field is set to the 16-bit CRC calculated according to
9			3.5.10.1.

10 3.5.11.1 Group Tag List, Specific Tag List, and Call Prompt List CRC Calculation

11 The 16-bit group tag list, specific tag list, and call prompt list CRC fields
 12 (GROUP_TAG_LIST_CRC, SPEC_TAG_LIST_CRC, CALL_PRMPPT_LIST_CRC, respectively) are
 13 calculated on all bits of the Group Tag List, Specific Tag List, or Call Prompt List (as
 14 appropriate) excluding the bits of the GROUP_TAG_LIST_CRC, SPEC_TAG_LIST_CRC, and
 15 CALL_PRMPPT_LIST_CRC fields. The generator polynomial for this CRC is
 16 $g(x) = x^{16} + x^{12} + x^5 + x^0$.

17 The 16-bit CRC is calculated according to the following procedure using the logic shown in
 18 Figure 2.2.1-2:

- 19 • Initially, all shift register elements are set to logical one and the switches are set in
 20 the position A.
- 21 • The register is clocked with each preferred roaming list bit as an input, from the
 22 most significant bit of the
 23 GROUP_TAG_LIST_SIZE/SPEC_TAG_LIST_SIZE/CALL_PRMPPT_LIST_SIZE field
 24 through the least significant bit of the
 25 GROUP_TAG_TABLE/SPEC_TAG_TABLE/CALL_PRMPPT_TABLE field.
- 26 • The switches are set in the position B, and the register is clocked an additional 16
 27 times. The 16 additional output bits constitute the CRC.

28 3.5.11.2 Group Tag Records

29 A group tag record contains parameters that the mobile station can use to display a
 30 system tag. Each type of group tag record is tailored for use in determining a particular
 31 system tag.

32

Table 3.5.11.2-1 Group Tag Record Type Values

Acquisition Record Type	Value
Group Tag Record – Single Entry	'000'
Group Tag Record – Range	'001'
Reserved	'010' - '111'

3.5.11.2.1 Group Tag Record Format

3.5.11.2.1.1 Group Tag Record – Single Entry

This group tag record type is for use in displaying a system tag in associated with a roaming indicator in the system record of the preferred roaming list, and has the following variable length format:

Group Tag Record Field	Length (bits)
GROUP_TAG_TYPE ('000')	3
ROAM_DISP_IND	4
ENCODING_INCL	1
TAG_ENCODING	0 or 5
ROAM_IND	8
CALL_PRMPPT_INCL	1
CALL_PRMPPT	0 or 5
TAG_LEN	5
TAG	TAG_LEN × 8
RESERVED	0, 2 or 5

GROUP_TAG_TYPE - Group tag record type.

This field is set to '000' (see Table 3.5.10.2-1).

ROAM_DISP_IND - Roaming display indicator.

The mobile station shall set this field to the value of the action for displaying the default roaming indicator on the mobile station's display. The values are:

ROAM_DISP_IND	Action
'0000'	Default Roaming Indicator off.
'0001'	Default Roaming indicator on.
'0010'	Default Roaming Indicator flashing.

‘0011’ – ‘1111’	Reserved
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- ENCODING_INCL - Tag encoding field included flag.
The mobile station shall set this field to ‘1’ if the TAG_ENCODING field is included. Otherwise, the mobile station shall set this field to ‘0’.
- TAG_ENCODING - Group tag encoding format.
See [4]. This field shall be set to indicate the character set used in the TAG field included in this parameter block.
- ROAM_IND - Roaming indicator
The mobile station shall set this field to the roaming indicator value (see [4]) for which this Group Tag Record is associated.
- CALL_PRMPT_INCL - Call Prompt Included Flag
The mobile station shall set this field to ‘1’ if the CALL_PRMPT field is included in this parameter block. Otherwise, the mobile station shall set this field to ‘0’
- CALL_PRMPT - Call prompt identifier
If a Call Prompt is associated with the Home System Tag, the mobile station shall set this field to the associated Call Prompt Identifier (see 3.5.10.4). Otherwise, this field shall be omitted.
- TAG_LEN - Group tag length indicator.
The mobile station shall set this field to the number of octets in the TAG field.
- TAG - Group tag.
The mobile station shall set this field to characters based on the encoding method defined in TAG_ENCODING.
- RESERVED - Reserved bits.
The mobile station shall set this field to ‘00’ if ENCODING_INCL = ‘0’ and CALL_PRMPT_INCL = ‘0’. The mobile station shall set this field to ‘00000’ if either ENCODING_INCL = ‘1’ or CALL_PRMPT_INCL = ‘1’. If ENCODING_INCL = ‘1’ and CALL_PRMPT = ‘1’, this field shall be omitted.

3.5.11.2.1.2 Group Tag Record – Range

This group tag record type is for use in displaying a system tag in associated with roaming indicators in the system records of the preferred roaming list, and has the following variable length format:

Group Tag Record Field	Length (bits)
GROUP_TAG_TYPE ('000')	3
ROAM_DISP_IND	4
ENCODING_INCL	1
TAG_ENCODING	0 or 5
CALL_PRMPPT_INCL	1
CALL_PRMPPT	0 or 5
LOW_ROAM_IND	8
HIGH_ROAM_IND	8
ROAM_INC	3
TAG_LEN	5
TAG	TAG_LEN × 8
RESERVED	2, 5 or 7

1

2

GROUP_TAG_TYPE - Group tag record type.

3

This field is set to '000' (see Table 3.5.10.2-1).

4

ROAM_DISP_IND - Roaming display indicator.

5

The mobile station shall set this field to the value of the action for displaying the default roaming indicator on the mobile station's display. The values are:

6

7

8

ROAM_DISP_IND	Action
'0000'	Default Roaming Indicator off.
'0001'	Default Roaming indicator on.
'0010'	Default Roaming Indicator flashing.
'0011' – '1111'	Reserved

9

10

ENCODING_INCL - Tag encoding field included flag.

11

The mobile station shall set this field to '1' if the TAG_ENCODING field is included. Otherwise, the mobile station shall set this field to '0'.

12

13

14

TAG_ENCODING - Group tag encoding format.

15

See [4]. This field shall be set to indicate the character set used in the TAG field included in this parameter block.

16

17

CALL_PRMPPT_INCL - Call Prompt Included Flag

1		The mobile station shall set this field to '1' if the
2		CALL_PRMPT field is included in this parameter block.
3		Otherwise, the mobile station shall set this field to '0'
4	CALL_PRMPT	- Call prompt identifier
5		If a Call Prompt is associated with the Home System Tag, the
6		mobile station shall set this field to the associated Call
7		Prompt Identifier (see 3.5.10.4). Otherwise, this field shall be
8		omitted.
9	LOW_ROAM_IND	- Low roaming indicator
10		The mobile station shall set this field to the roaming
11		indicator (ROAM_IND, see [4]) having the lowest value over
12		the range of ROAM_IND values for which this Group Tag
13		Record is associated.
14	HIGH_ROAM_IND	- High roaming indicator
15		The mobile station shall set this field to the roaming
16		indicator (ROAM_IND, see [4]) having the highest value over
17		the range of ROAM_IND values for which this Group Tag
18		Record is associated.
19	ROAM_INC	- Roaming indicator increment
20		The mobile station shall set this field to the increment used
21		to construct the set of ROAM_INDs associated with this
22		record. ROAM_INDs associated with this record are multiples
23		of this value between LOW_ROAM_IND and
24		HIGH_ROAM_IND inclusive. This field shall be set to a value
25		in the range 1 to 7 inclusive.
26	TAG_LEN	- Group tag length indicator.
27		The mobile station shall set this field to the number of octets
28		in the TAG field.
29	TAG	- Group tag.
30		The mobile station shall set this field to characters based on
31		the encoding method defined in TAG_ENCODING.
32	RESERVED	- Reserved bits.
33		The mobile station shall set this field to '00' if either
34		ENCODING_INCL = '1' or CALL_PRMPT_INCL = '1'. If
35		ENCODING_INCL = '1' and CALL_PRMPT_INCL = '1', the mobile
36		station shall set this field to '00000'. If ENCODING_INCL = '0'
37		and CALL_PRMPT_INCL = '0', the mobile station shall set this
38		field to '0000000'.

39

40 3.5.11.3 Specific Tag Records

41 A specific tag record contains parameters that the mobile station can use to display a
 42 system tag. Each type of group tag record is tailored for use in determining a particular
 43 system tag.

Table 3.5.11.3-1 Specific Tag Record Type Values

Acquisition Record Type	Value
Specific Tag Record – Single Entry	'000'
Specific Tag Record – Range	'001'
Reserved	'010' - '111'

3.5.11.3.1 Specific Tag Record Format

3.5.11.3.1.1 Specific Tag Record – Single Entry

This specific tag record type is for use in displaying a system tag in associated with a SID in the system record of the preferred roaming list, and has the following variable length format:

Specific Tag Record Field	Length (bits)
SPEC_TAG_TYPE ('000')	3
ROAM_DISP_IND	4
ENCODING_INCL	1
TAG_ENCODING	0 or 5
CALL_PRMPPT_INCL	1
CALL_PRMPPT	0 or 5
SID	15
TAG_LEN	5
TAG	TAG_LEN × 8
RESERVED	1, 3 or 6

SPEC_TAG_TYPE - Specific tag record type.

This field is set to '000' (see Table 3.5.10.2-1).

ROAM_DISP_IND - Roaming display indicator.

The mobile station shall set this field to the value of the action for displaying the default roaming indicator on the mobile station's display. The values are:

ROAM_DISP_IND	Action
'0000'	Default Roaming Indicator off.
'0001'	Default Roaming indicator on.

'0010'	Default Roaming Indicator flashing.
'0011' – '1111'	Reserved

1
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- ENCODING_INCL - Tag encoding indicator flag.
The mobile station shall set this field to '1' if the TAG_ENCODING field is included. Otherwise, the mobile station shall set this field to '0'.
- TAG_ENCODING - Tag encoding format.
See [4]. This field shall be set to indicate the character set used in the TAG field included in this parameter block.
- CALL_PRMPT_INCL - Call Prompt Included Flag
The mobile station shall set this field to '1' if the CALL_PRMPT field is included in this parameter block. Otherwise, the mobile station shall set this field to '0'
- CALL_PRMPT - Call prompt identifier
If a Call Prompt is associated with the Home System Tag, the mobile station shall set this field to the associated Call Prompt Identifier (see 3.5.10.4). Otherwise, this field shall be omitted.
- SID - System Identification
The mobile station shall set this field to the System Identification (SID) corresponding to this Specific Tag Record. (See [7]).
- TAG_LEN - Tag length
The mobile station shall set this field to the number of octets in the TAG field.
- TAG - Specific Tag.
The mobile station shall set this field to characters based on the encoding method defined in TAG_ENCODING.
- RESERVED - Reserved bits.
The mobile station shall set this field to '0' if ENCODING_INCL = '1' and CALL_PRMPT_INCL = '1'. The mobile station shall set this field to '000' if ENCODING_INCL = '0' and CALL_PRMPT_INCL = '0'. Otherwise, the mobile station shall set this field to '000000'.

3.5.11.3.1.2 Specific Tag Record – Range

This specific tag record type is for use in displaying a system tag in associated with SIDs in the system records of the preferred roaming list, and has the following variable length format:

1

Specific Tag Record Field	Length (bits)
SPEC_TAG_TYPE ('000')	3
ROAM_DISP_IND	4
ENCODING_INCL	1
TAG_ENCODING	0 or 5
CALL_PRMPPT_INCL	1
CALL_PRMPPT	0 or 5
LOW_SID	15
HIGH_SID	15
SID_INC	3
TAG_LEN	5
TAG	TAG_LEN × 8
RESERVED	1, 4 or 7

2

3

SPEC_TAG_TYPE - Specific tag record type.
This field is set to '000' (see Table 3.5.10.2-1).

4

5

ROAM_DISP_IND - Roaming display indicator.
The mobile station shall set this field to the value of the action for displaying the default roaming indicator on the mobile station's display. The values are:

6

7

8

9

ROAM_DISP_IND	Action
'0000'	Default Roaming Indicator off.
'0001'	Default Roaming indicator on.
'0010'	Default Roaming Indicator flashing.
'0011' - '1111'	Reserved

10

11

ENCODING_INCL - Tag encoding indicator flag.

12

13

14

The mobile station shall set this field to '1' if the TAG_ENCODING field is included. Otherwise, the mobile station shall set this field to '0'.

15

TAG_ENCODING - Tag encoding format.

16

17

See [4]. This field shall be set to indicate the character set used in the TAG field included in this parameter block.

18

CALL_PRMPPT_INCL - Call Prompt Included Flag

1		The mobile station shall set this field to '1' if the
2		CALL_PRMPPT field is included in this parameter block.
3		Otherwise, the mobile station shall set this field to '0'
4	CALL_PRMPPT	- Call prompt identifier
5		If a Call Prompt is associated with the Home System Tag, the
6		mobile station shall set this field to the associated Call
7		Prompt Identifier (see 3.5.10.4). Otherwise, this field shall be
8		omitted.
9	LOW_SID	- Lowest applicable System Identification
10		The mobile station shall set this field to the System
11		Identification (SID) having the lowest value over the range of
12		SID values for which this Specific Tag Record is associated.
13		(See [7]).
14	HIGH_SID	- Highest applicable System Identification
15		The mobile station shall set this field to the System
16		Identification (SID) having the highest value over the range of
17		SID values for which this Specific Tag Record is associated.
18		(See [7]).
19	SID_INC	- System identifier increment
20		The mobile station shall set this field to the increment to be
21		used to construct SIDs of the systems associated with this
22		record. SIDs of the systems associated with this record are
23		multiples of this value between LOW_SID and HIGH_SID
24		inclusive. This field shall be set to a value in the range 1 to 7
25		inclusive.
26	TAG_LEN	- Tag length
27		The mobile station shall set this field to the number of octets
28		in the TAG field.
29	TAG	- Specific Tag.
30		The mobile station shall set this field to characters based on
31		the encoding method defined in TAG_ENCODING.
32	RESERVED	- Reserved bits.
33		The mobile station shall set this field to '0' if ENCODING_INCL
34		= '0' and CALL_PRMPPT_INCL = '0'. The mobile station shall
35		set this field to '0000' if either ENCODING_INCL = '1' or
36		CALL_PRMPPT_INCL = '1'. The mobile station shall set this
37		field to '0000000' if ENCODING_INCL = '1' and
38		CALL_PRMPPT_INCL = '1'.

39

40 3.5.11.4 Call Prompt Record Format

41 Each Call Prompt Record has the following format:

42

Call Prompt Record Field	Length (bits)
CALL_PRMPPT	5
CALL_PRMPPT_TEXT_STATE	2
ENCODING_INCL	1
PRMPPT_ENCODING	0 or 5
PRMPPT_LEN	5
PRMPPT	PRMPPT_LEN × 8
RESERVED	3 or 6

1

2

CALL_PRMPPT - Call prompt identifier.

3

The mobile station shall set this field to the call prompt identifier for the given record entry.

4

5

CALL_PRMPPT_TEXT_STATE - Call Prompt Text State

6

The mobile station shall set this field to the text state for the text to be displayed by the mobile station according to the following table:

7

8

9

CALL_PROMPT_TEXT_STATE	Action
'00'	Call Prompt text on.
'01'	Call Prompt text flashing.
'10' – '11'	Reserved

10

11

ENCODING_INCL - Call prompt character encoding included flag.

12

The mobile station shall set this field to '1' if the PRMPPT_ENCODING field is included. Otherwise, the mobile station shall set this field to '0'.

13

14

15

PRMPPT_ENCODING - Character Encoding.

16

See [4]. This field shall be set to indicate the character set used in the PRMPPT field included in this parameter block.

17

18

PRMPPT_LEN - Call prompt length indicator

19

The mobile station shall set this field to indicate the number of octets of the PRMPPT field.

20

21

PRMPPT - Call prompt.

22

The mobile station shall set this field to the characters based on the encoding method defined in PRMPPT_ENCODING.

23

24

RESERVED - Reserved bits.

1 The mobile station shall set this field to '000' if
 2 ENCODING_INCL = '0'. Otherwise, the mobile station shall
 3 set this field to '000000'.

4 3.5.12 MMS Parameter Block

5 Table 3.5.12-1 lists the types of parameter blocks used in the *MMS Configuration Request*
 6 *Message* and the *MMS Configuration Response Message*.

7
 8 **Table 3.5.12-1 MMS Parameter Block Types**

Parameter Block Type	BLOCK_ID	Reference
MMS URI Parameters	'00000000'	3.5.12.1
MMS URI Capability Parameters	'00000001'	3.5.12.2
Reserved	'00000010' through '11111111'	

9 3.5.12.1 MMS URI Parameters

10 The PARAM_DATA field of the MMS URI Parameters Block consists of the following fields:

Field	Length (bits)
NUM_MMS_URI	4
NUM_MMS_URI occurrences of the following fields:	
MMS_URI_ENTRY_IDX	4
MMS_URI_LENGTH	8
MMS URI	8 x MMS_URI_LENGTH
RESERVED	0 to 7

12 NUM_MMS_URI - Number of MMS URIs

13 The mobile station shall set this field to the number of MMS
 14 URIs stored on the mobile, encoded in ASCII string, refer to
 15 [16], [17] and [18].

16 The mobile station shall include NUM_MMS_URI occurrences of the following fields:

17 MMS_URI_ENTRY_IDX - MMS URI entry index.

18 The mobile station shall set this field to the index in the
 19 MMS URI Table, refer to [16], [17] and [18].

20 MMS_URI_LENGTH - MMS URI length.

21 The mobile station shall set this field to the length of the URI
 22 associated with the MMS Relay/Server in units of octet

- 1 MMS_URI - MMS_URI
- 2 The mobile station shall set this field to the URI of the MMS
- 3 Relay/Server, encoded in ASCII string, refer to [16], [17] and
- 4 [18].
- 5 RESERVED - Reserved bits.
- 6 The mobile station shall add reserved bits as needed in order
- 7 to make the length of the entire parameter block equal to an
- 8 integer number of octets.

9 3.5.12.2 MMS URI Capability Parameters

10 The PARAM_DATA field of the MMS URI Capability Parameters Block consists of the

11 following fields:

12

Field	Length (bits)
MAX_NUM_MMS_URI	4
MAX_MMS_URI_LENGTH	8
RESERVED	7

13

- 14 MAX_NUM_MMS_URI - Maximum MMS URI Entries.
- 15 The mobile station shall set this field to the maximum
- 16 number of MMS URI entries supported by the mobile station.
- 17 MAX_MMS_URI_LENGTH - Maximum MMS URI length.
- 18 The mobile station shall set this field to the maximum
- 19 length, in units of octets, of the MMS URI supported by the
- 20 mobile station.
- 21 RESERVED - Reserved bits.
- 22 The mobile station shall add reserved bits as needed in order
- 23 to make the length of the entire parameter block equal to an
- 24 integer number of octets.

25

4 BASE STATION PROCEDURES

4.1 Reserved

4.2 Initiation of the Programming Procedures

4.2.1 User-Initiated Procedure

If the base station sends a message to the mobile station on the CDMA Paging Channel or Forward Common Control Channel, and if the active NAM of this mobile station has not been provisioned, the base station should address the message using the ESN or MEID of the mobile station.

After receiving an activation origination, the base station should assign the mobile station to a CDMA Traffic Channel or analog voice channel and perform appropriate procedures as specified in 6.6.4 of [1] or 2.6.4 of [7].

The base station should not process an activation origination as an implicit registration (see 6.6.5.1 of [1] or 2.6.5.1 of [7]). The base station should not send the *Mobile Station Registered Message* (see 7.7.3.3.2.15 of [1] or 3.7.3.3.2.15 of [7]) during the programming session.

If the mobile station includes authentication information when sending an activation origination, the base station should process the authentication data as required in 7.3.1 of [1] or 3.3.1 of [7]. During the programming session, the base station should invoke signaling message encryption and voice privacy (CDMA only) whenever available.

If the base station sets the AUTH field of the *Access Parameters Message* to '01' or sets SENDING RAND field of the MC-RR Parameters Message to '1', and if the mobile station does not include authentication information when sending an activation origination, the base station shall not activate voice privacy or message encryption.

If the base station sets the AUTH field of the *Access Parameters Message* to '01' or sets SENDING RAND field of the MC-RR Parameters Message to '1', and if the mobile station includes authentication information when sending an activation origination, but authentication fails, the base station may perform the following to provide signaling message encryption and voice privacy prior to performing full mobile station activation:

- The base station should complete the exchange of the A-key information and, optionally, set a non-default mobile station identifier. The base station should store the information in its database so that authentication and key calculation can be performed.
- Following the exchange of A-key information, the base station should perform SSD update (see 3.3.2) procedures of 6.3.12.1.9 of [1] or 2.3.12.1.5 of [7]. The base station may confirm the SSD update by performing the Unique Challenge-Response Procedure defined in 6.3.12.1.5 of [1] or 2.3.12.1.4 of [7].
- When the SSD update has been completed, the base station may send the *Re-Authenticate Message* (see 4.3.2).

- The base station may activate message encryption (see 4.3.3) and voice privacy (see 4.3.4).

4.2.2 Network-Initiated Procedure.

If the network initiates OTAPA for the mobile station that is already in a CDMA *Conversation Substate* or the analog Conversation Task (i.e. the base station is communicating with the mobile station on the CDMA Traffic Channel or on the Analog Voice Channel), the base station shall send the *OTAPA Request Message* with the START_STOP field set to '1' to the mobile station in order to start the OTAPA session in the mobile station.

If the network initiates OTAPA for the mobile station that is in the CDMA *Mobile Station Idle State*, the base station shall do the following:

- The base station shall page the mobile station and establish a Traffic Channel using the procedures defined in 7.6 of [1] or 3.6 of [7]. The base station shall request Service Option 18 or 19, and perform service negotiation.
- If the base station establishes a service configuration, as specified in a *Service Connect Message*, that includes a service option connection using Service Option 18 or 19, then the service option connection shall become part of the current service configuration at the action time associated with the *Service Connect Message*. Service Option 18 or 19 is considered connected when the current service configuration includes a service option connection for it.
- When the Service Option 18 or 19 is connected, the Service Option shall discard all primary traffic data bits received from the multiplex sublayer, and the base station should transmit null traffic channel data.
- The base station shall send the *OTAPA Request Message* with the START_STOP field set to '1' to the mobile station in order to start the OTAPA session in the mobile station.

4.3 Programming Data Download

4.3.1 OTA Data Message Processing

While in the CDMA *Conversation Substate* or the analog Conversation Task, the base station may send the messages prescribed below. If the base station sends a message requiring a response, the base station should wait for receipt of the appropriate response before sending further Over-the-Air Service Provisioning messages. If the base station does not receive a response to the message, it may retransmit the message.

If the base station receives any *OTASP Data Message* containing the RESULT_CODE = '00001010', "Rejected - Mobile station locked", or '00001011', "Rejected - Invalid SPC" or '00001101', "Rejected - Invalid SPASM", indicating that the mobile station parameters are locked (see 3.3.6 and 3.3.7), the base station may attempt to unlock the mobile station before continuing the programming procedure.

1 If the base station receives any message containing a RESULT_CODE indicating any other
 2 error condition, the base station may terminate the programming session, or select
 3 appropriate action to correct the error condition.

- 4 1. Configuration Request Message: The base station should wait for a *Configuration*
 5 *Response Message*.
- 6 2. Download Request Message: The base station should wait for a *Download Response*
 7 *Message*.
- 8 3. Commit Request Message: The base station should wait for a *Commit Response*
 9 *Message*. Upon receipt of the *Commit Response Message* with the RESULT_CODE
 10 set to '00000000', "Accepted - Operation successful," the base station should
 11 update its stored database to include the activation information.
- 12 4. Re-Authenticate Request Message: The base station should wait for a *Re-*
 13 *Authenticate Response Message*.
- 14 5. MS Key Request Message: The base station should wait for an *MS Key Response*
 15 *Message*.
- 16 6. Key Generation Request Message: The base station should receive an *MS Key*
 17 *Response Message* with RESULT_CODE equal to '00000000', "Accepted - Operation
 18 successful," prior to sending this message. The base station should wait for a *Key*
 19 *Generation Response Message*.
- 20 7. Protocol Capability Request Message: The base station should wait for a *Protocol*
 21 *Capability Response Message* or an *Extended Protocol Capability Response Message*.
 22 The base station shall not send the *Protocol Capability Request Message* with
 23 additional fields to the mobile stations which don't support the additional fields
 24 defined in Section 4.5.1.7⁵.
- 25 8. SSPR Configuration Request Message: The base station should wait for an *SSPR*
 26 *Configuration Response Message*.
- 27 9. SSPR Download Request Message: The base station should wait for an *SSPR*
 28 *Download Response Message*.
- 29 10. Validation Request Message: The base station should wait for a *Validation*
 30 *Response Message*. The following procedures may be used:
 - 31 • In order to unlock the mobile station, the base station may send the Verify SPC
 32 Parameter Block with the SPC field set to the value of the Service Programming
 33 Code assigned to the mobile station.

⁵~~The base station may use the first 8 bits of the received value in the ESN field to determine if the mobile station is MEID capable (i.e. MEID capable mobile stations will have '10000000' to indicate a pseudo ESN).~~

- 1 • If the base station elects to change the value of the SPC assigned to the mobile
2 station, the base station may send the Change SPC Parameter Block with the
3 SPC field set to the value of the new Service Programming Code assigned to the
4 mobile station. If the base station elects to permanently unlock the mobile
5 station, the base station shall set the SPC field to the default value (see Table
6 3.3.6-1).
- 7 • In order to unlock the active mobile station NAM secured by SPASM, the base
8 station may send the Validate SPASM Parameter Block.
- 9 - If the programming session was initiated by the user as described in 3.2.1,
10 the base station should not send this Parameter Block.
- 11 - If the base station received the RAND_OTAPA value from the mobile station
12 in the *OTAPA Response Message*, the base station should set the
13 AUTH_OTAPA_INCL field to '1' and the AUTH_OTAPA field to the value
14 computed by the base station as specified in 3.3.7.
- 15 - If the base station did not receive the RAND_OTAPA value from the mobile
16 station in the *OTAPA Response Message*, the base station may not send
17 this Parameter Block. If the base station sends this Parameter Block, the
18 base station should set the AUTH_OTAPA_INCL field to '0' and omit the
19 AUTH_OTAPA field.
- 20 - The base station should set the NAM_LOCK field to '1' to activate SPASM
21 protection of programmable parameters and indicators of the active NAM for
22 subsequent OTAPA session, otherwise the base station should set this field
23 to '0'. SPASM protection specified by the value of the NAM_LOCK field will
24 take effect for the subsequent OTAPA session if it is committed into the
25 permanent mobile station memory during the current OTAPA session.
- 26 11. *OTAPA Request Message:* The base station should wait for an *OTAPA Response*
27 *Message*. The following procedures may be used:
- 28 • If the programming session was initiated by the user as described in 3.2.1, the
29 base station should not send this message.
- 30 • In order to invoke the OTAPA session in the mobile station, the base station
31 shall set the START_STOP field to '1' in the message.
- 32 • In order to terminate the OTAPA session in the mobile station, the base
33 station shall set the START_STOP field to '0' in the message.
- 34 12. *PUZL Configuration Request Message:* The base station should wait for a *PUZL*
35 *Configuration Response Message*.
- 36 13. *PUZL Download Request Message:* The base station should wait for a *PUZL*
37 *Download Response Message*.
- 38 14. *3GPD Configuration Request Message:* The base station should wait for a *3GPD*
39 *Configuration Response Message*.

- 1 15. 3GPD Download Request Message: The base station should wait for a *3GPD*
2 *Download Response Message*.
- 3 16. Secure Mode Request Message: The base station should wait for a *Secure Mode*
4 *Response Message*. The following procedures may be used:
- 5 • The base station shall generate the Secure Mode Ciphering Key (SMCK) as
6 specified in 4.3.5. If SMCK generation is unsuccessful, the base station shall
7 not send the message.
 - 8 • In order to invoke the Secure Mode in the mobile station, the base station
9 shall set the START_STOP field to '1' and the RAND_SM field to a randomly
10 selected 64-bit value used for generating the Secure Mode Ciphering Key SMCK
11 (see 4.3.5). Upon receipt of the *Secure Mode Response Message* with the
12 RESULT_CODE set to '00000000', "Accepted - Operation successful," the base
13 station should activate the Secure Mode as specified in 4.3.5.
 - 14 • In order to terminate the Secure Mode in the mobile station, the base station
15 shall set the START_STOP field to '0' in the message.
- 16 17. MMD Configuration Request Message: The base station should wait for a *MMD*
17 *Configuration Response Message*.
- 18 18. MMD Download Request Message: The base station should wait for a *MMD*
19 *Download Response Message*.
- 20 19. System Tag Configuration Request Message: The base station should wait for a
21 *System Tag Configuration Response Message*.
- 22 20. System Tag Download Request Message: The base station should wait for a *System*
23 *Tag Download Response Message*.
- 24 21. Service Key Generation Request Message: The base station should wait for a *Service*
25 *Key Generation Response Message*.
- 26 22. MMS Configuration Request Message: The base station should wait for a *MMS*
27 *Configuration Response Message*.
- 28 23. MMS Download Request Message: The base station should wait for a *MMS*
29 *Download Response Message*.

30 *Note: The base station may use the first 8 bits of the received value in the ESN field to*
31 *determine if the value in the ESN field is a true ESN/MEID (with prefix other than 0x80) or*
32 *a pseudo-ESN/pseudo-UMID (with prefix 0x80). The first 8 bits only indicates the MEID*
33 *capability of the mobile station if it is known that the mobile station is non-RUIM*
34 *capable.*

35 4.3.2 SSD Update and re-authentication

36 Re-authentication is the process by which the base station instructs the mobile station to
37 perform authentication and generate the Private Long Code Mask and Message Encryption
38 parameters while on the CDMA Traffic channel or analog voice channel. The

1 authentication key, A-key, should be generated in the mobile station during the present
2 programming session.

3 The base station shall disable voice privacy and message encryption prior to performing re-
4 authentication.

5 The Shared Secret Data, SSD, shall be generated prior to performing re-authentication.
6 The procedure for setting the interface values and for generating the authentication
7 signature, voice privacy and message encryption parameters, is described in 3.3.2.

8 4.3.3 Activation of Message Encryption

9 To enhance the security of the programming session and to protect sensitive subscriber
10 information, the base station should enable message encryption (see 7.3.2 of [1] or 3.3.2 of
11 [7]).

12 If message encryption was enabled or transition to the Private Long Code Mask was made
13 (see 7.3.3 of [1] or 3.3.3 of [7]) before the re-authentication operation, message encryption
14 parameters active at that time shall remain unchanged for the duration of the call.

15 Otherwise, message encryption parameters are re-calculated during the re-authentication
16 operation. In this case, the data used to initialize the algorithm for calculating message
17 encryption parameters is computed based on parameters in effect at the time the *Re-
18 Authenticate Request Message* was sent.

19 Messages shall not be encrypted following an unsuccessful re-authentication.

20 4.3.4 Activation of Voice Privacy Mode

21 To enhance the security of the programming session and to protect sensitive subscriber
22 information, the base station should enable voice privacy (see 7.3.3 of [1] or 3.3.3 of [7]).

23 If a transition to the Private Long Code Mask was made or signaling message encryption
24 was activated (see 2.3.12.2.1 and 6.3.12.2 of [1] or 2.3.12.2 of [7]) before the re-
25 authentication operation, the Private Long Code Mask active at that time shall remain
26 unchanged for the duration of the call.

27 Otherwise, the Private Long Code Mask is recalculated during the re-authentication
28 operation. In this case, the data used to initialize the algorithm for calculating the
29 Private Long Code Mask is computed based on parameters in effect at the time the *Re-
30 Authenticate Request Message* was sent.

31 Voice privacy shall not be enabled following an unsuccessful re-authentication.

32 4.3.5 Secure Mode

33 To enhance security of the programming session and to protect sensitive subscriber
34 information, a method is provided to encrypt PARAM_DATA fields of Parameter Blocks in
35 OTASP messages irrespective of the air interface message encryption described in 4.3.3.
36 This method allows setting up a secure “tunnel” between the network based Over-The-
37 Air Service Provisioning entity and the mobile station.

1 If the mobile station indicates its support for Secure Mode by setting appropriate feature-
 2 related fields in the *Protocol Capability Response Message*, the base station may activate
 3 the Secure Mode by sending the *Secure Mode Request Message* to the mobile station with
 4 the START_STOP field set to '1'.

5 Prior to initiating the Secure Mode, the base station should generate the Secure Mode
 6 Ciphering Key SMCK as specified in 4.3.5.1. The base station should not initiate the
 7 Secure Mode if generation of the SMCK is unsuccessful.

8 The base station shall use the SMCK as a key for encryption and decryption, as specified
 9 in 4.3.5.2, of all PARAM_DATA of all Parameter Blocks sent and received by the base
 10 station in the OTASP Data Messages while the Secure mode is active.

11 When encrypting the message, the base station should select a value of FRESH associated
 12 with this message and unique for the duration of Secure Mode session. The value of
 13 FRESH can be selected at random, or can be set to a monotonically increasing counter.

14 When decrypting the message, the base station should use the value of FRESH received in
 15 the message.

16 The base station can terminate the Secure Mode by sending the *Secure Mode Request*
 17 *Message* to the mobile station with the START_STOP field set to '0'. When Secure Mode
 18 session is terminated, the base station should reset the SMCK to NULL.

19 4.3.5.1 Generation of Secure Mode Ciphering Key

20 The Secure Mode Ciphering Key Generation SMCK is generated by the algorithmic
 21 function specified in Section 2.2.2.6 of [8].

22 If KEY_IN_USE = '0000', the input parameters to the algorithmic function f_3 shall be set as
 23 follows:

- 24 • The K parameter shall be set to SSD-A|SSD-B.
- 25 • The f_i parameter shall be set to 0x45.
- 26 • The RAND parameter shall be set to RAND_SM|RAND_SM.
- 27 • The F_{mk} parameter shall be set to 0x41484147.

28 If KEY_IN_USE = '0001', the input parameters to the algorithmic function f_3 shall be set as
 29 follows:

- 30 • The K parameter shall be set to the 128-bit Root Key K.
- 31 • The f_i parameter shall be set to 0x45.
- 32 • The RAND parameter shall be set to RAND_SM|RAND_SM.
- 33 • The F_{mk} parameter shall be set to 0x41484147.

34 The base station shall execute the Ciphering Key Generation Procedure as specified in
 35 2.2.2.6 of [8]. The base station shall set SMCK to the computed 128-bit output of f_3 .

36 The base station shall set input parameter to the *ESP_privacykey Procedure* as follows:

- 37 • The *key* parameter shall be set to SMCK.

1 The base station shall execute the *ESP_privacykey Procedure*.

2 4.3.5.2 Encryption and Decryption of Messages in Secure Mode

3 Encryption and decryption of PARAM_DATA information is performed by the Enhanced
4 Privacy Algorithm specified in 2.3.2.2 of [8].

5 The base station shall set input parameters to the Enhanced Privacy Algorithm as follows:

- 6 • If the base station presents the data for encryption, the base station shall set the
7 *fresh* parameter to FRESH|'1'|BLOCK_ID; otherwise, if the base station presents
8 the data for decryption, the base station shall set the *fresh* parameter to FRESH_r|'
9 0'|BLOCK_ID;
- 10 • The *freshsize* parameter shall be set to 3;
- 11 • The *buf* parameter shall be set to the address of the octet containing the first bit of
12 the buffer that contains the data to be encrypted or decrypted.
- 13 • The *bit_offset* parameter shall be set to the offset between the bit position of the
14 most significant bit of the data to be encrypted/decrypted and the bit position of
15 the most significant bit of the buffer (e.g., if the bit position of the most significant
16 bit of the data to be encrypted/decrypted and the bit position of the most
17 significant bit of the buffer are equal, *bit_offset* shall be set to 0).
- 18 • The *bit_count* parameter shall be set to the number of bits of the data to be
19 encrypted/decrypted.

20 The base station shall execute the *ESP_maskbits Procedure*.

21 4.3.6 Generation of Service Keys

22 Generation of service keys consists of generating an intermediate key and using the
23 intermediate key to generate service keys.

24 4.3.6.1 Generation of Intermediate Key

25 The Intermediate value ITM_RAND is generated by the algorithmic function specified in
26 Section 2.2.2.2 of [8].

27 The input parameters to the algorithmic function *f0* shall be set as follows:

- 28 • The *K* parameter shall be set to RK_p.
- 29 • The *f_i* parameter shall be set to 0x41.
- 30 • The *Fmk* parameter shall be set to 0x534B474B.

31 The base station shall execute *f0* twice. ITM_RAND is set to the 128-bit output of *f0*.

32 4.3.6.2 Generation of Service Keys

33 For each bit in the bitmap as illustrated in Table 4.5.1.17-1 that is turned on, the base
34 station shall generate the service key by invoking key generation function as specified in
35 Section 2.2.2.6 of [8].

1 The input parameters to the algorithmic function f_3 shall be set as follows:

- 2 • The K parameter shall be set to ITM_RAND.
- 3 • The fi parameter shall be set to 0x45.
- 4 • The RAND parameter shall be set according to table 4.3.6.2-1, with remaining least
- 5 significant bits padded with '0', for each service requested.
- 6 • The Fmk parameter shall be set to 0x534B474B.

7 The base station shall execute f_3 to produce 128-bit service root key.

8 **Table 4.3.6.2-1 Key Identifier Table**

Service Key Requested	RAND Value
IMS ROOT KEY	0x494D53
BCMCS ROOT KEY	0x42434D4353
WLAN ROOT KEY	0x574C414E

9

10 **4.4 Termination of the Programming Procedure**

11 The programming session ends when the OTAPA service option is disconnected.

12 If the programming session was initiated by the network as described in 3.2.2, and if the

13 base station processes the incoming call directed to the mobile station during the OTAPA

14 process, the base station shall perform the following:

- 15 1. If either the mobile station or the base station does not support concurrent
- 16 services the base station shall disconnect the OTAPA session and may release the
- 17 traffic channel prior to connecting the incoming call.
- 18 2. If both the mobile station and base station supports concurrent service then the
- 19 base station may disconnect the OTAPA session and may release the traffic
- 20 channel prior to connecting the incoming call.

21 If the programming session was initiated by the network as described in 3.2.2, the base

22 station may terminate the OTAPA session by sending the *OTAPA Request Message* to the

23 mobile station with the START_STOP field set to '0'.

24 **4.5 Forward Link Message Formats**

25 The forward link *OTASP Data Messages* are summarized in Table 4.5-1.

26

1

Table 4.5-1 Forward Link Messages

Message Name	OTASP_MSG_TYPE	Reference
<i>Configuration Request Message</i>	'00000000'	4.5.1.1
<i>Download Request Message</i>	'00000001'	4.5.1.2
<i>MS Key Request Message</i>	'00000010'	4.5.1.3
<i>Key Generation Request Message</i>	'00000011'	4.5.1.4
<i>Re-Authenticate Request Message</i>	'00000100'	4.5.1.5
<i>Commit Request Message</i>	'00000101'	4.5.1.6
<i>Protocol Capability Request Message</i>	'00000110'	4.5.1.7
<i>SSPR Configuration Request Message</i>	'00000111'	4.5.1.8
<i>SSPR Download Request Message</i>	'00001000'	4.5.1.9
<i>Validation Request Message</i>	'00001001'	4.5.1.10
<i>OTAPA Request Message</i>	'00001010'	4.5.1.11
<i>PUZL Configuration Request Message</i>	'00001011'	4.5.1.12
<i>PUZL Download Request Message</i>	'00001100'	4.5.1.13
<i>3GPD Configuration Request Message</i>	'00001101'	4.5.1.14
<i>3GPD Downloaded Request Message</i>	'00001110'	4.5.1.15
<i>Secure Mode Request Message</i>	'00001111'	4.5.1.16
Reserved	'00010000'	
<i>MMD Configuration Request Message</i>	'00010001'	4.5.1.18
<i>MMD Download Request Message</i>	'00010010'	4.5.1.19
<i>System Tag Configuration Request Message</i>	'00010011'	4.5.1.20
<i>System Tag Download Request Message</i>	'00010100'	4.5.1.21

<i>Service Key Generation Request Message</i>	'00010101'	4.5.1.22
<i>MMS Configuration Request Message</i>	'00010110'	4.5.1.23
<i>MMS Download Request Message</i>	'00010111'	4.5.1.24
Reserved for future standardization	'00011000' through '10111111'	
Available for manufacturer-specific <i>OTASP Data Message</i> definition	'11000000' through '11111110'	See [4]
Reserved	'11111111'	

1

2

3 4.5.1 Message Contents

4 4.5.1.1 Configuration Request Message

5 The *Configuration Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000000')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following field:

BLOCK_ID	8
----------	---

6

7 OTASP_MSG_TYPE - *OTASP Data Message* type.

8 The base station shall set this field to '00000000'.

9 NUM_BLOCKS - Number of parameter blocks requested.

10 The base station shall set this field to the number of
11 parameter blocks requested.

12 BLOCK_ID - Parameter block identifier.

13 The base station shall include NUM_BLOCKS occurrences of
14 this field. The base station shall set each field to the value
15 of the parameter block type requested (see Table 3.5.2-1).

1 4.5.1.2 Download Request Message

2 The *Download Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000001')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

3

- 4 OTASP_MSG_TYPE - *OTASP Data Message* type.
 5 The base station shall set this field to '00000001'.
- 6 NUM_BLOCKS - Number of parameter blocks.
 7 The base station shall set this field to the number of
 8 parameter blocks contained in the *Download Request*
 9 *Message*.
- 10 BLOCK_ID - Parameter block identifier.
 11 The base station shall include NUM_BLOCKS occurrences of
 12 this field. The base station shall set each field to the value
 13 of the parameter block type requested (see Table 4.5.2-1).
- 14 BLOCK_LEN - Parameter block length.
 15 The base station shall set this field to the number of octets
 16 in the parameter block, not including the BLOCK_ID and
 17 BLOCK_LEN fields.
- 18 PARAM_DATA - Parameter data fields.
 19 The base station shall include the parameter block (see
 20 4.5.2) specified by the BLOCK_ID field. If Secure Mode is
 21 active (see 4.3.5), PARAM_DATA fields shall be encrypted as
 22 specified in 4.3.5.
- 23 FRESH_INCL - FRESH included indicator.
 24 If Secure Mode is active (See 4.3.5), the base station shall
 25 include this field and set it to '1'; otherwise the base station
 26 shall set this field to '0'.
- 27 FRESH - Cryptographic Synchronizer (crypto-sync) selected for
 28 encrypting PARAM_DATA fields of the message.

1 If FRESH_INCL = '1', the base station shall include this field
 2 and set it to a 15-bit value chosen as specified in 4.3.5 for
 3 encrypting the PARAM_DATA fields of all Parameter Data
 4 blocks included in the message; otherwise the base station
 5 shall omit this field.

6 RESERVED - Reserved bits.

7 If FRESH_INCL = '1', the base station shall omit this field;
 8 otherwise, the base station shall set all the bits of this field
 9 to '0'.

10 4.5.1.3 MS Key Request Message

11 The *MS Key Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000010')	8
A_KEY_P_REV	8
PARAM_P_LEN	0 or 8
PARAM_P	0 or 8 × PARAM_P_LEN
PARAM_G_LEN	0 or 8
PARAM_G	0 or 8 × PARAM_G_LEN

12

13 OTASP_MSG_TYPE - *OTASP Data Message* type.

14 The base station shall set this field to '00000010'.

15 A_KEY_P_REV - Key exchange protocol version.

16 The base station shall set this field to '00000010' for 2G A-
 17 key generation, '00000011' for combination 2G A-key and 3G
 18 Root Key generation, '00000100' for 3G Root Key generation,
 19 or '00000101' for Enhanced 3G Root Key generation.

20 PARAM_P_LEN - Length of PARAM_P field.

21 If A_KEY_P_REV = '00000010', the base station shall set this
 22 field to the number of octets in the PARAM_P field, and the
 23 base station shall set this field to '01000000'. If A_KEY_P_REV
 24 > '00000010', the base station shall omit this field.

25 PARAM_P - Key exchange parameter P.

26 If A_KEY_P_REV = '00000010', the base station shall set this
 27 field as described in 5.2.1. If A_KEY_P_REV > '00000010', the
 28 base station shall omit this field.

29 PARAM_G_LEN - Length of PARAM_G field.

30 If A_KEY_P_REV = '00000010', the base station shall set this
 31 field to the number of octets in the PARAM_G field, and the
 32 base station shall set this field to '00010100'. If A_KEY_P_REV
 33 > '00000010', the base station shall omit this field.

1 PARAM_G - Key exchange parameter G.
 2 If A_KEY_P_REV = '00000010', the base station shall set this
 3 field as described in 5.2.1. If A_KEY_P_REV > '00000010', the
 4 base station shall omit this field.
 5

6 4.5.1.4 Key Generation Request Message

7 The *Key Generation Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000011')	8
BS_RESULT_LEN	8
BS_RESULT	8 × BS_RESULT_LEN

8
 9 OTASP_MSG_TYPE - *OTASP Data Message* type.
 10 The base station shall set this field to '00000011'.
 11 BS_RESULT_LEN - Length of BS_RESULT field.
 12 The base station shall set this field to the number of octets
 13 in the BS_RESULT field.
 14 BS_RESULT - Base station calculation result.
 15 If A_KEY_P_REV = '00000010', the base station shall set this
 16 field equal to the value of BS_RESULT as described in 5.2.2.
 17 If A_KEY_P_REV = '00000011' or '00000100', the base station
 18 shall set this field equal to the value of BS_RESULT as
 19 described in 5.4.2. If A_KEY_P_REV = '00000101', the base
 20 station shall set this field equal to the value of BS_RESULT
 21 as described in 5.6.2.
 22

23 4.5.1.5 Re-Authenticate Request Message

24 The *Re-Authenticate Request Message* has the following fixed-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000100')	8
RAND	32

25
 26 OTASP_MSG_TYPE - *OTASP Data Message* type.
 27 The base station shall set this field to '00000100'.
 28 RAND - Random Challenge value.

1 The base station shall set this field to the value used as an
 2 input to the Auth_Signature procedure for performing re-
 3 authentication. See 3.3.2.

4 4.5.1.6 Commit Request Message

5 The *Commit Request Message* has the following fixed-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000101')	8

6
 7 OTASP_MSG_TYPE - *OTASP Data Message* type.

8 The base station shall set this field to '00000101'.

9

10 4.5.1.7 Protocol Capability Request Message

11 The *Protocol Capability Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000110')	8
OTASP_P_REV	0 or 8
NUM_CAP_RECORD	0 or 8
One or more occurrences of the following record:	
CAP_RECORD_TYPE	0 or 8

12

13 OTASP_MSG_TYPE - *OTASP Data Message* type.

14 The base station shall set this field to '00000110'.

15 OTASP_P_REV - OTASP protocol revision.

16 If the ~~mobile~~base station *does not request new capability*
 17 *information records as defined in Table 3.5.1.17.1-is not*
 18 ~~MEID-capable (See footnote 3)~~, the base station shall omit
 19 this field; otherwise, the base station shall set this field to
 20 '00000100'.

21 NUM_CAP_RECORDS - Number of Capability Records.

22 If *OTASP_P_REV* field is not included~~the mobile station is not~~
 23 ~~MEID-capable (See footnote 3)~~, the base station shall omit
 24 this field; otherwise, the base station shall set this field to
 25 the number of Capability Records requested.

26 CAP_RECORD_TYPE - Capability Record Type.

27 If *OTASP_P_REV* field is not included~~the mobile station is not~~

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~~MEID capable (See footnote 3)~~, the base station shall omit this field; otherwise, the base station shall set this field to the record type value shown in Table 3.5.1.17.1-1 corresponding to the information record requested.

4.5.1.8 SSPR Configuration Request Message

The *SSPR Configuration Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00000111')	8
BLOCK_ID	8

If BLOCK_ID = '00000001' (Preferred Roaming List Parameter Block), the message also includes the following fields:

REQUEST_OFFSET	16
REQUEST_MAX_SIZE	8

OTASP_MSG_TYPE - OTASP Data Message type.

The base station shall set this field to '00000111'.

BLOCK_ID Parameter block identifier.

The base station shall set this field to the value of the BLOCK_ID of the parameter block being requested in this message (see Table 3.5.3-1).

If the BLOCK_ID field is set to '00000001' (Preferred Roaming List Parameter Block), the base station shall include the following fields in the message:

REQUEST_OFFSET - Segment offset.

The base station shall set this field to the starting offset within the preferred roaming list (PR_LIST_{S-p}) of the octets being requested.

REQUEST_MAX_SIZE - Maximum segment size.

The base station shall set this field to the maximum number of preferred roaming list octets that the mobile station is to return.

4.5.1.9 SSPR Download Request Message

The *SSPR Download Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00001000')	8
BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN
FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

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- OTASP_MSG_TYPE - OTASP Data Message type.
The base station shall set this field to '00001000'.
- BLOCK_ID - Parameter block identifier.
The base station shall set this field to the value of the parameter block type being downloaded (see Table 4.5.3-1).
- BLOCK_LEN - Parameter block length.
The base station shall set this field to the number of octets in the parameter block, not including the BLOCK_ID and BLOCK_LEN fields.
- PARAM_DATA - Parameter data.
The base station shall include the parameter block specified by the BLOCK_ID field. If Secure Mode is active (see 4.3.5), PARAM_DATA field shall be encrypted as specified in 4.3.5.
- FRESH_INCL - FRESH included indicator.
If Secure Mode is active (See 4.3.5), the base station shall set this field to '1'; otherwise the base station shall set this field to '0'.
- FRESH - Cryptographic Synchronizer (crypto-sync) selected for encrypting PARAM_DATA field of the message.
If FRESH_INCL = '1', the base station shall include this field and set it to a 15-bit value chosen as specified in 4.3.5 for encrypting the PARAM_DATA field of the Parameter Data block included in the message; otherwise the base station shall omit this field.
- RESERVED - Reserved bits.
If FRESH_INCL = '1', the base station shall omit this field; otherwise, the base station shall set all the bits of this field to '0'.

1 4.5.1.10 Validation Request Message

2 The *Validation Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00001001')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

3

- 4 OTASP_MSG_TYPE - *OTASP Data Message type.*
 5 The base station shall set this field to '00001001'.
- 6 NUM_BLOCKS - Number of parameter blocks.
 7 The base station shall set this field to the number of
 8 parameter blocks contained in the *Validation Request*
 9 *Message*.
- 10 BLOCK_ID - Parameter block identifier.
 11 The base station shall set this field to the value of the
 12 parameter block type being included in the message (see
 13 Table 4.5.4-1).
- 14 BLOCK_LEN - Parameter block length.
 15 The base station shall set this field to the number of octets
 16 in the parameter block, not including the BLOCK_ID and
 17 BLOCK_LEN fields.
- 18 PARAM_DATA - Parameter data fields.
 19 The base station shall include the parameter block specified
 20 by the BLOCK_ID field.

21

22 4.5.1.11 OTAPA Request Message

23 The *OTAPA Request Message* has the following fixed-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00001010')	8
START_STOP	1
RESERVED	7

24

- 25 OTASP_MSG_TYPE - *OTASP Data Message type.*

- 1 The base station shall set this field to '00001010'.
- 2 **START_STOP** - OTAPA session start-stop indicator.
- 3 The base station shall set this field to '1' to invoke the
- 4 OTAPA session in the mobile station. The base station shall
- 5 set this field to '0' to terminate the OTAPA session in the
- 6 mobile station.
- 7 **RESERVED** - Reserved bits.
- 8 The base station shall set this field to '0000000'.

9 4.5.1.12 PUZL Configuration Request Message

10 The *PUZL Configuration Request Message* has the following variable-length format:

11

Field	Length (bits)
OTASP_MSG_TYPE ('00001011')	8
BLOCK_ID	8

If BLOCK_ID = '00000001' (PUZL Priorities Parameter Block), the message also includes the following fields:

REQUEST_INDEX	12
REQUEST_MAX_ENTRIES	8
RESERVED	4

If BLOCK_ID = '00000010' (User Zone Parameter Block), the message also includes the following fields:

UZ_ID	16
UZ_SID	15
REQUEST_OFFSET	12
REQUEST_MAX_SIZE	8
RESERVED	5

If BLOCK_ID = '00000011' (Preferred User Zone List Parameter Block), the message also includes the following fields:

REQUEST_INDEX	12
REQUEST_OFFSET	12
REQUEST_MAX_SIZE	8

12

- 13 **OTASP_MSG_TYPE** - *OTASP Data Message* type.
- 14 The base station shall set this field to '00001011'.
- 15 **BLOCK_ID** - Parameter block identifier.

1 The base station shall set this field to the value of the
 2 BLOCK_ID of the parameter block being requested in this
 3 message [see Table 3.5.6-1].

4 If the BLOCK_ID field is set to '00000001' (PUZL Priorities Parameter Block), the base
 5 station shall include the following fields in the message:

- 6 REQUEST_INDEX - Starting index.
 7 The base station shall set this field to the index value of the
 8 starting user zone entry in the preferred user zone list. The
 9 starting value of this index shall be set to '000000000001'
- 10 REQUEST_MAX_ENTRIES- Maximum number of entries.
 11 The base station shall set this field to the maximum number
 12 of user zone entries to be returned by the mobile station.
- 13 RESERVED - Reserved bits.
 14 The base station shall set this field to '0000'.

15
 16 If the BLOCK_ID field is set to '00000010' (User Zone Parameter Block), the base station
 17 shall include the following fields in the message:

- 18 UZ_ID - User Zone ID.
 19 Identification number for the User Zone. This is used over the
 20 air interface to identify the User Zone to the network and the
 21 mobile station.
- 22 UZ_SID - User Zone System ID.
 23 The System Identifier (SID) associated with the User Zone ID.
 24 The User Zone ID and User Zone SID values together provide a
 25 unique identifier for the user zone.
- 26 REQUEST_OFFSET - Segment offset.
 27 The base station shall set this field to the starting offset, in
 28 octets, within the requested user zone entry of the preferred
 29 user zone list (PUZL_{S-p}).
- 30 REQUEST_MAX_SIZE - Maximum segment size.
 31 The base station shall set this field to the maximum number
 32 of user zone entry octets that the mobile station is to return.
- 33 RESERVED - Reserved bits.
 34 The base station shall set this field to '00000'.

35
 36 If the BLOCK_ID field is set to '00000011' (Preferred User Zone List Parameter Block), the
 37 base station shall include the following fields in the message:

- 38 REQUEST_INDEX - Starting index
 39 The base station shall set this field to the index value of the
 40 starting user zone entry in the preferred user zone list. The
 41 starting value of this index shall be set to '000000000001'

- 1 REQUEST_OFFSET - Segment offset.
- 2 The base station shall set this field to the starting offset, in
- 3 octets, within the requested user zone entry (identified by
- 4 REQUEST_INDEX) of the preferred user zone list (PUZL_{s-p}).
- 5 REQUEST_MAX_SIZE - Maximum segment size.
- 6 The base station shall set this field to the maximum number
- 7 of user zone entry octets that the mobile station is to return.
- 8

9 4.5.1.13 PUZL Download Request Message

10 The *PUZL Download Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00001100')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

- 11
- 12 OTASP_MSG_TYPE - *OTASP Data Message* type.
- 13 The base station shall set this field to '00001100'.
- 14 NUM_BLOCKS - Number of parameter blocks.
- 15 The base station shall set this field to the number of
- 16 parameter blocks contained in the *PUZL Download Request*
- 17 *Message*.
- 18 BLOCK_ID - Parameter block identifier.
- 19 The base station shall set this field to the value of the
- 20 parameter block type being included in the message (see
- 21 Table 4.5.6-1).
- 22 BLOCK_LEN - Parameter block length.
- 23 The base station shall set this field to the number of octets
- 24 in the parameter block, not including the BLOCK_ID and
- 25 BLOCK_LEN fields.
- 26 PARAM_DATA - Parameter data fields.

- 1 The base station shall include the parameter block specified
 2 by the BLOCK_ID field. If Secure Mode is active (see 4.3.5),
 3 PARAM_DATA fields shall be encrypted as specified in 4.3.5.
- 4 FRESH_INCL - FRESH included indicator.
- 5 If Secure Mode is active (See 4.3.5), the base station shall set
 6 this field to '1'; otherwise the base station shall set this field
 7 to '0'.
- 8 FRESH - Cryptographic Synchronizer (crypto-sync) selected for
 9 encrypting PARAM_DATA fields of the message.
- 10 If FRESH_INCL = '1, the base station shall include this field
 11 and set it to a 15-bit value chosen as specified in 4.3.5 for
 12 encrypting the PARAM_DATA fields of all Parameter Data
 13 blocks included in the message; otherwise the base station
 14 shall omit this field.
- 15 RESERVED - Reserved bits.
- 16 If FRESH_INCL= '1', the base station shall omit this field;
 17 otherwise, the base station shall set all the bits of this field
 18 to '0'.

19

20 4.5.1.14 3GPD Configuration Request Message

21 The 3GPD Configuration Request Message has the following format:

22

Field	Length (bits)
OTASP_MSG_TYPE ('00001101')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following fields:

BLOCK_ID	8
----------	---

23

- 24 OTASP_MSG_TYPE - OTASP Data Message type.
- 25 The base station shall set this field to '00001101'.
- 26 NUM_BLOCKS - Number of parameter blocks requested.
- 27 The base station shall set this field to the number of
 28 parameter blocks requested.

29 The base station shall include NUM_BLOCKS occurrences of the following field:

- 30 BLOCK_ID - Parameter block identifier.
- 31 The base station shall set this field to the value of the
 32 BLOCK_ID of the parameter block being requested in this
 33 message (see Table 3.5.8-1).

34

1 4.5.1.15 3GPD Download Request Message

2 The 3GPD Download Request Message has the following variable-length format:

3

Field	Length (bits)
OTASP_MSG_TYPE ('00001110')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

4
5 OTASP_MSG_TYPE - OTASP Data Message type.

6 The base station shall set this field to '00001110'.

7 NUM_BLOCKS - Number of parameter blocks.

8 The base station shall set this field to the number of
9 parameter blocks contained in the 3GPD Download Request
10 Message.

11 The base station shall include NUM_BLOCKS occurrences of the following fields:

12 BLOCK_ID - Parameter block identifier.

13 The base station shall set this field to the value of the
14 parameter block type being included in the message (see
15 Table 4.5.7-1).

16 BLOCK_LEN - Parameter block length.

17 The base station shall set this field to the number of octets
18 in the parameter block, not including the BLOCK_ID and
19 BLOCK_LEN fields.

20 PARAM_DATA - Parameter data fields.

21 The base station shall include the parameter block specified
22 by the BLOCK_ID field. If Secure Mode is active (see 4.3.5),
23 PARAM_DATA fields shall be encrypted as specified in 4.3.5.

24 FRESH_INCL - FRESH included indicator.

25 If Secure Mode is active (See 4.3.5), the base station shall
26 include this field and set it to '1'; otherwise the base station
27 shall set this field to '0'.

4.5.1.17 Reserved

4.5.1.18 MMD Configuration Request Message

The *MMD Configuration Request Message* has the following format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010001')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following fields:

BLOCK_ID	8
----------	---

OTASP_MSG_TYPE - *OTASP Data Message* type.

The base station shall set this field to '00010001'.

NUM_BLOCKS - Number of parameter blocks requested.

The base station shall set this field to the number of parameter blocks requested.

The base station shall include NUM_BLOCKS occurrences of the following field:

BLOCK_ID - Parameter block identifier.

The base station shall set this field to the value of the BLOCK_ID of the parameter block being requested in this message (see Table 3.5.9-1).

4.5.1.19 MMD Download Request Message

The *MMD Download Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010010')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

OTASP_MSG_TYPE - *OTASP Data Message* type.

The base station shall set this field to '00010010'.

NUM_BLOCKS - Number of parameter blocks.

1			The base station shall set this field to the number of
2			parameter blocks contained in the <i>MMD Download Request</i>
3			<i>Message</i> .
4	BLOCK_ID	-	Parameter block identifier.
5			The base station shall set this field to the value of the
6			parameter block type being included in the message (see
7			Table 4.5.8-1).
8	BLOCK_LEN	-	Parameter block length.
9			The base station shall set this field to the number of octets
10			in the parameter block, not including the BLOCK_ID and
11			BLOCK_LEN fields.
12	PARAM_DATA	-	Parameter data fields.
13			The base station shall include the parameter block specified
14			by the BLOCK_ID field. If Secure Mode is active (see 4.3.5),
15			PARAM_DATA fields shall be encrypted as specified in 4.3.5.
16	FRESH_INCL	-	FRESH included indicator.
17			If Secure Mode is active (See 4.3.5), the base station shall set
18			this field to '1'; otherwise the base station shall set this field
19			to '0'.
20	FRESH	-	Cryptographic Synchronizer (crypto-sync) selected for
21			encrypting PARAM_DATA fields of the message.
22			If FRESH_INCL = '1', the base station shall include this field
23			and set it to a 15-bit value chosen as specified in 4.3.5 for
24			encrypting the PARAM_DATA fields of all Parameter Data
25			blocks included in the message; otherwise the base station
26			shall omit this field.
27	RESERVED	-	Reserved bits.
28			If FRESH_INCL= '1', the base station shall omit this field;
29			otherwise, the base station shall set all the bits of this field
30			to '0'.
31			

32 4.5.1.20 System Tag Configuration Request Message

33 The *System Tag Configuration Request Message* shall have the following variable-length
34 format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010011')	8
BLOCK_ID	8

If BLOCK_ID = '00000001' (System Tag List Parameter Block), the message also includes the following fields:

REQUEST_OFFSET	16
REQUEST_MAX_SIZE	8

- 1 OTASP_MSG_TYPE - OTASP Data Message type.
 2 The base station shall set this field to '00010011'.
 3 BLOCK_ID Parameter block identifier.
 4 The base station shall set this field to the value of the
 5 BLOCK_ID of the parameter block being requested in this
 6 message (see Table 3.5.10-1).
 7 If the BLOCK_ID field is set to '00000001' (System Tag List Parameter Block), the base
 8 station shall include the following fields in the message:
 9 REQUEST_OFFSET - Segment offset.
 10 The base station shall set this field to the starting offset
 11 within the group tag list (GROUP_TAG_LIST_{s-p}), specific tag
 12 list (SPEC_TAG_LIST_{s-p}), or call prompt list (CALL_PRMPPT_
 13 LIST_{s-p}) of the octets being requested.
 14 REQUEST_MAX_SIZE - Maximum segment size.
 15 The base station shall set this field to the maximum number
 16 of system tag list octets that the mobile station is to return.

17 4.5.1.21 System Tag Download Request Message

18 The *System Tag Download Request Message* shall have the following format

Field	Length (bits)
OTASP_MSG_TYPE ('00010100')	8
BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

- 19 OTASP_MSG_TYPE - OTASP Data Message type.
 20 The base station shall set this field to '00010100'.
 21 BLOCK_ID Parameter block identifier.
 22 The base station shall set this field to the value of the
 23 parameter block type being downloaded (see Table 4.5.9-1).
 24 BLOCK_LEN - Parameter block length.

1 The base station shall set this field to the number of octets
 2 in the parameter block, not including the BLOCK_ID and
 3 BLOCK_LEN fields.

4 PARAM_DATA - Parameter data.

5 The base station shall include the parameter block specified
 6 by the BLOCK_ID field.

7 4.5.1.22 Service Key Generation Request Message

8 The *Service Key Generation Request Message* has the following fixed-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010101')	8
KEY_ID	12
RESERVED	4

9
 10 OTASP_MSG_TYPE - *OTASP Data Message* type.

11 The base station shall set this field to '00010101'.

12 KEY_ID - Key exchange identifier.

13 The base station shall set this field corresponding to the key
 14 requested as shown in Table 4.5.1.17-1 in the form of a
 15 bitmap; otherwise, the base station shall omit this field.

16 **Table 4.5.1.22-1 Key Identifier Table**

Subfield	Length (bits)
IMS Root Key	1
BCMCS Root Key	1
WLAN Root Key	1
RESERVED	9

17 RESERVED - Reserved bits.

18 The base station shall set all bits of this field '0'.

19

20 4.5.1.23 MMS Configuration Request Message

21 The *MMS Configuration Request Message* has the following format:

22

Field	Length (bits)
OTASP_MSG_TYPE ('00010110')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following fields:

BLOCK_ID	8
----------	---

1

2 OTASP_MSG_TYPE - OTASP Data Message type.

3 The base station shall set this field to '00010110'.

4 NUM_BLOCKS - Number of parameter blocks requested.

5 The base station shall set this field to the number of
6 parameter blocks requested.

7 The base station shall include NUM_BLOCKS occurrences of the following field:

8 BLOCK_ID - Parameter block identifier.
9 The base station shall set this field to the value of the
10 BLOCK_ID of the parameter block being requested in this
11 message (see Table 3.5.12-1).

12 4.5.1.24 MMS Download Request Message

13 The *MMS Download Request Message* has the following variable-length format:

Field	Length (bits)
OTASP_MSG_TYPE ('00010111')	8
NUM_BLOCKS	8

NUM_BLOCKS occurrences of the following parameter block:

BLOCK_ID	8
BLOCK_LEN	8
PARAM_DATA	8 × BLOCK_LEN

FRESH_INCL	1
FRESH	0 or 15
RESERVED	0 or 7

14

15 OTASP_MSG_TYPE - OTASP Data Message type.

16 The base station shall set this field to '00010111'.

17 NUM_BLOCKS - Number of parameter blocks.

18 The base station shall set this field to the number of
19 parameter blocks contained in the *MMS Download Request*
20 *Message*.

1	BLOCK_ID	-	Parameter block identifier.
2			The base station shall set this field to the value of the
3			parameter block type being included in the message (see
4			Table 4.5.10-1).
5	BLOCK_LEN	-	Parameter block length.
6			The base station shall set this field to the number of octets
7			in the parameter block, not including the BLOCK_ID and
8			BLOCK_LEN fields.
9	PARAM_DATA	-	Parameter data fields.
10			The base station shall include the parameter block specified
11			by the BLOCK_ID field. If Secure Mode is active (see 4.3.5),
12			PARAM_DATA fields shall be encrypted as specified in 4.3.5.
13	FRESH_INCL	-	FRESH included indicator.
14			If Secure Mode is active (See 4.3.5), the base station shall set
15			this field to '1'; otherwise the base station shall set this field
16			to '0'.
17	FRESH	-	Cryptographic Synchronizer (crypto-sync) selected for
18			encrypting PARAM_DATA fields of the message.
19			If FRESH_INCL = '1', the base station shall include this field
20			and set it to a 15-bit value chosen as specified in 4.3.5 for
21			encrypting the PARAM_DATA fields of all Parameter Data
22			blocks included in the message; otherwise the base station
23			shall omit this field.
24	RESERVED	-	Reserved bits.
25			If FRESH_INCL= '1', the base station shall omit this field;
26			otherwise, the base station shall set all the bits of this field
27			to '0'.
28			

1 4.5.2 NAM Parameter Blocks

2 Table 4.5.2-1 lists the types of parameter blocks used in the *Download Request Message*
 3 and the *Download Response Message*.

4 **Table 4.5.2-1 NAM Parameter Block Types**

Parameter Block Type	BLOCK_ID	Reference
CDMA/Analog NAM Download	'00000000'	4.5.2.1
Mobile Directory Number	'00000001'	4.5.2.2
CDMA NAM Download	'00000010'	4.5.2.3
IMSI_T	'00000011'	4.5.2.4
Reserved for future standardization	'00000100' through '01111111'	
Available for manufacturer-specific parameter block definitions	'10000000' through '11111110'	See [4]
Reserved	'11111111'	

5

6 4.5.2.1 CDMA/Analog NAM Download

7 The PARAM_DATA field of the CDMA/Analog NAM Download Parameter Block consists of
 8 the following fields:

Field	Length (bits)
FIRSTCHP	11
HOME_SID	15
EX	1
IMSI_M_CLASS	1
IMSI_M_ADDR_NUM	3
MCC_M	10
IMSI_M_11_12	7
IMSI_M_S	34
ACCOLC	4
LOCAL_CONTROL	1
MOB_TERM_HOME	1
MOB_TERM_FOR_SID	1
MOB_TERM_FOR_NID	1
N_SID_NID	8

N_SID_NID occurrences of the following SID/NID pair:

SID	15
NID	16

The parameter block ends with the following field:

RESERVED	0 to 7 (as needed)
----------	--------------------

- 1
- 2 FIRSTCHP - First paging channel used in the home system.
- 3 The base station shall set this field to the value for the
- 4 FIRSTCHP_p mobile station NAM indicator (see F.3 of [1, 7]).
- 5 HOME_SID - Home system identification.
- 6 The base station shall set this field to the value for the
- 7 HOME_SID_p mobile station NAM indicator (see F.3 of [1, 7]).
- 8 EX - Extended address indicator.
- 9 The base station shall set this field to the value for the EX_p
- 10 mobile station NAM indicator (see F.3 of [1, 7]).
- 11 IMSI_M_CLASS - IMSI_M Class assignment of the mobile station.
- 12 If the base station is assigning a class 0 IMSI_M to the mobile
- 13 station, the base station shall set this field to '0'; otherwise
- 14 the base station shall set this field to '1'.
- 15 IMSI_M_ADDR_NUM - Number of IMSI_M address digits.

1			If the mobile station has been assigned a class 1 IMSI_M (see
2			6.3.1 of [1] or 2.3.1 of [7]), the base station shall set this field
3			to four less than the number of digits in the NMSI; otherwise,
4			the base station shall set this field to '000'.
5	MCC_M	-	Mobile country code of the IMSI_M.
6			The base station shall set this field to the value for the
7			MCC_M _p mobile station NAM indicator (see F.3 and 6.3.1 of
8			[1] or F.3 and 2.3.1 of [7]).
9	IMSI_M_11_12	-	11th and 12th digits of the IMSI_M.
10			The base station shall set this field to the value for the
11			IMSI_M_11_12 _p mobile station NAM indicator (see F.3 and
12			6.3.1 of [1] or F.3 and 2.3.1 of [7]).
13	IMSI_M_S	-	The least significant 10 digits of the IMSI_M.
14			The base station shall set this field to the value for the
15			IMSI_M_S _p mobile station NAM indicator (see F.3 and 6.3.1 of
16			[1] or F.3 and 2.3.1 of [7]).
17	ACCOLC	-	Access overload class.
18			The base station shall set this field to the value for the
19			ACCOLC _p mobile station NAM indicator (see F.3 of [1, 7]).
20	LOCAL_CONTROL	-	Local control status.
21			The base station shall set this field to '1' to enable local
22			control status in the mobile station, or to '0' to disable local
23			control status (see 2.6.1.2.2 of [1]).
24	MOB_TERM_HOME	-	Termination indicator for the home system.
25			The base station shall set this field to the value for the
26			MOB_TERM_HOME _p mobile station NAM indicator (see F.3
27			and 6.6.5.3 of [1] or F.3 and 2.6.5.3 of [7]).
28	MOB_TERM_FOR_SID	-	Termination indicator for SID roaming.
29			The base station shall set this field to the value for the
30			MOB_TERM_FOR_SID _p mobile station NAM indicator (see F.3
31			and 6.6.5.3 of [1] or F.3 and 2.6.5.3 of [7]).
32	MOB_TERM_FOR_NID	-	Termination indicator for NID roaming.
33			The base station shall set this field to the value for the
34			MOB_TERM_FOR_NID _p mobile station NAM indicator (see F.3
35			and 6.6.5.3 of [1] or F.3 and 2.6.5.3 of [7]).
36			

- 1 N_SID_NID - Number of SID/NID pairs.
2 The base station shall set this field to the number of
3 SID/NID pairs included in the parameter block. The base
4 station shall include at least one SID/NID pair.
- 5 SID - System identification.
6 The base station shall set this field to the value of the SID
7 component of the SID/NID pair (see F.3 of [1, 7]).
- 8 NID - Network identification.
9 The base station shall set this field to the value of the NID
10 component of the SID/NID pair (see F.3 of [1, 7]).
- 11 RESERVED - Reserved bits.
12 The base station shall add reserved bits as needed in order
13 to make the length of the entire parameter block equal to an
14 integer number of octets. The base station shall set these
15 bits to '0'.

16

17 4.5.2.2 Mobile Directory Number

18 The PARAM_DATA field of the Mobile Directory Number Parameter Block consists of the
19 following fields:

Field	Length (bits)
N_DIGITS	4

N_DIGITS occurrences of the following field:

DIGITn	4
--------	---

The parameter block ends with the following field:

RESERVED	0 or 4
----------	--------

- 20 N_DIGITS - Number of digits.
21 The base station shall set this field to the number of digits
22 included in the parameter block.
- 23 DIGITn - Digit.
24 The base station shall set these fields to the digits of the
25 mobile station directory number. Each digit shall be encoded
26 according to Table 6.7.1.3.2.4-4 of [1] or Table 2.7.1.3.2.4.4 of
27 [7].
- 28 RESERVED - Reserved bits.
29 The base station shall add reserved bits as needed in order
30 to make the length of the entire parameter block equal to an
31 integer number of octets. The base station shall set these
32 bits to '0'.

33

1 4.5.2.3 CDMA NAM Download

2 The PARAM_DATA field of the CDMA NAM Download Parameter Block consists of the
3 following fields:

Field	Length (bits)
IMSI_M_CLASS	1
IMSI_M_ADDR_NUM	3
MCC_M	10
IMSI_M_11_12	7
IMSI_M_S	34
ACCOLC	4
LOCAL CONTROL	1
MOB_TERM_HOME	1
MOB_TERM_FOR_SID	1
MOB_TERM_FOR_NID	1
N_SID_NID	8

N_SID_NID occurrences of the following SID/NID pair:

SID	15
NID	16

The parameter block ends with the following field:

RESERVED	0 to 7 (as needed)
----------	--------------------

4

5 IMSI_M_CLASS - IMSI_M Class assignment of the mobile station.

6 If the base station is assigning a class 0 IMSI_M to the mobile
7 station, the base station shall set this field to '0'; otherwise
8 the base station shall set this field to '1'.

9 IMSI_M_ADDR_NUM - Number of IMSI_M address digits.

10 If the mobile station has been assigned a class 1 IMSI_M (see
11 6.3.1 of [1] or 2.3.1 of [7]), the base station shall set this field
12 to four less than the number of digits in the NMSI; otherwise,
13 the base station shall set this field to '000'.

14 MCC_M - Mobile country code of the IMSI_M.

15 The base station shall set this field to the value for the
16 MCC_M_p mobile station NAM indicator (see F.3 and 6.3.1 of
17 [1] or F.3 and 2.3.1 of [7]).

18 IMSI_M_11_12 - 11th and 12th digits of the IMSI_M.

1		The base station shall set this field to the value for the
2		IMSI_M_11_12 _p mobile station NAM indicator (see F.3 and
3		6.3.1 of [1] or F.3 and 2.3.1 of [7]).
4	IMSI_M_S	- The least significant 10 digits of the IMSI_M.
5		The base station shall set this field to the value for the
6		IMSI_M_S _p mobile station NAM indicator (see F.3 and 6.3.1 of
7		[1] or F.3 and 2.3.1 of [7]).
8	ACCOLC	- Access overload class.
9		The base station shall set this field to the value for the
10		ACCOLC _p mobile station NAM indicator (see F.3 and 6.3.1 of
11		[1] or F.3 and 2.3.1 of [7]).
12	LOCAL CONTROL	- Local control status.
13		The base station shall set this field to '1' to enable local
14		control status in the mobile station, or to '0' to disable local
15		control status (see 6.3.9 of [1] or 2.3.9 of [7]).
16	MOB_TERM_HOME	- Termination indicator for the home system.
17		The base station shall set this field to the value for the
18		MOB_TERM_HOME _p mobile station NAM indicator (see F.3
19		and 6.6.5.3 of [1] or F.3 and 2.6.5.3 of [7]).
20	MOB_TERM_FOR_SID	- Termination indicator for SID roaming.
21		The base station shall set this field to the value for the
22		MOB_TERM_FOR_SID _p mobile station NAM indicator (see F.3
23		and 6.6.5.3 of [1] or F.3 and 2.6.5.3 of [7]).
24	MOB_TERM_FOR_NID	- Termination indicator for NID roaming.
25		The base station shall set this field to the value for the
26		MOB_TERM_FOR_NID _p mobile station NAM indicator (see F.3
27		and 6.6.5.3 of [1] or F.3 and 2.6.5.3 of [7]).
28	N_SID_NID	- Number of SID/NID pairs.
29		The base station shall set this field to the number of
30		SID/NID pairs included in the parameter block. The base
31		station shall include at least one SID/NID pair.
32	SID	- System identification.
33		The base station shall set this field to the value of the SID
34		component of the SID/NID pair (see F.3 of [1, 7]).
35	NID	- Network identification.
36		The base station shall set this field to the value of the NID
37		component of the SID/NID pair (see F.3 of [1, 7]).
38	RESERVED	- Reserved bits.
39		The base station shall add reserved bits as needed in order
40		to make the length of the entire parameter block equal to an
41		integer number of octets. The base station shall set these
42		bits to '0'.

4.5.2.4 IMSI_T Parameter Block

The PARAM_DATA field of the IMSI_T Parameter Block consists of the following fields:

Field	Length (bits)
IMSI_T_CLASS	1
IMSI_T_ADDR_NUM	3
MCC_T	10
IMSI_T_11_12	7
IMSI_T_S	34
RESERVED	1

IMSI_T_CLASS - IMSI_T Class assignment of the mobile station.

If the base station is assigning a class 0 IMSI_T to the mobile station, the base station shall set this field to '0'; otherwise the base station shall set this field to '1'.

IMSI_T_ADDR_NUM - Number of IMSI_T address digits.

If the mobile station has been assigned a class 1 IMSI_T (see 6.3.1 of [1] or 2.3.1 of [7]), the base station shall set this field to four less than the number of digits in the NMSI; otherwise, the base station shall set this field to '000'.

MCC_T - Mobile country code of the IMSI_T.

The base station shall set this field to the value for the MCC_T_p mobile station NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and 2.3.1 of [7]).

IMSI_T_11_12 - 11th and 12th digits of the IMSI_T.

The base station shall set this field to the value for the IMSI_T_11_12_p mobile station NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and 2.3.1 of [7]).

IMSI_T_S - The least significant 10 digits of the IMSI_T.

The base station shall set this field to the value for the IMSI_T_S_p mobile station NAM indicator (see F.3 and 6.3.1 of [1] or F.3 and 2.3.1 of [7]).

RESERVED - Reserved bits.

The base station shall set this field to '0'.

4.5.3 SSPR Parameter Blocks

Table 4.5.3-1 lists the type of the parameter blocks used in the *SSPR Download Request Message* and the *SSPR Download Response Message*.

1

Table 4.5.3-1 SSPR Parameter Block Types

Parameter Block Type	BLOCK_ID	Reference
Preferred Roaming List	'00000000'	4.5.3.1
Extended Preferred Roaming List with SSPR_P_REV greater than '00000001'	'00000001'	4.5.3.1
Reserved for future standardization	'00000010' through '01111111'	
Available for manufacturer-specific parameter block definitions	'10000000' through '11111110'	See [4]
Reserved	'11111111'	

2

3 4.5.3.1 Preferred Roaming List Parameter Block

4 The PARAM_DATA field of the Preferred Roaming List and Extended Preferred Roaming
5 List Parameter Block consists of the following fields:

6

Field	Length (bits)
RESERVED	7
LAST_SEGMENT	1
SEGMENT_OFFSET	16
SEGMENT_SIZE	8
SEGMENT_DATA	8 × SEGMENT_SIZE

7

- 8 RESERVED - Reserved bits.
9 The base station shall set this field to '0000000'.
- 10 LAST_SEGMENT - Last segment indicator bit.
11 The base station shall set this field to '1' if SEGMENT_DATA
12 contains the last octet of the preferred roaming list
13 (PR_LIST_{s-p}) sent to the mobile station; otherwise, the base
14 station shall set this field to '0'.
- 15 SEGMENT_OFFSET - Segment offset.
16 The base station shall set this field to the starting offset,
17 within the preferred roaming list at which the mobile station
18 is to store the octets included in SEGMENT_DATA.

- 1 SEGMENT_SIZE - Segment size.
 2 The base station shall set this field to the number of octets
 3 of the preferred roaming list included in SEGMENT_DATA.
 4 SEGMENT_DATA - Segment data.
 5 The base station shall set this field to sequential octets of
 6 the preferred roaming list. The octets shall be those starting
 7 at the offset within the preferred roaming list specified by
 8 SEGMENT_OFFSET.

9

10 4.5.4 Validation Parameter Blocks

11 Table 4.5.4-1 lists the types of parameter blocks used in the *Validation Request Message*
 12 and the *Validation Response Message*.

13

14

Table 4.5.4-1 Validation Parameter Block Types

Parameter Block Type	BLOCK_ID	Reference
Verify SPC	'00000000'	4.5.4.1
Change SPC	'00000001'	4.5.4.2
Validate SPASM	'00000010'	4.5.4.3
Reserved for future standardization	'00000011' through '01111111'	
Available for manufacturer-specific parameter block definitions	'10000000' through '11111110'	See [4]
Reserved	'11111111'	

15

16 4.5.4.1 Verify SPC

17 The PARAM_DATA field of the Verify SPC Parameter Block consists of the following field:

18

Field	Length (bits)
SPC	24

19

- 20 SPC - Service programming code.

21 The base station shall set this field to the BCD coded value
 22 of Service Programming Code assigned for the mobile station
 23 (see Table 3.3.6-1). Each digit shall be encoded according to
 24 the Table 4.5.4.1-1.

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2

Table 4.5.4.1-1. BCD Mapping

Decimal Digit	Binary Number
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001

3

4 **4.5.4.2 Change SPC**

5 The PARAM_DATA field of the Change SPC Parameter Block consists of the following field:

6

Field	Length (bits)
SPC	24

7

8

SPC - Service programming code

9

10

11

12

The base station shall set this field to the BCD coded value of newly assigned Service Programming Code for the mobile station (see Table 3.3.6-1). Each digit shall be encoded according to the Table 4.5.4.1-1.

4.5.4.3 Validate SPASM

The PARAM_DATA field of the Validate SMASM Parameter Block consists of the following fields:

Field	Length (bits)
AUTH_OTAPA_INCL	1
AUTH_OTAPA	0 or 18
NAM_LOCK	1
RESERVED	4 or 6

- AUTH_OTAPA_INCL** - OTAPA SPASM validation signature included indicator.
- The base station shall set this field to '1' to indicate that the OTAPA SPASM validation signature, AUTH_OTAPA, is included in the message; otherwise, the base station shall set this field to '0'.
- AUTH_OTAPA** - OTAPA SPASM validation signature.
- If the AUTH_OTAPA_INCL is set to '1', the base station shall set this field as described in 3.3.7; otherwise, the base station shall omit this field.
- NAM_LOCK** - SPASM protection indicator for the active NAM.
- The base station shall set this field to '1' to activate SPASM protection of programmable parameters and indicators of the active NAM after completion of the current OTAPA session, otherwise the base station shall set this field to '0'.
- RESERVED** - Reserved bits.
- The base station shall add reserved bits as needed in order to make the length of the entire parameter block equal to an integer number of octets. The base station shall set these bits to '0'.

4.5.5 Reserved

Reserved.

4.5.6 PUZL Parameter Blocks

Table 4.5.6-1 lists the types of parameter blocks used in the *PUZL Download Request Message* and the *PUZL Download Response Message*.

- 1 The System Identifier (SID) associated with the User Zone ID.
 2 The User Zone ID and User Zone SID values together provide a
 3 unique identifier for the user zone.
- 4 LAST_SEGMENT - Last segment indicator bit.
- 5 The base station shall set this field to '1' if SEGMENT_DATA
 6 contains the last octet of the user zone entry; otherwise, the
 7 base station shall set this field to '0'.
- 8 SEGMENT_OFFSET - Segment offset.
- 9 The base station shall set this field to the starting offset,
 10 within the user zone entry at which the mobile station is to
 11 store the octets included in SEGMENT_DATA. The first octet
 12 of the user zone entry is offset zero.
- 13 RESERVED - Reserved bits.
- 14 The mobile station shall set this field to '0000'.
- 15 SEGMENT_SIZE - Segment size.
- 16 The base station shall set this field to the number of octets
 17 of the user zone included in SEGMENT_DATA.
- 18 SEGMENT_DATA - Segment data.
- 19 Segment of the user zone data.

21 4.5.6.2 User Zone Delete

22 The PARAM_DATA field of the User Zone Delete Parameter Block consists of the following
 23 fields:

Field	Length (bits)
UZ_ID	16
UZ_SID	15
RESERVED	1

- 25
- 26 UZ_ID - User Zone ID.
- 27 Identification number for the User Zone. This is used over
 28 the air interface to identify the User Zone to the network and
 29 the mobile station.
- 30 UZ_SID - User Zone System ID.
- 31 The System Identifier (SID) associated with the User Zone ID.
 32 The User Zone ID and User Zone SID values together provide a
 33 unique identifier for the user zone.
- 34 RESERVED - Reserved bit.
- 35 The base station shall set this field to '0'.

1

2 4.5.6.3 User Zone Priority Change

3 The PARAM_DATA field of the User Zone Priority Change Parameter Block consists of the
4 following fields:

5

Field	Length (bits)
UZ_ID	16
UZ_SID	15
UZ_PRIORITY	4
RESERVED	5

6

7

UZ_ID - User Zone ID.

8

9

10

Identification number for the User Zone. This is used over the air interface to identify the User Zone to the network and the mobile station.

11

UZ_SID - User Zone System ID.

12

13

14

The System Identifier (SID) associated with the User Zone ID. The User Zone ID and User Zone SID values together provide a unique identifier for the user zone.

15

UZ_PRIORITY - User Zone priority.

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26

The priority by which User Zones are selected by the mobile station when more than one User Zone is present. A priority of null indicates that a User Zone is for manual selection only. A mobile station will never automatically select a User Zone of priority 'null' unless initiated manually by the user. Note that the value of User Zone Priority is non-exclusive. Normally two User Zones of the same priority would not occupy the same geographical area. When two User Zones of the same priority overlap and they are the highest priority to be selected, the mobile station shall offer the user a choice of the user zones via the Mobile Station's user interface.

27

RESERVED - Reserved bits.

28

The base station shall set this field to '00000'.

29

30 4.5.6.4 PUZL Flags

31 The PARAM_DATA field of the PUZL Flags Parameter Block consists of the following fields:

32

Field	Length (bits)
UZ_TEMP_SUBSC	1
UZ_ORIG_ONLY	1
RESERVED	6

1

2

UZ_TEMP_SUBSC - User Zone Temporary Subscription flag.

3

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The base station shall set this field accordingly to indicate whether or not the mobile station is permitted to access User Zones that offer temporary subscription. If allowed, UZ_TEMP_SUBSC = '1'; otherwise, UZ_TEMP_SUBSC = '0'.

7

UZ_ORIG_ONLY - User Zone Origination Only flag.

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The base station shall set this field accordingly to indicate whether or not the mobile station is permitted to originate calls only when within the serving area of a currently assigned User Zone. If call origination is only allowed within an assigned user zone, UZ_ORIG_ONLY = '1'; otherwise, UZ_ORIG_ONLY = '0'.

14

RESERVED - Reserved bits.

15

The base station shall set this field to '000000'.

16

17

4.5.7 3GPD Parameter Blocks

18

19

Table 4.5.7-1 lists the types of parameter blocks used in the *3GPD Download Request Message* and the *3GPD Download Response Message*.

20

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Table 4.5.7-1 3GPD Parameter Block Types

Parameter Block Type	BLOCK_ID	Reference
3GPD Operation Mode Parameters	'00000000'	4.5.7.1
SimpleIP User Profile Parameters	'00000001'	4.5.7.2
Mobile IP User Profile Parameters	'00000010'	4.5.7.3
SimpleIP Status Parameters	'00000110'	4.5.7.4
MobileIP Status Parameters	'00000111'	4.5.7.5
SimpleIP PAP SS Parameters ¹	'00001000'	4.5.7.6
SimpleIP CHAP SS Parameters ¹	'00001001'	4.5.7.7
MobileIP SS Parameters ¹	'00001010'	4.5.7.8
HRPD Access Authentication User Profile Parameters	'00001011'	4.5.7.9
HRPD Access Authentication CHAP SS Parameters ¹	'00001100'	4.5.7.10
Reserved	'00001101' through '11111111'	
¹ The shared secret parameters shall not be transmitted over the air unencrypted.		

2

3 4.5.7.1 3GPD Operation Mode Parameters

4 The PARAM_DATA field of the 3GPD Operation Mode Parameters Block consists of the
5 following fields:

6

Field	Length
OP_MODE	2
RESERVED	6

7

8 **OP_MODE** - The operation mode to be used by the mobile station.
9 The base station shall set this field to the operation mode to
10 be used by the mobile station as specified in Table 3.5.8.2-1.

11 **RESERVED** - Reserved bits.
12 Additional reserved bits are needed in order to make the
13 length of the entire parameter block equal to an integer
14 number of octets.

15 The base station shall set this field to '000000'.

4.5.7.2 SimpleIP User Profile Parameters

The PARAM_DATA field of the SimpleIP User Profile Parameters Block consists of the following fields:

Field	Length (bits)
NUM_NAI	4

NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX	4
NAI_LENGTH	8
NAI	8 × NAI_LENGTH
AUTH_ALGORITHM	4

RESERVED	0 to 7 (as needed)
----------	--------------------

NUM_NAI - Number of SimpleIP NAI Entries.

The base station shall set this field to the number of SimpleIP NAI entries.

The base station shall include NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX - SimpleIP NAI entry index.

The base station shall set this field to the index in the SimpleIP NAI Table.

NAI_LENGTH - SimpleIP NAI length.

The base station shall set this field to the length of the NAI in units of octet.

NAI - Network Access Identifier.

The base station shall set this field to the Network Access Identifier (NAI), encoded in ASCII string, refer to [14]. The NAI is of the form [user@realm](#).

AUTH_ALGORITHM - Authentication Algorithm for SimpleIP.

The base station shall set this field to the authentication algorithm used to calculate the Simple IP Authentication. The Authentication Algorithm is specified in Table 3.5.8.5-1.

RESERVED - Reserved bits.

Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets. The base station shall set these bits to '0'.

1 4.5.7.3 Mobile IP User Profile Parameters

2 The PARAM_DATA field of the Mobile IP User Profile Parameters Block consists of the
 3 following fields:

4

Field	Length (bits)
RETRY_INFO_INCLUDED	1
MAX_NUM_RETRY	0 or 2
FIRST_RETRY_TIMEOUT	0 or 3
REREG_THRESHOLD	0 or 6
NUM_NAI	4

NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX	4
NAI_LENGTH	8
NAI	8 × NAI_LENGTH
T_BIT	1
HOME_ADDRESS	32
PRIMARY_HOME_AGENT	32
SECONDARY_HOME_AGENT	32
MN-AAA_AUTH_ALGORITHM	4
MN-AAA-SPI_INDICATOR	1
MN-AAA_SPI	0 or 32
MN-HA_AUTH_ALGORITHM	4
MN-HA_SPI_INDICATOR	1
MN-HA_SPI	0 or 32

RESERVED	0 to 7 (as needed)
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5

6 RETRY_INFO_INCLUDED - Indicate if the retry information is included or not.
 7 If MAX_NUM_RETRY, FIRST_RETRY_TIMEOUT and
 8 REREG_THRESHOLD are included in this block, the base
 9 station shall set this field to '1'; otherwise, the base station
 10 shall set this field to '0'.

11 MAX_NUM_RETRY - Maximum Number of Retry for the MobileIP Registration.
 12 If RETRY_INFO_INCLUDED is set to '0', the base station shall
 13 omit this field; otherwise, the base station shall set this field
 14 as follows:

Field	Length (bits)
ACT_NAI_ENTRY_INDEX	4
RESERVED	4

1

2 ACT_NAI_ENTRY_INDEX - The SimpleIP NAI entry index to be used by the mobile
3 station.

4 The base station shall set this field to the SimpleIP NAI entry
5 index to be used by the mobile station.

6 RESERVED - Reserved bits.

7 Additional reserved bits are needed in order to make the
8 length of the entire parameter block equal to an integer
9 number of octets.

10 The base station shall set this field to '0000'.

11 4.5.7.5 MobileIP Status Parameters

12

Field	Length (bits)
ACT_NAI_ENTRY_INDEX	4
NUM_ADD_ACT_NAI	4

NUM_ADD_ACT_NAI occurrences of the following field:

ADD_ACT_NAI_ENTRY_INDEX	4
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RESERVED	0 or 4 (as needed)
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14 ACT_NAI_ENTRY_INDEX - The MobileIP NAI entry index to be used by the mobile
15 station.

16 The base station shall set this field to the MobileIP NAI entry
17 index to be used by the mobile station in the *3GPD Download*
18 *Request Message*.

19 NUM_ADD_ACT_NAI - Number of additional Active MobileIP NAI entries.

20 The base station shall set this field to the number of
21 additional active MobileIP NAI entries.

22 ADD_ACT_NAI_ENTRY_INDEX - Additional Active MobileIP NAI entry index.

23 The base station shall set this field to the active MobileIP NAI
24 entry index.

25 RESERVED - Reserved bits.

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Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets.

The base station shall set this field to '0000'.

4.5.7.6 SimpleIP PAP SS Parameters

Field	Length (bits)
NUM_NAI	4
NUM_NAI occurrences of the following fields:	
NAI_ENTRY_INDEX	4
SS_LENGTH	5
SS	8 × SS_LENGTH
RESERVED	0 to 7 (as needed)

NUM_NAI - Number of SimpleIP NAI Entries.

The base station shall set this field to the number of SimpleIP NAI entries.

The base station shall include NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX - SimpleIP NAI entry index.

The base station shall set this field to the index in the SimpleIP NAI Table.

SS_LENGTH - Shared Secret Data Length.

The base station shall set this field to the length, in units of octet, of the shared secret data.

SS - Shared Secret Data.

The base station shall set this field to the Shared Secret Data.

RESERVED - Reserved bits.

Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets. The base station shall set these bits to '0'.

4.5.7.7 SimpleIP CHAP SS Parameters

Field	Length (bits)
NUM_NAI	4
NUM_NAI occurrences of the following fields:	
NAI_ENTRY_INDEX	4
SS_LENGTH	5
SS	8 × SS_LENGTH
RESERVED	0 to 7 (as needed)

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NUM_NAI - Number of SimpleIP NAI Entries.

The base station shall set this field to the number of SimpleIP NAI entries.

The base station shall include NUM_NAI occurrences of the following fields:

NAI_ENTRY_INDEX - SimpleIP NAI entry index.

The base station shall set this field to the index in the SimpleIP NAI Table.

SS_LENGTH - Shared Secret Data Length.

The base station shall set this field to the length, in units of octet, of the shared secret data.

SS - Shared Secret Data

The base station shall set this field to the Shared Secret Data.

RESERVED - Reserved bits.

Additional reserved bits are needed in order to make the length of the entire parameter block equal to an integer number of octets. The base station shall set these bits to '0'.

1 4.5.7.9 HRPD Access Authentication User Profile Parameters

2 The PARAM_DATA field of the HRPD Access Authentication User Profile Parameters Block
3 consists of the following fields:

Field	Length (bits)
NAI_LENGTH	8
NAI	8 × NAI_LENGTH
AUTH_ALGORITHM	4
RESERVED	4

5
6 NAI_LENGTH - NAI length.

7 The mobile station shall set this field to the length of the NAI
8 in units of octet.

9 NAI - Network Access Identifier.

10 The mobile station shall set this field to the Network Access
11 Identifier (NAI), encoded in ASCII string, refer to [14]. The NAI
12 is of the form [user@realm](#).

13 AUTH_ALGORITHM - Authentication Algorithm for HRPD Access Authentication.

14 The mobile station shall set this field to the authentication
15 algorithm used to calculate the HRPD Access Authentication.
16 The Authentication Algorithm is specified in Table 3.5.8.13-1.

17 RESERVED - Reserved bits.

18 The mobile station shall set these bits to '0'.

19
20 4.5.7.10 HRPD Access Authentication CHAP SS Parameters

Field	Length (bits)
SS_LENGTH	5
SS	8 × SS_LENGTH
RESERVED	3

21
22
23 SS_LENGTH - Shared Secret Data Length.

24 The mobile station shall set this field to the length, in units
25 of octet, of the shared secret data. The mobile station shall
26 support the shared secret data of at least 16 octets long.

27 SS - Shared Secret Data

- 1 SIP_URI_LENGTH - SIP Domain URI length.
 2 The mobile station shall set this field to the length of the SIP
 3 Domain URI.
- 4 SIP_DOMAIN_URI - SIP Domain URI.
 5 The mobile station shall set this field to the SIP Domain URI,
 6 encoded in ASCII string, refer to [17].
- 7 NUM_P-CSCF - Number of P-CSCF entries
 8 The mobile station shall set this field to the number of P-
 9 CSCF entries.
- 10 The mobile station shall include NUM_P-CSCF occurrences of the following fields:
- 11 P-CSCF_ENTRY_IDX - P-CSCF entry index.
 12 The mobile station shall set this field to the index in the P-
 13 CSCF Table.
- 14 P-CSCF_LENGTH - P-CSCF length.
 15 The mobile station shall set this field to the length of the P-
 16 CSCF in units of octet.
- 17 P-CSCF_ADDRESS - P-CSCF address.
 18 The mobile station shall set this field to the P-CSCF address,
 19 encoded in ASCII string, refer to [17]
- 20 RESERVED - Reserved bits.
 21 The mobile station shall add reserved bits as needed in order
 22 to make the length of the entire parameter block equal to an
 23 integer number of octets.

24 4.5.9 System Tag Parameter Blocks

25 Table 4.5.9-1 lists the types of parameter blocks used in the *System Tag Configuration*
 26 *Request Message* and the *System Tag Download Request Message*.

27

Table 4.5.9-1 System Tag Parameter Block Types

System Tag Parameter Block Type	BLOCK_ID	Reference
Home System Tag	'00000000'	4.5.9.1
Group Tag List	'00000001'	4.5.9.2
Specific Tag List	'00000010'	4.5.9.3
Call Prompt List	'00000011'	4.5.9.4
Reserved for future standardization	'00000100' - '01111111'	4.5.9.4
Available for manufacturer-specific parameter block definitions	'10000000'- '11111110'	See [4]
Reserved	'11111111'	

4.5.9.1 Home System Tag Parameter Block

The PARAM_DATA field of the Home System Tag Parameter Block consists of the following fields:

Field	Length (bits)
RESERVED	6
TAG_ENCODING	5
TAG_LEN	5
TAG	TAG_LEN × 8

RESERVED - Reserved bits.

The mobile station shall set this field to '000000'.

TAG_ENCODING - Tag encoding.

See [4]. This field shall be set to indicate the character set used in the TAG field included in this parameter block.

TAG_LEN - Tag length.

The mobile station shall set this field to the number of octets in the TAG field.

TAG - Tag characters.

The mobile station shall set this field to characters based on the encoding method defined in TAG_ENCODING..

1 4.5.9.2 Group Tag List Parameter Block

2 The PARAM_DATA field of the Group Tag List Parameter Block consists of the following
3 fields:

Field	Length (bits)
CUR_TAG_P_REV	8
RESERVED	7
LAST_SEGMENT	1
SEGMENT_OFFSET	16
SEGMENT_SIZE	8
SEGMENT_DATA	SEGMENT_SIZE × 8

- 4 CUR_TAG_P_REV - Protocol revision for the system tag.
5 This field is used to specify the format of the rest of the
6 System Tag.
- 7 RESERVED - Reserved bits.
8 The mobile station shall set this field to '0000000'.
- 9 LAST_SEGMENT - Last segment indicator bit.
10 The mobile station shall set this field to '1' if
11 SEGMENT_DATA contains the last octet of the group tag list
12 (GROUP_TAG_LIST_{s-p}); otherwise, the mobile station shall
13 set this field to '0'.
- 14 SEGMENT_OFFSET - Segment offset.
15 The mobile station shall set this field to the value of
16 REQUEST_OFFSET from the corresponding *System Tag*
17 *Configuration Request Message*.
- 18 SEGMENT_SIZE - Segment size.
19 The mobile station shall set this field to the number of octets
20 of the group tag list (GROUP_TAG_LIST_{s-p}) included in
21 SEGMENT_DATA.
- 22 SEGMENT_DATA - Segment of the group tag list (GROUP_TAG_LIST_{s-p}) data.
23 If REQUEST_OFFSET from the corresponding *System Tag*
24 *Configuration Request Message* specifies an offset that is
25 invalid for the current group tag list, the mobile station shall
26 include no octets in this field.
27 If REQUEST_OFFSET specifies an offset that is valid for the
28 current group tag list, the mobile station shall include at
29 most REQUEST_MAX_SIZE sequential octets of the group tag
30 list in this field. The octets shall be equal to the octets
31 starting at the offset within the group tag list specified by
32 SEGMENT_OFFSET.

33

4.5.9.3 Specific Tag List Parameter Block

The PARAM_DATA field of the Specific Tag List Parameter Block consists of the following fields:

Field	Length (bits)
CUR_TAG_P_REV	8
RESERVED	7
LAST_SEGMENT	1
SEGMENT_OFFSET	16
SEGMENT_SIZE	8
SEGMENT_DATA	SEGMENT_SIZE × 8

- 4 CUR_TAG_P_REV - Protocol revision for the system tag.
 5 This field is used to specify the format of the rest of the
 6 System Tag.
- 7 RESERVED - Reserved bits.
 8 The mobile station shall set this field to '0000000'.
- 9 LAST_SEGMENT - Last segment indicator bit.
 10 The mobile station shall set this field to '1' if
 11 SEGMENT_DATA contains the last octet of the specific tag list
 12 (SPEC_TAG_LIST_{s-p}); otherwise, the mobile station shall set
 13 this field to '0'.
- 14 SEGMENT_OFFSET - Segment offset.
 15 The mobile station shall set this field to the value of
 16 REQUEST_OFFSET from the corresponding *System Tag*
 17 *Configuration Request Message*.
- 18 SEGMENT_SIZE - Segment size.
 19 The mobile station shall set this field to the number of octets
 20 of the specific tag list (SPEC_TAG_LIST_{s-p}) included in
 21 SEGMENT_DATA.
- 22 SEGMENT_DATA - Segment of the specific tag list (SPEC_TAG_LIST_{s-p}) data.
 23 If REQUEST_OFFSET from the corresponding *System Tag*
 24 *Configuration Request Message* specifies an offset that is
 25 invalid for the current specific tag list, the mobile station
 26 shall include no octets in this field.
 27 If REQUEST_OFFSET specifies an offset that is valid for the
 28 current specific tag list, the mobile station shall include at
 29 most REQUEST_MAX_SIZE sequential octets of the specific
 30 tag list in this field. The octets shall be equal to the octets
 31 starting at the offset within the specific tag list specified by
 32 SEGMENT_OFFSET.

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4.5.9.4 Call Prompt List Parameter Block

The PARAM_DATA field of the Call Prompt List Parameter Block consists of the following fields:

Field	Length (bits)
CUR_TAG_P_REV	8
RESERVED	7
LAST_SEGMENT	1
SEGMENT_OFFSET	16
SEGMENT_SIZE	8
SEGMENT_DATA	SEGMENT_SIZE × 8

CUR_TAG_P_REV - Protocol revision for the system tag.
This field is used to specify the format of the rest of the System Tag.

RESERVED - Reserved bits.
The mobile station shall set this field to '0000000'.

LAST_SEGMENT - Last segment indicator bit.
The mobile station shall set this field to '1' if SEGMENT_DATA contains the last octet of the call prompt list (CALL_PRMPPT_LIST_{s-p}); otherwise, the mobile station shall set this field to '0'.

SEGMENT_OFFSET - Segment offset.
The mobile station shall set this field to the value of REQUEST_OFFSET from the corresponding *System Tag Configuration Request Message*.

SEGMENT_SIZE - Segment size.
The mobile station shall set this field to the number of octets of the call prompt list (CALL_PRMPPT_LIST_{s-p}) included in SEGMENT_DATA.

SEGMENT_DATA - Segment of the call prompt list (CALL_PRMPPT_LIST_{s-p}) data.
If REQUEST_OFFSET from the corresponding *System Tag Configuration Request Message* specifies an offset that is invalid for the current call prompt list, the mobile station shall include no octets in this field.

If REQUEST_OFFSET specifies an offset that is valid for the current call prompt list, the mobile station shall include at most REQUEST_MAX_SIZE sequential octets of the call prompt list in this field. The octets shall be equal to the octets starting at the offset within the call prompt list specified by SEGMENT_OFFSET.

4.5.10 MMS Parameter Block

Table 4.5.10-1 lists the types of parameter blocks used in the *MMS Download Request Message* and the *MMS Download Response Message*.

Table 4.5.10-1 MMS Parameter Block Types

Parameter Block Type	BLOCK_ID	Reference
MMS URI Parameters	'00000000'	4.5.10.1
Reserved	'00000001' through '11111111'	

4.5.10.1 MMS URI Parameters

The PARAM_DATA field of the MMS Application URI Block consists of the following fields:

Field	Length (bits)
NUM_MMS_URI	4

NUM_MMS_URI occurrences of the following fields:

MMS_URI_ENTRY_IDX	4
MMS_URI_LENGTH	8
MMS URI	8 x MMS_URI_LENGTH

RESERVED	0 to 7
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NUM_MMS_URI - Number of MMS URIs

The base station shall set this field to the number of MMS URIs stored on the mobile, encoded in ASCII string, refer to [16], [17] and [18].

The mobile station shall include NUM_MMS_URI occurrences of the following fields:

MMS_URI_ENTRY_IDX - MMS URI entry index.

The base station shall set this field to the index in the MMS URI Table, refer to [16], [17] and [18].

MMS_URI_LENGTH - MMS URI length.

The base station shall set this field to the length of the URI associated with the MMS Relay/Server in units of octet

MMS_URI - MMS_URI

The base station shall set this field to the URI of the MMS Relay/Server, encoded in ASCII string, refer to [16], [17] and [18].

1 RESERVED - Reserved bits.
2 The base station shall add reserved bits as needed in order
3 to make the length of the entire parameter block equal to an
4 integer number of octets.
5

1

2 No text.

5 KEY EXCHANGE PROCEDURES

5.1 Mobile Station Requirements for A_KEY_P_REV < '00000011'

5.1.1 Random Number Generation

The mobile station shall generate a random number X for use in calculating the mobile station result, MS_RESULT. The number X shall have the following properties:

- The number generated shall be 160-bits in length.
- The number generated shall not be less than 4.
- The number generated shall have an uniform statistical distribution over its range.
- The numbers used in formulating different *Key Generation Response Messages* sent by the same mobile station shall be statistically uncorrelated.
- The number used in formulating each *Key Generation Response Message* shall not be derivable from the previously used numbers or mobile station indicator values.
- The numbers used in formulating *Key Generation Response Messages* sent by different mobile stations shall be statistically uncorrelated.

5.1.2 Mobile Station Result

The mobile station shall calculate $MS_RESULT = PARAM_G_S^X \text{ modulo } PARAM_P_S$.

5.1.3 A-key Computation

The mobile station shall compute the common key $K = BS_RESULT_S^X \text{ modulo } PARAM_P_S$.
The mobile station shall store the least significant 64 bits of the result K as A_KEY_TEMP_S.

5.2 Base Station Requirements for A_KEY_P_REV < '00000011'

5.2.1 Generation of the Key Exchange Parameters

The base station shall select and store a 512-bit prime number P based on the following criteria:

- P should be chosen randomly.
- (P - 1) should have a large prime factor.
- The most significant bit of P should be equal to '1'.

The base station shall set PARAM_P of the *MS Key Request Message* to P.

The base station shall select a 160-bit number G such that it is greater than 1 and less than (P-1). The base station shall set PARAM_G of the *MS Key Request Message* to G.

1 The base station shall generate a random number Y for use in calculating the base
 2 station result, BS_RESULT. The number Y shall have the following properties:

- 3 • The number generated shall be 160-bits in length.
- 4 • The number generated shall not be less than 4.
- 5 • The number generated shall have an uniform statistical distribution over its range.
- 6 • The numbers used in formulating different *Key Generation Request Messages* sent
 7 by the same base station shall be statistically uncorrelated.
- 8 • The numbers used in formulating *Key Generation Request Message* sent by different
 9 base stations shall be statistically uncorrelated.

10

11 5.2.2 Base Station Result

12 The base station shall calculate $BS_RESULT = G^Y \text{ modulo } P$.

13

14 5.2.3 A-key Computation

15 The base station shall compute the common key $K = MS_RESULT^Y \text{ modulo } P$. The base
 16 station shall use the least significant 64 bits of the result K as the A_KEY.

17 **5.3 Mobile Station Requirements for A_KEY_P_REV = '0000011' or '0000100'**

18 5.3.1 Random Number Generation For Diffie-Hellman Key Exchange Procedure

19 The mobile station shall set PARAM_P_S for use in calculating the mobile station result,
 20 MS_RESULT, to the following 1024-bit prime number (Most Significant Bit first):

21 0xFFFFFFFF 0xFFFFFFFF 0xC90FDAA2 0x2168C234 0xC4C6628B 0x80DC1CD1
 22 0x29024E08 0x8A67CC74 0x020BBEA6 0x3B139B22 0x514A0879 0x8E3404DD
 23 0xEF9519B3 0xCD3A431B 0x302B0A6D 0xF25F1437 0x4FE1356D 0x6D51C245
 24 0xE485B576 0x625E7EC6 0xF44C42E9 0xA637ED6B 0x0BFF5CB6 0xF406B7ED
 25 0xEE386BFB 0x5A899FA5 0xAE9F2411 0x7C4B1FE6 0x49286651 0xECE65381
 26 0xFFFFFFFF 0xFFFFFFFF

27 The mobile station shall set PARAM_G_S for use in calculating MS_RESULT to '00000010'.

28 The mobile station shall generate a random number X for use in calculating MS_RESULT.
 29 The number X shall have the following properties:

- 30 • The number generated shall be 256-bits in length.
- 31 • The number generated shall not be less than 4.
- 32 • The number generated shall have an uniform statistical distribution over its range.
- 33 • The numbers used in formulating different *Key Generation Response Messages* sent

1 by the same mobile station shall be statistically uncorrelated.

- 2 • The number used in formulating each *Key Generation Response Message* shall not
- 3 be derivable from the previously used numbers or mobile station indicator values.
- 4 • The numbers used in formulating *Key Generation Response Messages* sent by
- 5 different mobile stations shall be statistically uncorrelated.

6 5.3.2 Mobile Station Result

7 The mobile station shall calculate $MS_RESULT = PARAM_G_S^X$ modulo $PARAM_P_S$.

8 5.3.3 A Key and Root Key Computation for $A_KEY_P_REV = '00000011'$

9
10 The mobile station shall compute one of the input to $f0$, Random Secret Seed,
11 $RAND_SEED_TEMP = BS_RESULT_S^X$ modulo $PARAM_P_S$. The mobile station shall store the
12 least significant 128 bits of the result $RAND_SEED_TEMP$ as $RAND_SEED$.

13
14 The A_KEY and 3G Root Key RK are generated by invoking the algorithmic function $f0$ as
15 specified in Section 2.2.2.2 of [8]. Since each invocation of $f0$ produces 64 bits, three
16 invocation of $f0$ is need for a total of 192 bits.

17 The input parameters to the algorithmic function $f0$ shall be set as follows:

- 18 • The K parameter shall be set to $RAND_SEED$.
- 19 • The f_i parameter shall be set to $0x41$.
- 20 • The F_{mk} parameter shall be set to $0x41484147$.

21 The mobile station shall invoke $f0$.

22 The mobile station shall store the most significant bits of the result of invocation of $f0$ as
23 the $A_KEY_TEMP_S$.

24 The mobile station shall store the remaining 128 bits of the invocation of $f0$ as RK_TEMP_S .

25 5.3.4 Root Key Computation for $A_KEY_P_REV = '00000100'$

26 The mobile station shall compute the Root Key $RK = BS_RESULT_S^X$ modulo $PARAM_P_S$.
27 The mobile station shall store the least significant 128 bits of the result RK as RK_TEMP_S .

28 **5.4 Base Station Requirements for $A_KEY_P_REV = '00000011'$ or $'00000100'$**

29 5.4.1 Generation of the Key Exchange Parameters Root Key

30 The base station shall set $PARAM_P_S$ for use in calculating the base station result,
31 BS_RESULT , to the following 1024-bit prime number (Most Significant Bit first):

32 $0xFFFFFFFF 0xFFFFFFFF 0xC90FDAA2 0x2168C234 0xC4C6628B 0x80DC1CD1$
33

1 0x29024E08 0x8A67CC74 0x020BBEA6 0x3B139B22 0x514A0879 0x8E3404DD
2 0xEF9519B3 0xCD3A431B 0x302B0A6D 0xF25F1437 0x4FE1356D 0x6D51C245
3 0xE485B576 0x625E7EC6 0xF44C42E9 0xA637ED6B 0x0BFF5CB6 0xF406B7ED
4 0xEE386BFB 0x5A899FA5 0xAE9F2411 0x7C4B1FE6 0x49286651 0xECE65381
5 0xFFFFFFFF 0xFFFFFFFF

6 The base station shall set PARAM_G_S for use in calculating BS_RESULT to '00000010'.

7 The base station shall generate a random number Y for use in calculating BS_RESULT.

8 The number Y shall have the following properties:

- 9 • The number generated shall be 256-bits in length.
- 10 • The number generated shall not be less than 4.
- 11 • The number generated shall have an uniform statistical distribution over its range.
- 12 • The numbers used in formulating different *Key Generation Request Messages* sent
13 by the same base station shall be statistically uncorrelated.
- 14 • The numbers used in formulating *Key Generation Request Message* sent by different
15 base stations shall be statistically uncorrelated.

16

17 5.4.2 Base Station Result

18 The base station shall calculate $BS_RESULT = G^Y \text{ modulo } P$.

19

20 5.4.3 A Key and Root Key Computation for A_KEY_P_REV = '00000011'

21 The base station shall compute the input to f_0 , Random Secret Seed, $RAND_SEED_TEMP$
22 = $MS_RESULT^Y \text{ modulo } P$. The base station shall store the least significant 128 bits of the
23 result $RAND_SEED_TEMP$ as $RAND_SEED$.

24 The A_KEY and 3G Root Key RK are generated by invoking the algorithmic function f_0 as
25 specified in Section 2.2.2.2 of [8]. Since each invocation of f_0 produces 64 bits, three
26 invocation of f_0 is need for a total of 192 bits.

27 The input parameters to the algorithmic function f_0 shall be set as follows:

- 28 • The K parameter shall be set to $RAND_SEED$.
- 29 • The f_i parameter shall be set to 0x41.
- 30 • The F_{mk} parameter shall be set to 0x41484147.

31 The base station shall invoke f_0 .

32 The base station shall store the most significant bits of the result of invocation of f_0 as
33 the A_KEY.

1 The base station shall store the remaining 128 bits of the invocation of f_0 as the Root Key
2 K.

3 5.4.4 Root Key K Computation for A_KEY_P_REV = '00000100'

4 The base station shall compute the Root Key $RK = MS_RESULT^Y$ modulo P. The base
5 station shall use the least significant 128 bits of the result RK as the Root Key K.

7 **5.5 Mobile Station Requirements for A_KEY_P_REV = '00000101'**

8 5.5.1 Random Number Generation and Key Generation Parameters

9 The mobile station shall set PARAM_P_S for use in calculating the mobile station result,
10 MS_RESULT, to the 1024-bit prime number as specified in 5.3.1.

11 The mobile station shall set PARAM_G_S for use in calculating MS_RESULT to '00001101'.

12 The mobile station shall generate a random number X for use in calculating MS_RESULT.
13 The number X shall have the following properties:

- 14 • The number generated shall be 384-bits in length.
- 15 • The number generated shall not be less than 4.
- 16 • The number generated shall have a uniform statistical distribution over its range.
- 17 • The numbers used in formulating different *Key Generation Response Messages* sent
18 by the same mobile station shall be statistically uncorrelated.
- 19 • The number used in formulating each *Key Generation Response Message* shall not
20 be derivable from the previously used numbers or mobile station indicator values.
- 21 • The numbers used in formulating *Key Generation Response Messages* sent by
22 different mobile stations shall be statistically uncorrelated.

24 5.5.2 Mobile Station Result

25 The mobile station shall calculate MS_PW_HASH as the follows:

26 $MS_PW_HASH = SHA-1^6(0x00000001, 0x00000001, MS_PW) \bmod 2^{128} |$
27 $SHA-1(0x00000001, 0x00000002, MS_PW) \bmod 2^{128} |$
28 $SHA-1(0x00000001, 0x00000003, MS_PW) \bmod 2^{128} |$
29 $SHA-1(0x00000001, 0x00000004, MS_PW) \bmod 2^{128} |$
30 $SHA-1(0x00000001, 0x00000005, MS_PW) \bmod 2^{128} |$
31 $SHA-1(0x00000001, 0x00000006, MS_PW) \bmod 2^{128} |$

⁶ SHA-1 refers to the FIPS-180 hash function as specified in [9].

1 SHA-1 (0x00000001,0x00000007, MS_PW) modulo 2^{128} |
 2 SHA-1 (0x00000001,0x00000008, MS_PW) modulo 2^{128} |
 3 SHA-1 (0x00000001,0x00000009, MS_PW) modulo 2^{128} .

4 The mobile station shall calculate $MS_RESULT = (MS_PW_HASH^7 * PARAM_G_S^X)$ modulo
 5 $PARAM_P_S$.

6

7 5.5.3 Root Key Computation for A_KEY_P_REV = '00000101'

8 The mobile station shall compute the Root Key $RK = SHA-1 (0x00000003 | 0x00000C80^8$
 9 $|MS_PARAM |MS_PARAM)$,

10 where $MS_PARAM = MS_PW |$

11 $PARAM_G_S^X$ modulo $P |$
 12 (BS_RESULT_S/BS_PW_HASH) modulo $P |$
 13 $((BS_RESULT_S/BS_PW_HASH)^X)$ modulo P .

14 The mobile station shall store the least significant 128 bits of the result RK as RK_TEMP_S .

15

16 **5.6 Base Station Requirements for A_KEY_P_REV = '00000101'**

17 5.6.1 Random Number Generation and Key Generation Parameters

18 The base station shall set $PARAM_P_S$ for use in calculating the base station result,
 19 BS_RESULT , to the following 1024-bit prime number (Most Significant Bit first) as specified
 20 in 5.4.1.

21 The base station shall set $PARAM_G_S$ for use in calculating BS_RESULT to '00001101'.

22 The base station shall generate a random number Y for use in calculating BS_RESULT .
 23 The number Y shall have the following properties:

- 24 • The number generated shall be 384-bits in length.
- 25 • The number generated shall not be less than 4.
- 26 • The number generated shall have a uniform statistical distribution over its range.
- 27 • The numbers used in formulating different *Key Generation Request Messages* sent
 28 by the same base station shall be statistically uncorrelated.
- 29 • The numbers used in formulating *Key Generation Request Message* sent by different

⁷ MS_PW_HASH may be reduced modulo $PARAM_P_S$ prior to multiplication to simplify implementation.

⁸ This value is set to the length of MS_PARAM in bits.

1 base stations shall be statistically uncorrelated.

2

3 5.6.2 Base Station Result

4 The base station shall calculate BS_PW_HASH where

$$\begin{aligned}
 5 \text{ BS_PW_HASH} &= \text{SHA-1} (0x00000002, 0x00000001, \text{BS_PW}) \text{ modulo } 2^{128} | \\
 6 &\quad \text{SHA-1} (0x00000002, 0x00000002, \text{BS_PW}) \text{ modulo } 2^{128} | \\
 7 &\quad \text{SHA-1} (0x00000002, 0x00000003, \text{BS_PW}) \text{ modulo } 2^{128} | \\
 8 &\quad \text{SHA-1} (0x00000002, 0x00000004, \text{BS_PW}) \text{ modulo } 2^{128} | \\
 9 &\quad \text{SHA-1} (0x00000002, 0x00000005, \text{BS_PW}) \text{ modulo } 2^{128} | \\
 10 &\quad \text{SHA-1} (0x00000002, 0x00000006, \text{BS_PW}) \text{ modulo } 2^{128} | \\
 11 &\quad \text{SHA-1} (0x00000002, 0x00000007, \text{BS_PW}) \text{ modulo } 2^{128} | \\
 12 &\quad \text{SHA-1} (0x00000002, 0x00000008, \text{BS_PW}) \text{ modulo } 2^{128} | \\
 13 &\quad \text{SHA-1} (0x00000002, 0x00000009, \text{BS_PW}) \text{ modulo } 2^{128}.
 \end{aligned}$$

14

15 The base station shall calculate BS_RESULT = (BS_PW_HASH⁹ * G^Y) modulo P.

16

17 5.6.3 3G Root Key K Computation

18 The base station shall compute the Root Key RK = SHA-1 (0x00000003 | 0x00000C80¹⁰ |
19 BS_PARAM | BS_PARAM),

20 where BS_PARAM = BS_PW |

$$\begin{aligned}
 21 &\quad (\text{MS_RESULT}_S / \text{MS_PW_HASH}) \text{ modulo } P | \\
 22 &\quad G^Y \text{ modulo } P | \\
 23 &\quad ((\text{MS_RESULT}_S / \text{MS_PW_HASH})^Y) \text{ modulo } P.
 \end{aligned}$$

24 The base station shall use the least significant 128 bits of the result RK as the Root Key K.

25

⁹ BS_PW_HASH may be reduced modulo P prior to multiplication to simplify implementation.

¹⁰ This value is set to the length of BS_PARAM in bits.

- 1 No text.

1 **ANNEX A RESERVED**
2

- 1 No text.

1 **ANNEX B BIBLIOGRAPHY**

2 This is an informative annex. The documents listed in this annex are for information only
3 and are not essential for the completion of the requirements of this standard.

- 4 1. TIA/EIA/IS-91, Mobile Station - Base Station Compatibility Standard for 800 MHz
5 Analog Cellular, October 1994.

6

7

- 1 No text.

1 ANNEX C SYSTEM SELECTION AND ACQUISITION

2 C.1 Introduction

3 This is an informative annex that describes recommended use of the preferred roaming
 4 list. The preferred roaming list indicates which systems the mobile station should use
 5 (preferred systems). It also indicates which systems should not be used by the mobile
 6 station (negative systems). In addition to indicating which systems are preferred or
 7 negative, the preferred roaming list has information that can reduce the acquisition time,
 8 however, for optimum performance of the SSPR feature appropriate structuring of the
 9 roaming list is required.

10 The preferred roaming list consists of two tables: the system table and the acquisition
 11 table. The system table contains records. Each record identifies a system by its SID and
 12 NID. For each record, there is an indicator of whether the system is preferred or negative,
 13 the roaming status that should be indicated by the mobile station, the relative priority of
 14 the system and its geographic region. Each record also contains an acquisition index that
 15 indicates a record in the acquisition table to be used. The acquisition record provides the
 16 band and frequencies that the mobile station is to use when attempting to acquire the
 17 system.

18 Table C.1-1 illustrates the basic structure of the preferred roaming list.

19 **Table C.1-1 Preferred Roaming List**

PREF_ONLY	DEF_ROAM_IND	NUM_ACQ_REC S	NUM_SYS_RECS
No	On (steady)	5	12

20
 21 Table C.1-2 illustrates the acquisition table. The records in the acquisition table are in
 22 order of priority (highest priority first) according to desired mobile station system selection
 23 scan order.

24 **Table C.1-2 Acquisition Table**

ACQ_INDEX	ACQ_TYPE	Description	Acquisition Parameters
0	'0110'	PCS CDMA - Using Channels	PCS Channels 100, 125, 150, 175, 200
1	'0101'	PCS CDMA - Using Blocks	PCS Block C
2	'0011'	Cellular CDMA - Custom Channels	Channel Number 1
3	'0010'	Cellular CDMA - Standard Channels	System A, Primary and Secondary CDMA Channel
4	'0001'	Cellular Analog	System B

25

1 Table C.1-3 illustrates the system table. In this table, region changes are denoted by a
 2 change in shading.

3

Table C.1-3 System Table

SID	NID_INCL	PREF_NEG	GEO	PRI	ACQ_INDEX (ACQ_TYPE)	ROAM_IND
111	0	1	0	1	2 [Cellular CDMA - Standard Channels]	Off
77	0	1	1	0	0 [PCS CDMA - Using Channels]	Off
34	0	1	1	0	2 [Cellular CDMA - Standard Channels]	Flashing
34	0	0	1	N/A	4 [Cellular Analog]	N/A
400	0	1	0	1	2 [Cellular CDMA - Standard Channels]	Off
4	0	1	1	1	0 [PCS CDMA - Using Channels]	On
12	0	1	1	1	3 [Cellular CDMA - Custom Channels]	On
0	0	1	1	0	4 (Cellular Analog)	On
776	0	0	1	N/A	4 [Cellular Analog]	N/A
61	0	1	0	1	2 [Cellular CDMA - Standard Channels]	Off
56	0	1	1	0	1 [PCS CDMA - Using Blocks]	Flashing
16	0	0	1	N/A	4 [Cellular Analog]	N/A

4

5 **C.2 Accelerated System Selection**

6 C.2.1 Using Positive and Negative Systems

7 An entry in SYS_TABLE having a PREF_NEG bit set to '1' is a preferred system. An entry in
 8 SYS_TABLE having a PREF_NEG bit set to '0' is a negative system.

9 Once the SID of the preferred system is determined it can be used to index into the
 10 Geographic Region of the SYS_TABLE and select a system in the same Geographic Region
 11 that is preferable. The mobile station can then use the acquisition table entry to

1 determine the frequencies that should be used when attempting to acquire the preferred
2 system.

3 Similarly, once the SID of a negative system is determined, it can be used to index into
4 the Geographic Region of the SYS_TABLE and select a system in the same Geographic
5 Region that is preferable. The mobile station can then use the acquisition table entry to
6 determine the frequencies that should be used when attempting to acquire the preferred
7 system.

8 For example, if the mobile station acquires the analog cellular system with SID equal to
9 34, the mobile station should attempt to acquire the cellular CDMA system with SID equal
10 to 111 (see Table C.1-3). If the mobile station fails to acquire this system, the mobile
11 station should attempt to acquire the PCS CDMA system with SID equal to 77.

12 C.2.2 PCS Block Mode System Selection

13 There are two acquisition types that can be used when acquiring a PCS CDMA system:
14 PCS CDMA System Acquisition (Using Blocks) and PCS CDMA System Acquisition (Using
15 Channels). These correspond to ACQ_TYPE equal to '0101' and ACQ_TYPE equal to
16 '0110', respectively.

17 When using the block mode, the mobile station may need to search all of the preferred
18 frequency assignments (see 6.1.1.1 of [1] or 2.1.1.1 of [5]) within the frequency block to
19 determine whether it can acquire the system. For the A, B and C blocks, there are 11
20 preferred frequency assignments. Since the acquisition time may be proportional to the
21 number of preferred frequency assignments, specifying the entire frequency block should
22 be avoided when a smaller set of frequencies is sufficient, thus, it is usually preferable to
23 use the PCS CDMA System Acquisition (Using Channels) acquisition type.

25 C.2.3 Special Cases and Considerations

26 It is possible for the mobile station to acquire a channel, decode the SID/NID and find a
27 matching SID/NID system record where the acquired channel and the acquisition type of
28 the matching record are different. In these cases, service is allowed. For example, if the
29 mobile station is presently scanning one of PCS channels corresponding to ACQ_TYPE =
30 '0110' (first entry in the Table C.1-2), discovers the system with SID 61, and finds it in the
31 system table (see Table C.1-3), service is allowed, even though the acquisition index for
32 the record (ACQ_INDEX = 2) does not match acquired system. This situation can occur
33 based upon service providers changing or adding channels in a market, changing
34 broadcast SID, or purchasing another service provider's market.

35 Wildcard SIDs (SID = 0) can be used to universally allow or deny service in a particular
36 band or mode(s) of operation. In this example, assume that cellular analog system SID 504
37 and cellular CDMA system SID 4101 can be acquired by the mobile station and are not
38 specifically included in the system table. Assume further that the PREF_ONLY for the
39 preferred roaming list is set to '1' (True). The mobile station scans channels according to
40 all acquisition table entries attempting to acquire a system with SID that matches records
41 in the system table. After finding no matching SIDs, the mobile station allows service on

1 the system with SID 504 acquired at the cellular analog System B. The mobile station
2 does not allow service on system with SID 4101, since that system does not match the
3 acquisition record associated with the system record containing the wildcard SID.

4 **C.3 Preferred Roaming List Maintenance**

5 All or any part of the preferred roaming list can be replaced using Over-the-Air Service
6 Provisioning. Segmentation of the preferred roaming list provides access to any specific
7 area requiring modification. An area is identified by the position offset of the first modified
8 octet in the list and includes the number of new octets to be transmitted in one or more
9 segments (see 3.3.1).

10 The end of transmission is denoted by the LAST_SEGMENT field set to '1'. When the end
11 of transmission is detected, the length and CRC of the preferred roaming list must be
12 verified to ensure the data integrity. For manageability, when replacing areas of differing
13 sizes, it is recommended that the remaining data of the list be retransmitted and replaced
14 as well.

15 When the preferred roaming list data is modified, the service provider may assign a new
16 PR_LIST_ID to the list.

17

ANNEX D SYSTEM SELECTION AND THE PREFERRED USER ZONE LIST

This annex is informative. The Preferred User Zone List provides the mobile station that supports the optional User Zone feature with the specification of the User Zones to which the mobile station is subscribed. The PUZL is used after the mobile station has completed system acquisition using the preferred roaming list or other techniques. Once a mobile station has found its preferred system, the PUZL is used to select the most preferred User Zone on that system. The PUZL contains a list of all User Zones that are subscribed to and any parameters needed to locate and access these User Zones.

In the case where the network is broadcasting a Private Neighbor List Message indicating the presence of the preferred User Zone on a separate RF carrier, the mobile station will then switch to that RF carrier to obtain the services of the User Zone. For purposes of the PRL, the private system in this case can be considered to be part of the original system on which the Private Neighbor List Message was detected.

It is noted that:

- Each entry in the PUZL is uniquely identified by User Zone ID and User Zone SID.
- Each User Zone entry within the PUZL is stored contiguously in the mobile station memory.
- The PUZL may be stored in a non-contiguous fashion in the mobile station memory.
- The PUZL may have up to 4095 User Zone entries.

- 1 No text.