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PROJECT 2
"3GPP2"**

E-UTRAN – cdma2000 1x Connectivity and Interworking Air Interface Specification

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Revision History

Revision	Description Of Changes	Date
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Rev 0 v2.0	Point Release for Supporting Multiple Layer 3 PDUs and Traffic Channel SMS	April 2011

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

This standard was prepared by Technical Specification Group C of the Third Generation Partnership Project 2 (3GPP2). This standard is evolved from and is a companion to the cdma2000^{®1} standards. This standard contains the air interface requirements for facilitating Generic Circuit Service Notification Application and cdma2000 1x interworking with the Evolved Universal Terrestrial Radio Access Network (E-UTRAN). This specification applies to cdma2000 1x compliant mobile stations and base stations which are enhanced to support the E-UTRAN and cdma2000 1x interworking.

This is a supplementary specification to cdma2000 1x air interface specifications.

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

1 **REFERENCES**

2 The following standards contain provisions which, through reference in this text, constitute
 3 provisions of this standard. At the time of publication, the editions indicated were valid. All
 4 standards are subject to revision, and parties to agreements based on this standard are
 5 encouraged to investigate the possibility of applying the most recent editions of the
 6 standards indicated below.

- 7
- 8 [1] 3GPP TS 23.272: "Circuit Switched Fallback in Evolved Packet System; Stage 2".
- 9 [2] 3GPP TS 36.133: "Evolved Universal Terrestrial Radio Access (E-UTRA);
 10 Requirements for support of radio resource management".
- 11 [3] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); User
 12 Equipment (UE) procedures in idle mode".
- 13 [4] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA) Radio
 14 Resource Control (RRC) Protocol specification".
- 15 [5] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1
 16 Application Protocol (S1AP)".
- 17 [6] 3GPP2 A.S0008-C: "Interoperability Specification (IOS) for High Rate Packet Data
 18 (HRPD) Radio Access Network Interfaces with Session Control in the Access
 19 Network".
- 20 [7] 3GPP2 A.S0009-C: "Interoperability Specification (IOS) for High Rate Packet Data
 21 (HRPD) Radio Access Network Interfaces with Session Control in the Packet Control
 22 Function".
- 23 [8] 3GPP2 C.R1001: "Administration of Parameter Value Assignments for cdma2000
 24 Spread Spectrum Standards" (Informative reference).
- 25 [9] 3GPP2 C.S0002-E: "Physical Layer Standard for cdma2000 Spread Spectrum
 26 Systems".
- 27 [10] 3GPP2 C.S0003-E: "Medium Access Control (MAC) Standard for cdma2000 Spread
 28 Spectrum Systems".
- 29 [11] 3GPP2 C.S0004-E: "Signaling Link Access Control (LAC) Standard for cdma2000
 30 Spread Spectrum Systems".
- 31 [12] 3GPP2 C.S0005-E: "Upper Layer (Layer3) Signaling Specification for cdma2000
 32 Spread Spectrum Systems".
- 33 [13] 3GPP2 C.S0024-B v3.0: "cdma2000 High Rate Packet Data Air Interface
 34 Specification".
- 35 [14] 3GPP2 C.S0057: "Band Class Specification for cdma2000 Spread Spectrum
 36 Systems".
- 37 [15] 3GPP2 C.S0082: "Circuit Services Notification Application Specification for
 38 cdma2000 High Rate Packet Data".
- 39 3GPP2 C.S0087-0 v2.0: "E-UTRAN – cdma2000 HRPD Connectivity and Interworking: Air
 40 Interface Specification".
- 41

1

2 **1 OVERVIEW**

3 **1.1 Introduction**

4 These technical requirements form a compatibility standard for facilitating cdma2000 1x
5 tunneling through any other Radio Access Technology (RAT), but not through HRPD. This
6 technical specification also forms requirements on the Evolved Universal Terrestrial Radio
7 Access Network (E-UTRAN) and cdma2000 1x Interworking.

8 **1.2 Scope of This Document**

9 This specification applies to cdma2000 mobile stations and base stations, which are enhanced
10 to support the E-UTRAN and cdma2000 1x interworking and Interworking Solution (IWS).

11 These requirements ensure that a compliant mobile station can obtain interworking service
12 through any base station conforming to this standard. These requirements do not address the
13 quality or reliability of that service, nor do they cover equipment performance or measurement
14 procedures.

15 This specification is primarily oriented toward requirements necessary for the design and
16 implementation of mobile station. As a result, detailed procedures are specified for mobile
17 station to ensure a uniform response to all base station or IWSs. Base station and IWSs
18 procedures, however, are specified only to the extent necessary for compatibility with those
19 specified for the mobile station.

20 This specification includes provisions for future service additions and expansion of system
21 capabilities. The architecture defined by this specification permits such expansion without the
22 loss of backward compatibility to older mobile stations.

23 **1.3 Requirement Language**

24 Compatibility, as used in connection with this standard, is understood to mean: Any mobile
25 station can obtain service through any base station or IWS conforming to this standard.
26 Conversely, all base stations or IWSs conforming to this standard can service mobile stations.

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

1.4 Architecture Reference Model for cdma2000 1x Interworking

The architecture reference model for inter radio access technology interworking is presented in Figure 1.4-1. The reference model consists of the following functional units: the cdma2000 mode of the dual mode mobile stations, the cdma2000 base station and the Tunnel.

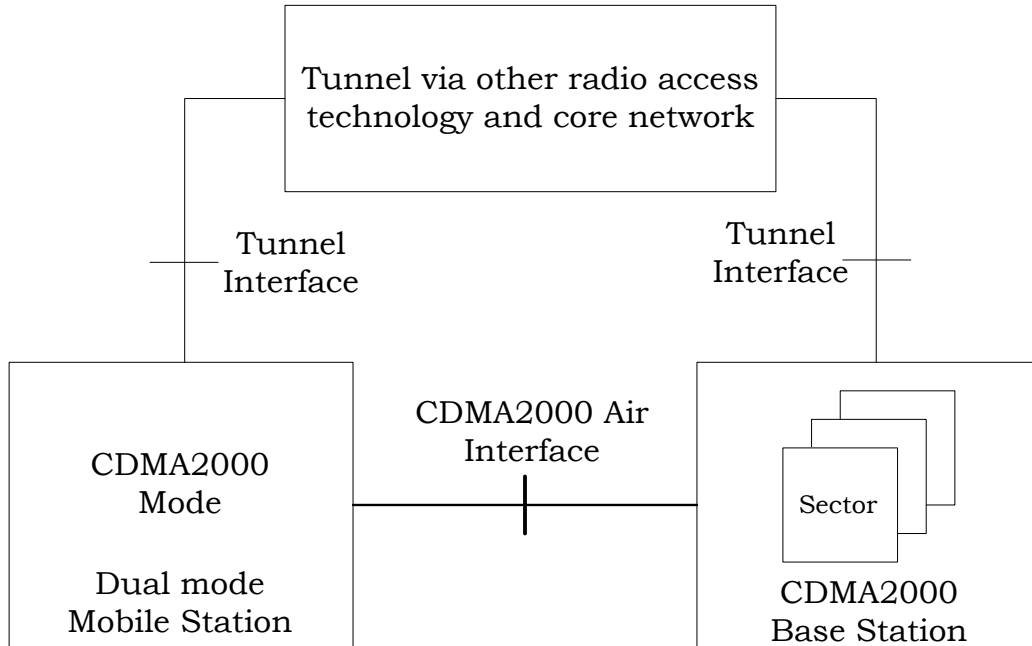


Figure 1.4-1. Architecture Reference Model

The cdma2000 mode of the dual mode mobile stations and the cdma2000 base station are defined in section 1.5. The Tunnel involves the dual mode mobile stations, air interface and base stations associated with the other radio access technology, as well as the core networks.

The reference model includes the cdma2000 air interface [9], [10], [11], and [12] between the dual mode mobile station and the cdma2000 base station, the tunnel interface between the Tunnel and the cdma2000 mode of the dual mode mobile station, and the tunnel interface between the Tunnel and the cdma2000 base station.

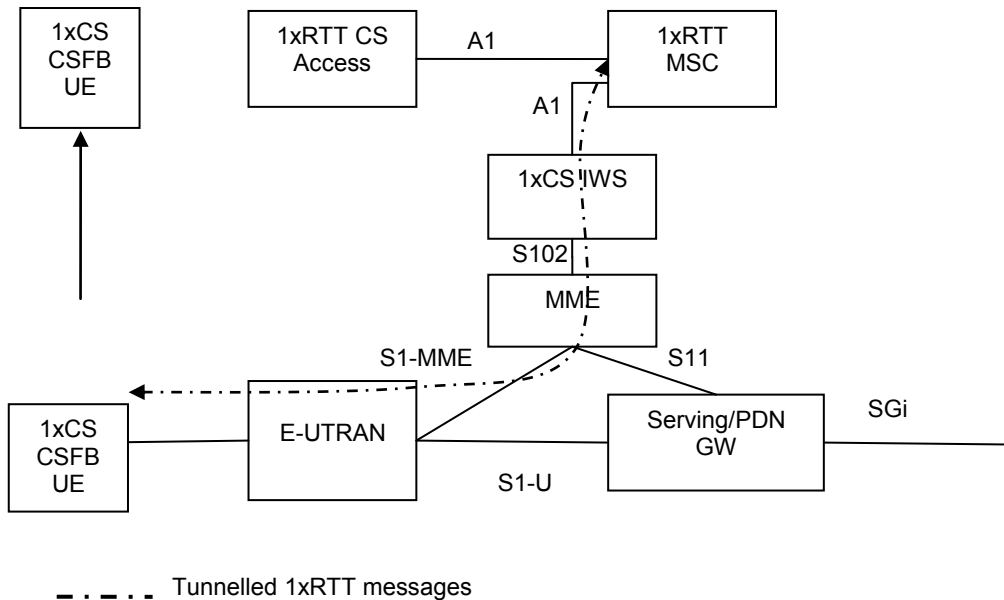


Figure 1.4-2. Reference Architecture for E-UTRAN - cdma2000 1x Interworking

Note: Figure 1.4-2 Reference Architecture for cdma2000 1x Interworking with E-UTRAN is included only for information.

The elements related to the Tunnel Interface shown in Figure 1.4-2 are specified in [4], [5], [6], and [7].

1.5 Terms

Base Station. A fixed station used for communicating with mobile stations. Depending upon the context, the term base station may refer to a cell, a sector within a cell, an MSC, or other part of the wireless system.

cdma2000 Mode of Dual Mode Mobile Station. An operation mode of a dual mode mobile station which provides the connectivity over the cdma2000 1x air interface. A dual mode mobile station may operate in the cdma2000 mode or the mode of another radio access technology such as E-UTRAN.

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

Circuit Switched Fallback (CSFB). The circuit switched fallback for cdma2000 1x enables the delivery of circuit switched domain services (e.g. circuit switched voice, Short Message Services) by reuse of the 1x circuit switched infrastructure when the mobile station is served by E-UTRAN.

EARFCN. -Evolved Absolute Radio Frequency Channel Number.

E-UTRAN. -Evolved Universal Terrestrial Radio Access Network.

Interworking Solution (IWS). The IWS Function is logically collocated at the 1x BS or the AN, or as a standalone entity. Refer to [6] and [7] for the definition.

Mobile Station. A station in the Public Wireless Radio Telecommunications Service intended to be used while in motion or during halts at unspecified points. Mobile stations include portable units (e.g., hand-held personal units) and units installed in vehicles. A mobile station consists of two parts – ME and UIM.

NULL. A value which is not in the specified range of the field.

PDN-GW. Packet Data Network Gateway.

PLMN. Public Land Mobile Network.

RC. Radio Configuration.

TLAC. Tunnel Link Access Control.

1.6 Notation

A[i] The i^{th} element of array A. The first element of the array is A[0].

$\langle e_1, e_2, \dots, e_n \rangle$ A *structure* with elements ‘ e_1 ’, ‘ e_2 ’, ..., ‘ e_n ’.
Two structures $E = \langle e_1, e_2, \dots, e_n \rangle$ and $F = \langle f_1, f_2, \dots, f_m \rangle$ are equal if and only if ‘ m ’ is equal to ‘ n ’ and e_i is equal to f_i for $i=1, \dots, n$. Given $E = \langle e_1, e_2, \dots, e_n \rangle$ and $F = \langle f_1, f_2, \dots, f_m \rangle$, the assignment “ $E = F$ ” denotes the following set of assignments: $e_i = f_i$, for $i=1, \dots, n$.

S.e The member of the structure ‘S’ that is identified by ‘e’.

M[i:j] Bits i^{th} through j^{th} inclusive ($i \geq j$) of the binary representation of variable M. M[0:0] denotes the least significant bit of M.

| Concatenation operator. (A | B) denotes variable A concatenated with variable B.

× Indicates multiplication.

$\lfloor x \rfloor$ Indicates the largest integer less than or equal to x: $\lfloor 1.1 \rfloor = 1, \lfloor 1.0 \rfloor = 1$.

$\lceil x \rceil$ Indicates the smallest integer greater or equal to x: $\lceil 1.1 \rceil = 2, \lceil 2.0 \rceil = 2$.

|x| Indicates the absolute value of x: $|-17|=17, |17|=17$.

\oplus Indicates exclusive OR (modulo-2 addition).

\otimes Indicates bitwise logical AND operator.

min (x, y) Indicates the minimum of x and y.

max (x, y) Indicates the maximum of x and y.

x mod y Indicates the remainder after dividing x by y: $x \text{ mod } y = x - (y \times \lfloor x/y \rfloor)$.

1 x^y Indicates the result of x raised to the power y, also denoted as x^y .

2 x^y Indicates the result of x raised to the power y, also denoted as x^y .

3 Unless otherwise specified, the format of field values is unsigned binary.

4 Unless indicated otherwise, this standard presents numbers in decimal form. Binary numbers
5 are distinguished in the text by the use of single quotation marks. Hexadecimal numbers are
6 distinguished by the prefix '0x'.

7 Unless specified otherwise, each field of a packet shall be transmitted in sequence such that
8 the most significant bit (MSB) is transmitted first and the least significant bit (LSB) is
9 transmitted last. The MSB is the left-most bit in the figures in this document. If there are
10 multiple rows in a table, the top-most row is transmitted first. If a table is used to show the
11 sub-fields of a particular field or variable, the top-most row consists of the MSBs of the field.
12 Within a row in a table, the left-most bit is transmitted first. Notations of the form "repetition
13 factor of N" or "repeated N times" mean that a total of N versions of the item are used.

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2 GENERIC CIRCUIT SERVICES NOTIFICATION APPLICATION PROTOCOL

2.1 Protocol Overview

The Generic Circuit Services Notification Application (GCSNA) Protocol supports signaling transactions for cdma2000 1x circuit-switched services between the mobile station and the 1xCS IWS through any radio access technologies which provides a tunnel between the mobile station and IWS (hereafter ‘a tunnel’) except for the cdma2000 high rate packet data system².

Figure 2.1-1 describes the protocol architecture reference model.

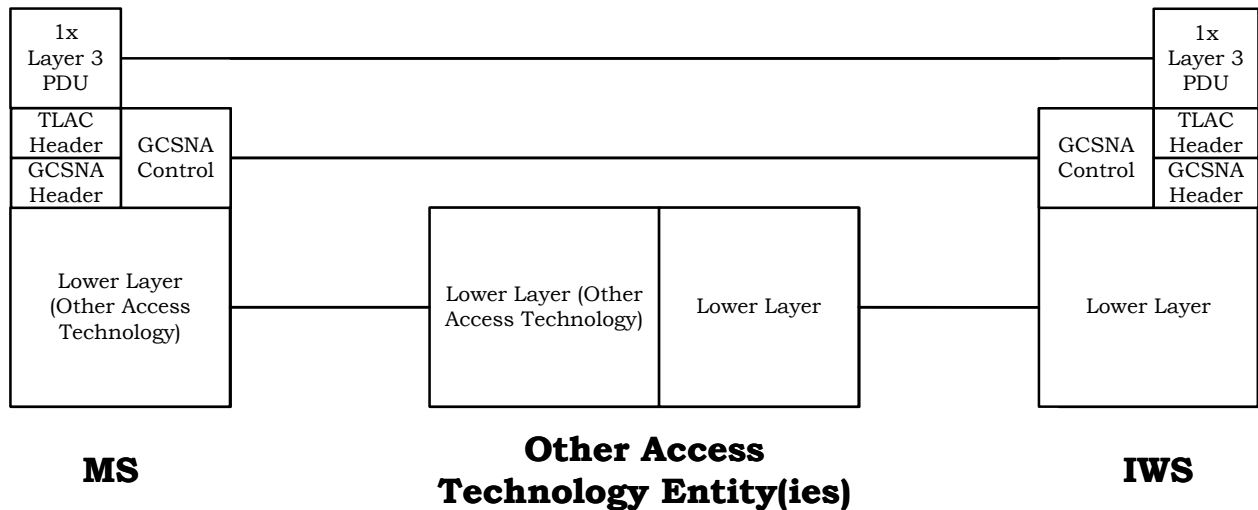


Figure 2.1-1. Protocol Architecture Reference Model

In this specification, the term IWS is used without regard to the placement of the IWS (standalone, collocated with the base station controller, etc). The IWS provides the following functions:

- Message Translation: This function translates between IOS A1/A1p messages received from/sent to a Mobile Switching Center (MSC) and 1x air interface signaling messages sent/received over other access technology.
- 1x Parameters Storage: This optional function stores 1x radio parameters required for GCSNA support.
- RAND Generation: This optional function provides the random challenge value (RAND) used for 1x authentication. This function may be in the other access technology. If the IWS supports RAND generation and 1x parameter provisioning, a RAND value provided by the IWS to the mobile station takes precedence over a RAND value provided to the mobile station by a node in the other access technology.

² In cdma2000 HRPD, 3G1X Circuit Service Notification Application [15] is used.

1 This protocol provides the following functions:

- 2 • 1x Layer 3 Protocol Data Unit (PDU) [12] encapsulation with a Tunneled Link Access Control (TLAC) header and further encapsulated with a GCSNA header.
- 3
- 4 • Optional 1x parameters provisioning

5 GCSNA does not support the dynamic configuration of a filtering mechanism that allows
6 notifications associated with only certain circuit switched services to be sent through a tunnel
7 provided by other access technology. GCSNA only supports the static configuration. The
8 GCSNAOption specified in [8] defines circuit switched services that can be provided.

9 If a lower layer provided by other access technology is reset or initialized, it is left for mobile
10 station's implementation how to handle it.

11 2.2 Mobile Station Procedures

12 When the mobile station sends a TLAC encapsulated 1x Layer 3 PDU [12] to the IWS over a
13 tunnel:

- 14 • It shall encapsulate the 1x Layer 3 PDU in the *GCSNA1xCircuitService* message.
- 15 • The first time the mobile station sends a *GCSNA1xCircuitService* message, it shall set
16 the GCSNAOption field to the most preferred GCSNAOption for an interworking scenario
17 as defined in [8].
- 18 • If GCSNAOption in use is known, the mobile station shall use it to send a
19 *GCSNA1xCircuitService* message.
- 20 • If the GCSNAOption in use has been changed, the mobile station may propose a more
21 preferred GCSNAOption by setting the GCSNAOption field when it sends the
22 *GCSNA1xCircuitService* message with an incremented MessageSequence number.
- 23 • If the mobile station sends ~~a~~*the GCSNA1xCircuitService* message with the AckRequired
24 bit set to '1', the mobile station shall start a L2Ack timer set to GCSNAL2AckTimer and a
25 SequenceContextTimer set to GCSNASequenceContextTimer. If the L2Ack timer expires,
26 the mobile station may resend the *GCSNA1xCircuitService* message. The number of
27 retransmissions is implementation specific. The mobile station shall not resend the
28 *GCSNA1xCircuitService* message after the associated SequenceContextTimer_s expires.
- 29 • If the MessageSequence number has been reset, the mobile station shall set the
30 StopDupDetect bit to '1'. Triggers for reset are implementation specific.

31 When the mobile station receives a GCSNA message:

- 32 • It shall check the received MessageID. If the MessageID is ~~valid~~known, the mobile
33 station shall follow the requirements for parsing this GCSNA message. Otherwise,
34 ~~•If it does not understand the GCSNA MessageID, the mobile station it~~ shall send ~~the a~~
35 *GCSNAServiceReject* message with the cause value set to "InvalidMessageID".

36 When the mobile station receives ~~a~~*the GCSNA1xCircuitService* message from IWS:

- 37 • It shall check the received GCSNAOption and 1xProtocolRevision.

- 1 o ~~__~~ If ~~mobile station cannot accept the~~ 1xProtocolRevision ~~is not supported by the~~
2 mobile station as defined in [12], the mobile station shall send ~~the a~~
3 GCSNAServiceReject message with a cause value set to the "Invalid
4 1xProtocolRevision".
- 5 o If ~~the mobile station can accept neither~~ the GCSNAOption and all ~~nor~~ the
6 AlternativeGCSNAOption(s) are not supported, then the mobile station shall
7 send ~~the a~~ GCSNAServiceReject message with a cause value set to the "Invalid
8 GCSNAOption".
- 9 o If ~~the mobile station can accept neither~~ the GCSNAOption, ~~nor~~ the
10 AlternativeGCSNAOption(s) and the, ~~nor~~ 1xProtocolRevision are not supported,
11 then the mobile station shall send ~~the a~~ GCSNAServiceReject message with
12 cause value set to "Invalid GCSNAOption and 1xProtocolRevision".
- 13 o If the mobile station sends a GCSNAServiceReject message with Cause value set
14 to '00000000' or '00000010', the mobile station shall put the list of
15 GCSNAOptions it supports in order of decreasing preference in the
16 GCSNAServiceReject message.
- 17 o If the mobile station sends a GCSNAServiceReject message with Cause value set
18 to '00000000', '00000001', or '00000010', the mobile station shall not start a
19 SequenceContextTimer, ~~GCSNASequenceContextTimer~~.
- 20 o If the received GCSNA1xCircuitService message had the AckRequired bit set to '1',
21 then the mobile station shall not send the GCSNAL2Ack message.
- 22 o If mobile station ~~can accept~~ supports either GCSNAOption or one of the
23 AlternativeGCSNAOptions and the 1xProtocolRevision, the mobile station shall
24 process the message as follows:
- 25 ▪ If the GCSNA1xCircuitService message from the IWS contains a
26 GCSNAOption that does not match to the GCSNAOption in use, the
27 mobile station shall choose a GCSNAOption from the acceptable
28 GCSNAOption(s) in the message and use GCSNAOption for subsequent
29 GCSNA message exchange with same GCSNAClass and same or lower
30 GCSNAClassRevision.
 - 31 ▪ If the received GCSNA1xCircuitService message had the AckRequired bit
32 set to '1', then the mobile station shall send the GCSNAL2Ack message.
 - 33 ▪ It shall start a SequenceContextTimer, set to
34 GCSNASequenceContextTimer. The mobile station shall keep the value
35 of the ~~sequence~~ number and IWS_ID if it is provided until ~~GCSNA~~ the
36 associated SequenceContextTimer, ~~SequenceContextTimer~~ expires.
 - 37 • If StopDupDetect is set to '0' in ~~the a~~ GCSNA1xCircuitService
38 message, the mobile station shall do the following:
 - 39 o If a message with AckRequired is set to '0' and with the
40 same sequence number and IWS_ID (if it is provided) is
41 received before the associated

~~SequenceContextTimer~~ ~~GCSNAsSequenceContextTimer~~
 expires, the mobile station shall discard the message. If a message with AckRequired is set to '1' and with the same sequence number and IWS_ID (if it is provided) is received before the associated ~~SequenceContextTimer~~ ~~GCSNAsSequenceContextTimer~~ expires, the mobile station shall send the *GCSNAL2Ack* message and discard the message. The ~~SequenceContextTimer~~ ~~GCSNAsSequenceContextTimer~~ shall be maintained until it expires for each pair of sequence number and IWS_ID (if it is provided).

- If StopDupDetect is set to '1' in a *GCSNA1xCircuitService* message, the mobile station shall do the following:

- It should consider all the ~~GCSNAsSequenceContextTimer~~ ~~SequenceContextTimer~~(s) have expired.
- It shall start a ~~GCSNAsSequenceContextTimer~~ ~~SequenceContextTimer~~ for this message.

- The mobile station shall support the reception of multiple 1xLayer 3 PDUs in a *GCSNA1xCircuitService* message. If a *GCSNA1xCircuitService* message contains multiple 1x Layer 3 PDUs, the mobile station shall process 1x Layer 3 PDUs in the order of presence.

When the mobile station receives a *GCSNAServiceReject* message with any cause value;

- If a *GCSNA1xCircuitService* message with AckRequired bit set to '1' is being rejected, the mobile station shall abandon any retransmission procedures for the corresponding message.

When the mobile station receives a *GCSNAServiceReject* message with the cause set to "Invalid GCSNAOption" or "Invalid GCSNAOption and 1xProtocolRevision":

- If the GCSNAOption(s) included in the message contain at least one GCSNAClass that is acceptable to the mobile station, then:
 - From the GCSNAOption(s) included in the message, the mobile station shall select most preferred GCSNAClass of the IWS that is acceptable to the mobile station.
 - For the subsequent *GCSNA1xCircuitService* messages, the mobile station shall use the min (IWS's GCSNAClassRevision within the selected GCSNAClass, Mobile Station's GCSNAClassRevision within the selected GCSNAClass)
- Otherwise, the mobile station shall abandon the current interworking session. The procedures after abandoning the interworking session are outside scope of GCSNA Protocol.

The mobile station shall support a layer 2 acknowledgement defined in GCSNA.

1 The mobile station may support 1x parameters provisioning from the IWS. If the mobile station
 2 is configured to use it, the mobile station shall send the *GCSNA1xParametersRequest* message
 3 to the IWS when the mobile station needs to obtain 1x parameters. If the mobile station
 4 receives a *GCSNA1xParameters* message with the *UnsolicitedMessage* bit set to '1' from the IWS,
 5 it shall send the *GCSNA1xParametersAck* message to the IWS. If the mobile station receives a
 6 *GCSNA1xParameters* message with the *UnsolicitedMessage* bit set to '0', it shall not send the
 7 *GCSNA1xParametersAck* message to the IWS. If the mobile station does not support the 1x
 8 parameters provisioning, but it receives the *GCSNA1xParameters* message, it shall send the
 9 *GCSNAServiceReject* message with the cause value set to "GCSNA1xParameters provisioning is
 10 not supported". If the mobile station receives unsupported *RecordType* of *GCSNA1xParameters*
 11 message, it shall send the *GCSNAServiceReject* message with the cause value set to
 12 "Unsupported *RecordType* in *GCSNA1xParameters* message".

~~13 If 1x channel assignment is received through a tunnel, the mobile station shall set the initial
 14 transmission power on the 1x radio network according to the procedures specified in section
 15 2.1.2.3.1.4 of [9]³ with the following parameters:~~

~~16 • *ACC_CORRECTIONS* set to *NOM_PWRs* – 16 × *NOM_PWR_EXTs*.~~

~~17 • *RLGAIN_ADJs* set to zero~~

18 **2.2.1 Processing of a 1x (MEID) Universal Handoff Direction Message**

19 If the mobile station receives a 1x Universal Handoff Direction Message or 1x MEID Universal
 20 Handoff Direction Message via the tunnel while the mobile station is in the 1x page response
 21 substate or 1x origination substate, the mobile station shall go to the 1x waiting for order
 22 substate or 1x conversation substate respectively, and process the message as per [12] with
 23 the following exceptions:

- 24 • The mobile station shall determine the Radio Configuration to be used from the 1x
 25 (MEID) Universal Handoff Direction Message, and shall use the corresponding initial
 26 setpoint value received in CDMA2000 Parameters.

27 – Set *FPC_FCH_INIT_SETPTs* to *FPC_FCH_INIT_SETPT_RC3* or
 28 *FPC_FCH_INIT_SETPT_RC4* or *FPC_FCH_INIT_SETPT_RC5* or
 29 *FPC_FCH_INIT_SETPT_RC11* or *FPC_FCH_INIT_SETPT_RC12*.

- 30 • The mobile station shall set the initial transmission power on the 1x radio network
 31 according to the procedures specified in section 2.1.2.3.1.4 of [9]⁴ with the following
 32 parameters:

33 – *ACC_CORRECTIONS* set to *NOM_PWRs* – 16 × *NOM_PWR_EXTs*.

34 – *RLGAIN_ADJs* set to zero

~~³ This procedure for setting the initial transmission power on the 1x radio network is to be used
 regardless of the 1x traffic channel Radio Configuration (RC) value assigned.~~

⁴ This procedure for setting the initial transmission power on the 1x radio network is to be used
 regardless of the 1x traffic channel Radio Configuration (RC) value assigned.

If the mobile station cannot process any of the fields in the 1x (MEID) Universal Handoff Direction Message, then the mobile station shall follow the procedures according to [12].

2.3 IWS Procedures

When the IWS sends a TLAC encapsulated 1x Layer 3 PDU [12] to the mobile station over a tunnel:

- It shall encapsulate the 1x Layer 3 PDU in the *GCSNA1xCircuitService* message.
- It may encapsulate multiple 1xLayer 3 PDUs in the *GCSNA1xCircuitService* message. When the IWS sends the multiple 1xLayer 3 PDUs, it shall put them in the order that the mobile station is to process.
- It may set the IWS_ID in the *GCSNA1xCircuitService* message.
- If the GCSNAOption of the mobile station is known to the IWS and is supported by the IWS, then the IWS shall use this GCSNAOption when sending a *GCSNA1xCircuitService* message. If the GCSNAOption of the mobile station is not known to the IWS, then the IWS uses a default GCSNAOption that supports the tunneled 1x message when sending a *GCSNA1xCircuitService* message. Determination of default values is outside the scope of GCSNA Protocol.
- If the MessageSequence number has been reset, the IWS shall set the StopDupDetect bit to '1'. Triggers for reset are implementation specific.
- If the IWS sends ~~a~~the *GCSNA1xCircuitService* message with the AckRequired bit set to '1', the IWS shall start a L2Acktimer set to GCSNAL2AckTimer and a SequenceContextTimer_s set to GCSNASequenceContextTimer_s. If the L2Acktimer expires, the IWS may resend the *GCSNA1xCircuitService* message. The number of retransmissions is implementation specific. The IWS shall not resend the *GCSNA1xCircuitService* message after associated SequenceContextTimer_s expires.
- It may set AlternativeGCSNAOption(s) in the *GCSNA1xCircuitService* message. AlternativeGCSNAOption(s) shall support the 1x message being transmitted in the *GCSNA1xCircuitService* message.

When the IWS receives a GCSNA message:

- It shall check the received MessageID. If the MessageID is ~~known~~valid, the IWS shall follow the requirements for parsing this GCSNA message. Otherwise, it
~~If it does not understand the GCNSA MessageID, the IWS shall send the a~~
GCSNAServiceReject message with the cause value set to "InvalidMessageID".

When the IWS receives the *GCSNA1xCircuitService* message from mobile station:

- It shall check the received GCSNAOption and 1xProtocolRevision.
 - ~~If IWS cannot accept~~the 1xProtocolRevision is not supported by the IWS as defined in [12], the IWS shall send ~~the a~~a *GCSNAServiceReject* message with a cause value set to the "Invalid 1xProtocolRevision".

- 1 ~~o~~ If ~~the IWS can not accept~~ the GCSNAOption is not supported by the IWS, then
 2 the IWS shall send ~~the a~~ GCSNAServiceReject message with a cause value set to
 3 the "Invalid GCSNAOption".
- 4 ~~o~~ If ~~the IWS can accept neither~~ the GCSNAOption and the, ~~nor~~ 1xProtocolRevision
 5 are not supported, then the IWS shall send ~~the a~~ GCSNAServiceReject message
 6 with cause value is set to "Invalid GCSNAOption and 1xProtocolRevision".
- 7 ~~o~~ If the IWS sends a GCSNAServiceReject message with Cause value set to
 8 '00000000', '00000001' or '00000010', the IWS shall not start a
 9 SequenceContextTimer, ~~GCSNASequenceContextTimer~~.
- 10 ~~o~~ If the received *GCSNA1xCircuitService* message had the AckRequired bit set to
 11 '1', then the IWS shall not send the *GCSNAL2Ack* message.
- 12 o If IWS can accept GCSNAOption and 1xProtocolRevision, the IWS shall process
 13 the message as follows:
- 14 ▪ If the received *GCSNA1xCircuitService* message had the AckRequired bit
 15 set to '1', then the IWS shall send ~~the a~~ GCSNAL2Ack message.
 - 16 ▪ It shall start a SequenceContextTimer, set to
 17 GCSNASequenceContextTimer. The IWS shall keep the value of
 18 sequence number until associated
 19 SequenceContextTimer, ~~GCSNASequenceContextTimer~~ expires.
 - 20 o If StopDupDetect is set to '0' in a *GCSNA1xCircuitService* message,
 21 the IWS shall do the following:
 - 22 • If a message with AckRequired is set to '0' and with the
 23 same sequence number is received before the associated
 24 ~~GCSNA~~SequenceContextTimer_r expires, the IWS shall
 25 discard the message. If a message is received with
 26 AckRequired is set to '1' and the identical sequence
 27 number is received before the associated
 28 ~~GCSNA~~SequenceContextTimer_r has expired, the IWS shall
 29 send a *GCSNAL2Ack* message and discard the message.
 30 The ~~GCSNA~~SequenceContextTimer_r shall be maintained
 31 until it expires for each received sequence number.
 - 32 o If StopDupDetect is set to '1' in a *GCSNA1xCircuitService* message,
 33 the IWS shall do the following:
 - 34 • It should consider all the ~~GCSNA~~SequenceContextTimer_r
 35 (s) have expired.
 - 36 • It shall start a ~~GCSNA~~SequenceContextTimer_r for this
 37 message.

38 When the IWS receives a *GCSNAServiceReject* message with any cause value:

- 39 • If a *GCSNA1xCircuitService* message with AckRequired bit set '1' is being rejected, then
 40 the IWS shall abandon any retransmission procedure for that message.

1 When the IWS receives a *GCSNAServiceReject* message with the cause set to “Invalid
2 GCSNAOption” or “Invalid GCSNAOption and 1xProtocolRevision”:

- 3 • If the GCSNAOption(s) included in the message contain at least one GCSNAClass that is
4 acceptable to the IWS, then:
 - 5 – From the GCSNAOption(s) included in the message, the IWS shall select the most
6 preferred GCSNAClass of the mobile station that is acceptable to the IWS.
 - 7 – For the subsequent *GCSNA1xCircuitService* messages, the IWS shall use the min
8 (Mobile Station’s GCSNAClassRevision within the selected GCSNAClass, IWS’s
9 GCSNAClassRevision within the selected GCSNAClass)
- 10 • Otherwise, the IWS shall abandon the current interworking session. The procedures
11 after abandoning the interworking session are outside scope of GCSNA Protocol.

12 The IWS shall support layer 2 acknowledgement defined in GCSNA.

13 The IWS may support the 1x parameters provisioning. If it is supported, the IWS shall provide
14 the set of 1x parameters in the *GCSNA1xParameters* message in response to the
15 *GCSNA1xParametersRequest* from the mobile station. The IWS may also send unsolicited
16 *GCSNA1xParameters* message. The IWS may determine the set of 1x parameters based on the
17 information that the lower layer provides. It is out of scope of this document which information
18 is provided by the lower layer. If the IWS does not support the 1x parameters provisioning, but
19 it receives the *GCSNA1xParametersRequest* message, the IWS shall send the
20 *GCSNAServiceReject* message. If the IWS sends the *GCSNA1xParameters* message, it shall set
21 GCSNAL2AckTimer_Included and GCSNASequenceContextTimer_Included in the
22 CDMA2000Parameters field to ‘1’.

23 **2.4 GCSNA Protocol Considerations**

24 **2.4.1 1xProtocolRevision and P_REV IN USE**

25 Per [12], the base station and mobile station autonomously determine
26 P_REV IN USE. Each side assumes that a received message can be parsed per the
27 revision indicated by the locally determined P_REV IN USE. P_REV IN USE is
28 determined as the lesser of the base station’s P_REV and mobile station’s
29 MOB P_REV.

30 The mobile station with GCSNA also uses the same procedure as defined in [12] for
31 the interworking scenarios. The CDMA2000Parameters give the highest 1x protocol
32 revision that the IWS supports in the P_REV field and the lowest revision that the
33 IWS supports in the MIN_P_REV field. The mobile station determines its
34 P_REV IN USE based on the lesser of the IWS’s P_REV and mobile station’s
35 MOB_P_REV. If the mobile station’s MOB_P_REV is less than MIN_P_REV, the
36 mobile station does not perform the interworking.

37 The IWS also uses the same procedure as defined in [12] for the interworking
38 scenarios. The mobile station provides MOB_P_REV in some 1x messages. The IWS
39 determines its P_REV IN USE based on the lesser of the IWS’s P_REV and mobile

station's MOB_P_REV. If the IWS sends network initiated messages while P_REV IN USE is unknown, the IWS sets 1xProtocolRevsion field to MIN_P_REV.

2.4.2.5 GCSNA Message Formats

Further revision may add new fields to existing messages. These fields shall be added to the end of the message. The receiver shall ignore fields it does not recognize.

2.4.12.5.1 GCSNA1xCircuitService

The mobile station or IWS uses the GCSNA1xCircuitService message to send a cdma2000 1x Layer 3 PDU(s).

Field	Length (bits)
MessageID	8
GCSNAOption	8
AlternativeGCSNAOption_INCL	1
NumAlternativeGCSNAOptions	0 or 8

If NUMAlternativeGCSNAOptions field is included, NumAlternativeGCSNAOptions occurrences of the following field: Otherwise, 0 occurrences of the following field:

{

AlternativeGCSNAOption	8
------------------------	---

}

IWSIDIncl	1
IWS_ID	0 or 16
AckRequired	1
StopDupDetect	1
MessageSequence	6
Reserved	0 to 7
NumTLACEncapsulated1xL3PDU	2
Reserved	4
(NumTLACEncapsulated1xL3PDU + 1) occurrences of the following fields:	
TLACEncapsulated1xL3PDU	Variable

MessageID The sender shall set this field to 0x01.

GCSNAOption The sender shall set this field to a value representing a circuit switched service defined in [8], according to section 2.2 or 0.

The GCSNAOption consists two subfields as listed in Table 2.5.1-1.

Table 2.5.1-1 GCSNAOption Subfields

Class Field	Length (bits)
GCSNAClass	5
GCSNAClassRevision	3

GCSNAClass The sender shall set this field to the GCSNA class to be set for this GCSNAOption field. The GCSNAClass values are defined based on [8].

GCSNAClassRevision

The sender shall set this field to the revision of the GCSNAClass to be set for this GCSNAOption field. The GCSNAClassRevision values are defined based on [8].

AlternativeGCSNAOption_INCL

If the AlternativeGCSNAOption field is included in this message, the IWS shall set this field to '1'. Otherwise, the IWS shall set this field to '0'. The mobile station shall always set this field to '0'.

NumAlternativeGCSNAOptions

If AlternativeGCSNAOption_INCL is set to '1', the IWS shall include and set this field to the number of AlternativeGCSNAOptions. Otherwise the sender shall omit this field.

AlternativeGCSNAOption

The IWS shall set AlternativeGCSNAOption(s) that the mobile station can use for receiving the 1x message over the tunnel in the decreasing order of preference. The IWS shall set this field as shown in Table 2.5.1-1.

IWSIDIncl

The IWS shall set this field to '1' if IWS_ID field is included in the message; otherwise, the IWS shall set this field to '0'. The mobile station shall set this field to '0'.

IWS_ID

If IWSIDIncl is set to '1', the IWS shall set this field to its IWS_ID; otherwise, the IWS shall omit this field. IWS_ID shall be unique within an operator's network.

AckRequired

If the receiver is required to acknowledge the reception of this message, the sender shall set this field to '1'. Otherwise, the sender shall set this field to '0'.

1 StopDupDetect The sender shall set this field to '1' if the sender has reset the
 2 MessageSequence number and request the [receiver to stop all the](#)
 3 ~~GCSNASequenceContextTimer_s in the receiver to expire~~. Otherwise, the
 4 sender shall set this field to '0'.

5 MessageSequence The sender shall set this field to one more (modulo 64) than the
 6 MessageSequence field of the last *GCSNA1xCircuitService* message that it
 7 sends.

8 For first *GCSNA1xCircuitService* message after protocol initialization or
 9 first *GCSNA1xCircuitService* message after the MessageSequence number
 10 has been reset, the sender shall select any initial value for this field.

11 [NumTLACEncapsulated1xL3PDU](#)

12 [The sender shall set this field to the number of](#)
 13 [TLACEncapsulated1xL3PDUs minus 1. The mobile station shall set this](#)
 14 [field to '00'.](#)

15 Reserved The sender shall include reserved bits to make this message integral
 16 number of octets up to TLACEncapsulated1xL3PDU field. The sender
 17 shall set all bits in this field to '0'. The receiver shall ignore this field.

18 TLACEncapsulated1xL3PDU

19 The sender shall set this field as specified in section 2.5.1.1.

20 ~~2.4.1.1~~[2.5.1.1](#) TLACEncapsulated1xL3PDU format

21 The mobile station or IWS uses [s](#) TLACEncapsulated1xL3PDU format described in this section to
 22 encapsulate a cdma2000 1x Layer 3 PDU.

Field	Length (bits)
1xLogicalChannel	1
1xProtocolRevision	8
MsgType	8
NumTLACHeaderRecords	4

NumTLACHeaderRecords occurrences of following fields:

{	
TLACHeaderRecordType	4
TLACHeaderRecordLength	8
TLACHeaderRecord	8 × TLACHeaderRecordLength
}	
Reserved	3 or 7
1xL3PDULength	16
1xL3PDU	1xL3PDULength × 8

1	1xLogicalChannel	If the PDU field of this message is constructed as if for transmission on the f-csch or the r-csch 1x logical channel [11], then the sender shall set this field to '0'. If the PDU field of this message is constructed as if for transmission on the f-dsch or the r-dsch 1x logical channel, then the sender shall set this field to '1'. Refer to [11].
2		
3		
4		
5		
6	1xProtocolRevision	The sender sets this field to the protocol revision as defined in [12] which sender has used to encode the 1xL3PDU (if included) and TLACHeaderRecord (if included). The receiver shall not use this field to determine P_REV_IN_USE. If both 1xL3PDU and TLACHeaderRecord are not included, this field is set to P_REV_IN_USE.
7		
8		
9		
10		
11	MsgType	The sender sets this field as follows:
12		r-csch: Set 2 MSBs to '00', and 6 LSBs to MSG_ID for r-csch messages as defined in [11].
13		
14		r-dsch: Set to 8-bit MSG_TYPE for r-dsch messages as defined in [11]. Mini messages are not allowed.
15		
16		f-csch: Set 2 MSBs to '00', and 6 LSBs to MSG_ID for f-csch messages as defined in [11].
17		
18		f-dsch: Set to 8-bit MSG_TYPE for f-dsch messages as defined in [11]. Mini messages are not allowed.
19		

1	NumTLACHeaderRecords	
2		The sender sets this field to the number of TLAC Header Records
3		included in this message.
4	TLACHeaderRecordType	
5		The sender sets this field to the type of TLAC Record as follows:
6		0x0: r-csch Addressing Sublayer Record
7		0x1: r-csch Authentication and Message Integrity Sublayer Record
8	TLACHeaderRecordLength	
9		The sender sets this field to the number of octets contained in
10		TLACHeaderRecord field.
11	TLACHeaderRecord	
12		The sender sets this field as follows:
13		If TLACHeaderRecordType is set to 0x0: The sender shall set this record
14		to addressing fields defined in “section 2.1.1.3.1.1 - Definition of
15		Addressing Fields” of [11]; followed by padding bits, all set to ‘0’, to make
16		the record octet aligned. The requirements to set the addressing fields
17		shall be as defined in “section 2.1.1.3.1.2 Requirements for Setting the
18		Addressing Fields” of [11].
19		If TLACHeaderRecordType is set to 0x1: The sender shall set this record
20		to fields defined in “Section 2.1.1.1.1.1 - Definition of the Authentication
21		and Message Integrity Fields” of [11]; followed by padding bits, all set to
22		‘0’, to make the record octet aligned. The requirements to set the fields
23		shall be as defined in “section 2.1.1.1.1.2 Requirements for Setting the
24		Authentication Fields” and “section 2.1.1.1.1.3 Requirements for Setting
25		the Message Integrity Fields” of [11].
26	Reserved	The sender shall include reserved bits to make this
27		TLACEncapsulated1xL3PDU integral number of octets. The sender shall
28		set all bits in this field to ‘0’.
29	1xL3PDULength	The sender shall set this field to the length, in units of octets, of the
30		1xL3PDU field.
31	1xL3PDU	The sender shall set this field to the cdma2000 1x Layer 3 PDU; that is
32		associated with the GCSNAOption, followed by padding bits, all set to ‘0’,
33		to make this field octet aligned. cdma2000 1x Layer 3 messages for each
34		GCSNAOption are defined in [8]. The cdma2000 1x Layer 3 message shall
35		be constructed according to [12], section 2.7 or 3.7.”
36		

[2.4.2.5.2](#) GCSNAL2Ack

The mobile station or the IWS sends a *GCSNAL2Ack* message to acknowledge the receipt of a *GCSNA1xCircuitService* message.

Field	Length (bits)
MessageID	8
AckSequence	6
Reserved	2

MessageID The sender shall set this field to 0x02.

AckSequence The sender shall set this field to the MessageSequence field of the *GCSNA1xCircuitService* message whose receipt is being acknowledged.

Reserved The sender shall set this field to '00'. The receiver shall ignore this field.

[2.4.3.2.5.3](#) GCSNAServiceReject

The IWS sends a *GCSNAServiceReject* message to reject a *GCSNA1xCircuitService* message, *GCSNA1xParametersRequest* message, or a message with an invalid MessageID. The mobile station sends a *GCSNAServiceReject* message to reject a *GCSNA1xCircuitService* message, *GCSNA1xParameters* message, or a message with an invalid MessageID.

Field	Length (bits)
MessageID	8
RejectSequence	6
Cause	8
NUMFIELDS	0 or 8

NUMFIELDS occurrences of the following field:

{	
GCSNAOption	0 or 8
RecordType	0 or 8
}	
1xProtocolRevision	0 or 8
InvalidMessageID	0 or 8
Reserved	0 to 7 (as needed) ²

MessageID The sender shall set this field to 0x03.

RejectSequence If *GCSNA1xCircuitService* message, *GCSNA1xParametersRequest* message or *GCSNA1xParameters* message is being rejected, then the sender shall

1 set this field to the MessageSequence field of the rejected message. This
 2 field shall be set to '000000' if an unknown message is being rejected.

3 Cause The sender shall set the reason for rejection.

Cause	Value
Invalid GCSNAOption	00000000
Invalid 1xProtocolRevision	00000001
Invalid GCSNAOption and 1xProtocolRevision	00000010
InvalidMessageID	00000011
GCSNA1xParameters provisioning is not supported	00000100
UnSupported RecordType in GCSNA1xParameters message	00000101
Other values are reserved	-

4 NUMFIELDS If the Cause value is set to '00000000' or '00000010', the sender shall set
 5 this field to the number of GCSNAOptions that the sender supports; If
 6 the Cause value is set to '00000101', the sender shall set this field the
 7 number of RecordTypes that the sender supports. Otherwise, the sender
 8 shall omit this field.

9 GCSNAOption If the Cause value is set to '00000000' or '00000010', the sender shall set
 10 this field to the maximum GCSNAOption for each GCSNAClass that the
 11 sender supports; Otherwise the sender shall omit this field. The sender
 12 shall set this field as shown in Table 2.5.1-1.

13 RecordType If the Cause value is set to '00000101', the sender shall set this field to
 14 the RecordType in GCSNA1xParameters message that the sender
 15 supports. Otherwise, the sender shall omit this field.

16 1xProtocolRevision If the Cause value is set to '00000001' or '00000010', the sender shall set
 17 this field to the highest 1xProtocolRevision that the sender supports;
 18 Otherwise the sender shall omit this field.

19 InvalidMessageID If the Cause value is set to '00000011', the sender shall set this field the
 20 MessageID that the sender received. Otherwise, the sender shall omit
 21 this field.

22 Reserved The sender shall set this field to '00'. The receiver shall ignore this
 23 field.~~The sender shall set all the bits of this field to '0' to make the entire~~
 24 ~~message octet-aligned.~~

[2.4.42.5.4](#) GCSNA1xParametersRequest

The mobile station sends a *GCSNA1xParametersRequest* message to obtain the set of 1x parameters.

Field	Length (bits)
MessageID	8
MessageSequence	6
Reserved	2

MessageID The mobile station shall set this field to 0x04.

MessageSequence The mobile station shall increment this value modulo 64 for each new *GCSNA1xParametersRequest* message sent. If this is the first *GCSNA1xParametersRequest* message sent by the mobile station, then the mobile station shall set this field to zero.

Reserved The sender shall set this field to '00'. The receiver shall ignore this field.

[2.4.52.5.5](#) GCSNA1xParameters

The IWS sends a *GCSNA1xParameters* message to provide values of parameters associated with the cdma2000 1x circuit service to the mobile station.

Field	Length (bits)
MessageID	8
UnsolicitedMessage	1
MessageSequence	6
Reserved	1
Length	16
CDMA2000Parameters	(variable) Refer Section 3

MessageID This field is set to 0x05.

UnsolicitedMessage The IWS shall set this field to '0' if the *GCSNA1xParameters* message is sent in response to *GCSNA1xParametersRequest* message. Otherwise, the IWS shall set this field to '1'.

MessageSequence This field is set to the MessageSequence field of the *GCSNA1xParametersRequest* message if the *GCSNA1xParameters* message is sent in response to *GCSNA1xParametersRequest*. If the

1 *GCSNA1xParameters* message is initiated by the IWS, the IWS shall
 2 increment this value modulo 64 for each new *GCSNA1xParameters*
 3 message sent. If this is the first *GCSNA1xParameters* message sent by the
 4 IWS, then this field is set to zero.

5 **Reserved** The sender shall set this field to '0'. The receiver shall ignore this field.

6 **Length** This field shall be set to the number of octets for the length of
 7 CDMA2000Parameters field.

8 **CDMA2000Parameters**

9 Refer Section 3.

10 ~~2.4.6~~2.5.6 *GCSNA1xParametersAck*

11

Field	Length (bits)
MessageID	8
MessageSequence	6
Reserved	2

12 **MessageID** The mobile station shall set this field to 0x06.

13 **MessageSequence** The mobile station shall set this field to the MessageSequence field of the
 14 *GCSNA1xParameters* message whose receipt is being acknowledged.

15 **Reserved** The sender shall set this field to '00'.

16

1 This page intentionally left blank.

3 CDMA2000PARAMETERS

This section defines the fields of CDMA2000Parameters. Native 1x parameters (i.e. parameters defined in [12]) are marked with a “†” sign in the last column.

Field	Length (bits)	cdma2000 1x circuit service field
RecordType	8	
RecordValue	Variable	

RecordType This field shall be set to 0x00 for this version of CDMA2000Parameters. All other values are Reserved.

RecordValue If RecordType is set to 0x00, RecordValue fields shall be:

Field	Length (bits)	cdma2000 1x circuit service field
SIDIncluded	1	
SID	0 or 15	†
NIDIncluded	1	
NID	0 or 15	†
MULT_SIDSIncluded	1	
MULT_SIDS	0 or 1	†
MULT_NIDSIncluded	1	
MULT_NIDS	0 or 1	†
REG_ZONEIncluded	1	
REG_ZONE	0 or 12	†
TOTAL_ZONESIncluded	1	
TOTAL_ZONES	0 or 3	†
ZONE_TIMERIncluded	1	
ZONE_TIMER	0 or 3	†

Field	Length (bits)	cdma2000 1x circuit service field
PACKET_ZONE_IDIncluded	1	
PACKET_ZONE_ID	0 or 8	†
PZIDHystParametersIncluded	1	
PZ_HYST_ENABLED	0 or 1	†
PZ_HYST_INFO_INCL	0 or 1	†
PZ_HYST_LIST_LEN	0 or 1	†
PZ_HYST_ACT_TIMER	0 or 8	†
PZ_HYST_TIMER_MUL	0 or 3	†
PZ_HYST_TIMER_EXP	0 or 5	†
P_REVIncluded	1	
P_REV	0 or 8	†
MIN_P_REVIncluded	1	
MIN_P_REV	0 or 8	†
NEG_SLOT_CYCLE_INDEX_SUPInc luded	1	
NEG_SLOT_CYCLE_INDEX_SUP	0 or 1	†
ENCRYPT_MODEIncluded	1	
ENCRYPT_MODE	0 or 2	†
ENC_SUPPORTEDIncluded	1	
ENC_SUPPORTED	0 or 1	†
SIG_ENCRYPT_SUPIncluded	1	
SIG_ENCRYPT_SUP	0 or 8	†
MSG_INTEGRITY_SUPIncluded	1	
MSG_INTEGRITY_SUP	0 or 1	†
SIG_INTEGRITY_SUP_INCLInclude d	1	
SIG_INTEGRITY_SUP_INCL	0 or 1	†
SIG_INTEGRITY_SUPIncluded	1	
SIG_INTEGRITY_SUP	0 or 8	†
AUTHIncluded	1	
AUTH	0 or 2	†
MAX_NUM_ALT_SOIncluded	1	
MAX_NUM_ALT_SO	0 or 3	†
USE_SYNC_IDIncluded	1	

Field	Length (bits)	cdma2000 1x circuit service field
USE_SYNC_ID	0 or 1	†
MS_INIT_POS_LOC_SUP_INDIncluded	1	
MS_INIT_POS_LOC_SUP_IND	0 or 1	†
MOB_QOSIncluded	1	
MOB_QOS	0 or 1	†
BAND_CLASS_INFO_REQIncluded	1	
BAND_CLASS_INFO_REQ	0 or 1	†
BAND_CLASSIncluded	1	
BAND_CLASS	0 or 5	†
BYPASS_REG_INDIncluded	1	
BYPASS_REG_IND	0 or 5	†
ALT_BAND_CLASSIncluded	1	
ALT_BAND_CLASS	0 or 5	†
MAX_ADD_SERV_INSTANCEIncluded	1	
MAX_ADD_SERV_INSTANCE	0 or 3	†
HOME_REGIncluded	1	
HOME_REG	0 or 1	†
FOR_SID_REGIncluded	1	
FOR_SID_REG	0 or 1	†
FOR_NID_REGIncluded	1	
FOR_NID_REG	0 or 1	†
POWER_UP_REGIncluded	1	
POWER_UP_REG	0 or 1	†
POWER_DOWN_REGIncluded	1	
POWER_DOWN_REG	0 or 1	†
PARAMETER_REGIncluded	1	
PARAMETER_REG	0 or 1	†
REG_PRDIncluded	1	
REG_PRD	0 or 7	†
REG_DISTIncluded	1	
REG_DIST	0 or 11	†
PREF_MSID_TYPEIncluded	1	

Field	Length (bits)	cdma2000 1x circuit service field
PREF_MSID_TYPE	0 or 2	†
EXT_PREF_MSID_TYPEIncluded	1	
EXT_PREF_MSID_TYPE	0 or 2	†
MEID_REQDIncluded	1	
MEID_REQD	0 or 1	†
MCCIncluded	1	
MCC	0 or 10	†
IMSI_11_12Included	1	
IMSI_11_12	0 or 7	†
IMSI_T_SUPPORTEDIncluded	1	
IMSI_T_SUPPORTED	0 or 1	†
RECONNECT_MSG_INDIncluded	1	
RECONNECT_MSG_IND	0 or 1	†
RER_MODE_SUPPORTEDIncluded	1	
RER_MODE_SUPPORTED	0 or 1	†
TKZ_MODE_SUPPORTEDIncluded	1	
TKZ_MODE_SUPPORTED	0 or 1	†
TKZ_IDIncluded	1	
TKZ_ID	0 or 1	†
PILOT_REPORTIncluded	1	
PILOT_REPORT	0 or 1	†
SDB_SUPPORTEDIncluded	1	
SDB_SUPPORTED	0 or 1	†
AUTO_FCISO_ALLOWEDIncluded	1	
AUTO_FCISO_ALLOWED	0 or 1	†
SDB_IN_RCNM_INDIncluded	1	
SDB_IN_RCNM_IND	0 or 1	†
FPC_FCH_Included	1	
FPC_FCH_INIT_SETPT_RC3	0 or 8	†
FPC_FCH_INIT_SETPT_RC4	0 or 8	†
FPC_FCH_INIT_SETPT_RC5	0 or 8	†
FPC_FCH_INIT_SETPT_RC11	0 or 8	†
FPC_FCH_INIT_SETPT_RC12	0 or 8	†

Field	Length (bits)	cdma2000 1x circuit service field
T_ADD_Included	1	
T_ADD	0 or 6	†
PILOT_INC_Included	1	
PILOT_INC	0 or 4	†
RAND_Included	1	
RAND	0 or 32	†
LP_SEC_Included	1	
LP_SEC	0 or 8	†
LTM_OFF_Included	1	
LTM_OFF	0 or 6	†
DAYLT_Included	1	
DAYLT	0 or 1	†
GCSNAL2AckTimer_Included	1	
GCSNAL2AckTimer	0 or 8	
GCSNASSequenceContextTimer_Included	1	
GCSNASSequenceContextTimer	0 or 8	
Reserved	0-7 (as needed)	

- 1 SIDIncluded If SID is included in this message, then this field is set to '1'. Otherwise,
2 this field is set to '0'.
- 3 SID If SIDIncluded is '0', then this field is omitted. Otherwise, this field is set
4 according to the definition of the SID field as defined in [12].
- 5 NIDIncluded If NID is included in this message, then this field is set to '1'. Otherwise,
6 this field is set to '0'.
- 7 NID If NIDIncluded is '0', then this field. Otherwise, this field is set according
8 to the definition of the NID field as defined in [12].
- 9 MULT_SIDSIncluded If MULT_SIDS is included in this message, then this field is set to '1'.
10 Otherwise, this field is set to '0'.
- 11 MULT_SIDS If MULT_SIDSIncluded is '0', then this field is omitted. Otherwise, this
12 field is set according to the definition of the MULT_SIDS field as defined
13 in [12].

1	MULT_NIDSIncluded	If MULT_NIDS is included in this message, then this field is set to '1'.
2		Otherwise, this field is set to '0'.
3	MULT_NIDS	If MULT_NIDSIncluded is '0', then this field is omitted. Otherwise, this
4		field is set according to the definition of the MULT_NIDS field as defined
5		in [12].
6	REG_ZONEIncluded	If REG_ZONE is included in this message, then this field is set to '1'.
7		Otherwise, this field is set to '0'.
8	REG_ZONE	If REG_ZONEIncluded is '0', this field is omitted. Otherwise, this field is
9		set according to the definition of the REG_ZONE field as defined in [12].
10	TOTAL_ZONESIncluded	
11		If TOTAL_ZONES is included in this message, then this field is set to '1'.
12		Otherwise, this field is set to '0'.
13	TOTAL_ZONES	If TOTAL_ZONESIncluded is '0', then this field is omitted. Otherwise, this
14		field is set according to the definition of the TOTAL_ZONES field as
15		defined in [12].
16	ZONE_TIMERIncluded	
17		If ZONE_TIMER is included in this message, then this field is set to '1'.
18		Otherwise, this field is set to '0'.
19	ZONE_TIMER	If ZONE_TIMERIncluded is '0', then this field is omitted. Otherwise, this
20		field is set according to the definition of the ZONE_TIMER field as defined
21		in [12].
22	PACKET_ZONE_IDIncluded	
23		If PACKET_ZONE_ID is included in this message, then this field is set to
24		'1'. Otherwise, this field is set to '0'.
25	PACKET_ZONE_ID	If PACKET_ZONE_IDIncluded is '0', then this field is omitted. Otherwise,
26		this field is set according to the definition of the PACKET_ZONE_ID field
27		of Extended System Parameters Message [12].
28	PZIDHystParametersIncluded	
29		If packet zone hysteresis parameters are included in this message, then
30		this field is set to '1'. Otherwise, this field is set to '0'.
31	PZ_HYST_ENABLED	If PZIDHystParametersIncluded is '0', or if PACKET_ZONE_ID is
32		'00000000', then this field is omitted. Otherwise, this field is set

1		according to the definition of the PZ_HYST_ENABLED field as defined in
2		[12].
3	PZ_HYST_INFO_INCL	
4		If PZIDHystParametersIncluded is '0', or if PZ_HYST_ENABLED is not
5		included or is included and set to '0', then this field is omitted. Otherwise,
6		this field is set according to the definition of the PZ_HYST_INFO_INCL
7		field as defined in [12].
8	PZ_HYST_LIST_LEN	If PZIDHystParametersIncluded is '0', or if PZ_HYST_INFO_INCL is not
9		included or is included and set to '0', then this field is omitted. Otherwise,
10		this field is set according to the definition of the PZ_HYST_LIST_LEN field
11		as defined in [12].
12	PZ_HYST_ACT_TIMER	
13		If PZIDHystParametersIncluded is '0', or if PZ_HYST_INFO_INCL is not
14		included or is included and set to '0', then this field is omitted. Otherwise,
15		this field is set according to the definition of the PZ_HYST_ACT_TIMER
16		field as defined in [12].
17	PZ_HYST_TIMER_MUL	
18		If PZIDHystParametersIncluded is '0', or if PZ_HYST_INFO_INCL is not
19		included or is included and set to '0', then this field is omitted. Otherwise,
20		this field is set according to the definition of the PZ_HYST_TIMER_MUL
21		field as defined in [12].
22	PZ_HYST_TIMER_EXP	
23		If PZIDHystParametersIncluded is '0', or if PZ_HYST_INFO_INCL is not
24		included or is included and set to '0', then this field is omitted. Otherwise,
25		this field is set according to the definition of the PZ_HYST_TIMER_EXP
26		field as defined in [12].
27	P_REVIncluded	If PREV is included in this message, then this field is set to '1'. Otherwise,
28		this field is set to '0'.
29	P_REV	If P_REVIncluded is '0', this field is omitted. Otherwise, this field is set
30		according to the definition of the PREV field as defined in [12].
31	MIN_P_REVIncluded	If MIN_P_REV is included in this message, then this field is set to '1'.
32		Otherwise, this field is set to '0'.
33	MIN_P_REV	If MIN_P_REVIncluded is '0', this field is omitted. Otherwise, this field is
34		set according to the definition of the MIN_P_REV field as defined in [12].

1 NEG_SLOT_CYCLE_INDEX_SUPIncluded

2 If NEG_SLOT_CYCLE_INDEX_SUP is included in this message, then this
3 field is set to '1'. Otherwise, this field is set to '0'.

4 NEG_SLOT_CYCLE_INDEX_SUP

5 If NEG_SLOT_CYCLE_INDEX_SUPIncluded is '0', this field is omitted.
6 Otherwise, this field is set according to the definition of the
7 NEG_SLOT_CYCLE_INDEX_SUP field as defined in [12].

8 ENCRYPT_MODEIncluded

9 If ENCRYPT_MODE is included in this message, then this field is set to '1'.
10 Otherwise, this field is set to '0'.

11 ENCRYPT_MODE If ENCRYPT_MODEIncluded is '0', this field is omitted. Otherwise, this
12 field is set according to the definition of the ENCRYPT_MODE field as
13 defined in [12].

14 ENC_SUPPORTEDIncluded

15 If ENC_SUPPORTED is included in this message, then this field is set to
16 '1'. Otherwise, this field is set to '0'.

17 ENC_SUPPORTED If ENC_SUPPORTEDIncluded is '0', this field is omitted. Otherwise, this
18 field is set according to the definition of the ENC_SUPPORTED field as
19 defined in [12].

20 SIG_ENCRYPT_SUPIncluded

21 If SIG_ENCRYPT_SUP is included in this message, then this field is set to
22 '1'. Otherwise, this field is set to '0'.

23 SIG_ENCRYPT_SUP If SIG_ENCRYPT_SUPIncluded is '0', this field is omitted. Otherwise, this
24 field is set according to the definition of the SIG_ENCRYPT_SUP field as
25 defined in [12].

26 MSG_INTEGRITY_SUPIncluded

27 If MSG_INTEGRITY_SUP is included in this message, then this field is set
28 to '1'. Otherwise, this field is set to '0'.

29 MSG_INTEGRITY_SUP

30 If MSG_INTEGRITY_SUPIncluded is '0', this field is omitted. Otherwise,
31 this field is set according to the definition of the MSG_INTEGRITY_SUP
32 field as defined in [12].

1	SIG_INTEGRITY_SUP_INCL	Included
2		If SIG_INTEGRITY_SUP_INCL is included in this message, then this field
3		is set to '1'. Otherwise, this field is set to '0'.
4	SIG_INTEGRITY_SUP_INCL	
5		If SIG_INTEGRITY_SUP_INCLIncluded is '0', this field is omitted.
6		Otherwise, this field is set according to the definition of the
7		SIG_INTEGRITY_SUP_INCL field as defined in [12].
8	SIG_INTEGRITY_SUP	Included
9		If SIG_INTEGRITY_SUP is included in this message, then this field is set
10		to '1'. Otherwise, this field is set to '0'.
11	SIG_INTEGRITY_SUP	
12		If SIG_INTEGRITY_SUPIncluded is '0', this field is omitted. Otherwise,
13		this field is set according to the definition of the SIG_INTEGRITY_SUP
14		field as defined in [12].
15	AUTH	Included
16		If AUTH is included in this message, then this field is set to '1'. Otherwise,
		this field is set to '0'.
17	AUTH	
18		If AUTHIncluded is '0', this field is omitted. Otherwise, this field is set
		according to the definition of the AUTH field as defined in [12].
19	MAX_NUM_ALT_SO	Included
20		If MAX_NUM_ALT_SO is included in this message, then this field is set to
21		'1'. Otherwise, this field is set to '0'.
22	MAX_NUM_ALT_SO	If MAX_NUM_ALT_SOIncluded is '0', this field is omitted-. Otherwise, this
23		field is set according to the definition of the MAX_NUM_ALT_SO field as
24		defined in [12].
25	USE_SYNC_ID	Included
26		If USE_SYNC_ID is included in this message, then this field is set to '1'.
27		Otherwise, this field is set to '0'.
28	USE_SYNC_ID	If USE_SYNC_IDIncluded is '0', this field is omitted-. Otherwise, this field
29		is set according to the definition of the USE_SYNC_ID field as defined in
30		[12].
31	MS_INIT_POS_LOC_SUP_IND	Included

1 If MS_INIT_POS_LOC_SUP_IND is included in this message, then this
2 field is set to '1'. Otherwise, this field is set to '0'.

3 MS_INIT_POS_LOC_SUP_IND

4 If MS_INIT_POS_LOC_SUP_INDIncluded is '0', this field is omitted—.
5 Otherwise, this field is set according to the definition of the
6 MS_INIT_POS_LOC_SUP_IND field as defined in [12].

7 MOB_QOSIncluded If MOB_QOS is included in this message, then this field is set to '1'.
8 Otherwise, this field is set to '0'.

9 MOB_QOS If MOB_QOSIncluded is '0', this field is omitted—. Otherwise, this field is
10 set according to the definition of the MOB_QOS field as defined in [12].

11 BAND_CLASS_INFO_REQIncluded

12 If BAND_CLASS_INFO_REQ is included in this message, then this field is
13 set to '1'. Otherwise, this field is set to '0'.

14 BAND_CLASS_INFO_REQ

15 If BAND_CLASS_INFO_REQIncluded is '0', this field is omitted—.
16 Otherwise, this field is set according to the definition of the
17 BAND_CLASS_INFO_REQ field as defined in [12].

18 BAND_CLASSIncluded

19 If BAND_CLASS is included in this message, then this field is set to '1'.
20 Otherwise, this field is set to '0'.

21 BAND_CLASS If BAND_CLASSIncluded is '0', then this field is omitted. Otherwise, this
22 field is set according to the definition of the BAND_CLASS as defined in
23 [14].

24 BYPASS_REG_INDIncluded

25 If BYPASS_REG_IND is included in this message, then this field is set to
26 '1'. Otherwise, this field is set to '0'.

27 BYPASS_REG_IND

28 If BYPASS_REG_INDIncluded is '0', then this field is omitted. Otherwise,
29 this field is set according to the definition of the BYPASS_REG_IND as
30 defined in [12].

31 ALT_BAND_CLASSIncluded

1 If ALT_BAND_CLASS is included in this message, then this field is set to
2 '1'. Otherwise, this field is set to '0'.

3 ALT_BAND_CLASS If ALT_BAND_CLASSIncluded is '0', this field is omitted-. Otherwise, this
4 field is set according to the definition of the ALT_BAND_CLASS field as
5 defined in [12].

6 MAX_ADD_SERV_INSTANCEIncluded

7 If MAX_ADD_SERV_INSTANCE is included in this message, then this
8 field is set to '1'. Otherwise, this field is set to '0'.

9 MAX_ADD_SERV_INSTANCE

10 If MAX_ADD_SERV_INSTANCEIncluded is '0', this field is omitted-.
11 Otherwise, this field is set according to the definition of the
12 MAX_ADD_SERV_INSTANCE field as defined in [12].

13 HOME_REGIncluded If HOME_REG is included in this message, then this field is set to '1'.
14 Otherwise, this field is set to '0'.

15 HOME_REG If HOME_REGIncluded is '0', this field is omitted-. Otherwise, this field is
16 set according to the definition of the HOME_REG field as defined in [12].

17 FOR_SID_REGIncluded

18 If FOR_SID_REG is included in this message, then this field is set to '1'.
19 Otherwise, this field is set to '0'.

20 FOR_SID_REG If FOR_SID_REGIncluded is '0', this field is omitted-. Otherwise, this field
21 is set according to the definition of the FOR_SID_REG field as defined in
22 [12].

23 FOR_NID_REGIncluded

24 If FOR_NID_REG is included in this message, then this field is set to '1'.
25 Otherwise, this field is set to '0'.

26 FOR_NID_REG If FOR_NID_REGIncluded is '0', this field is omitted-. Otherwise, this field
27 is set according to the definition of the FOR_NID_REG field as defined in
28 [12].

29 POWER_UP_REGIncluded

30 If POWER_UP_REG is included in this message, then this field is set to '1'.
31 Otherwise, this field is set to '0'.

1	POWER_UP_REG	If POWER_UP_REGIncluded is '0', this field is omitted-. Otherwise, this
2		field is set according to the definition of the POWER_UP_REG field as
3		defined in [12].
4	POWER_DOWN_REGIncluded	
5		If POWER_DOWN_REG is included in this message, then this field is set
6		to '1'. Otherwise, this field is set to '0'.
7	POWER_DOWN_REG	
8		If POWER_DOWN_REGIncluded is '0', this field is omitted-. Otherwise,
9		this field is set according to the definition of the POWER_DOWN_REG
10		field as defined in [12].
11	PARAMETER_REGIncluded	
12		If PARAMETER_REG is included in this message, then this field is set to
13		'1'. Otherwise, this field is set to '0'.
14	PARAMETER_REG	If PARAMETER_REGIncluded is '0', this field is omitted-. Otherwise, this
15		field is set according to the definition of the PARAMETER_REG field as
16		defined in [12].
17	REG_PRDIncluded	If REG_PRD is included in this message, then this field is set to '1'.
18		Otherwise, this field is set to '0'.
19	REG_PRD	If REG_PRDIncluded is '0', this field is omitted-. Otherwise, this field is
20		set according to the definition of the REG_PRD field as defined in [12].
21	REG_DISTIncluded	If REG_DIST is included in this message, then this field is set to '1'.
22		Otherwise, this field is set to '0'.
23	REG_DIST	If REG_DISTIncluded is '0', this field is omitted-. Otherwise, this field is
24		set according to the definition of the REG_DIST field as defined in [12].
25	PREF_MSID_TYPEIncluded	
26		If PREF_MSID_TYPE is included in this message, then this field is set to
27		'1'. Otherwise, this field is set to '0'.
28	PREF_MSID_TYPE	If PREF_MSID_TYPEIncluded is '0', this field is omitted-. Otherwise, this
29		field is set according to the definition of the PREF_MSID_TYPE field as
30		defined in [12].
31	EXT_PREF_MSID_TYPEIncluded	

1		If EXT_PREF_MSID_TYPE is included in this message, then this field is
2		set to '1'. Otherwise, this field is set to '0'.
3	EXT_PREF_MSID_TYPE	
4		If EXT_PREF_MSID_TYPEIncluded is '0', this field is omitted-. Otherwise,
5		this field is set according to the definition of the EXT_PREF_MSID_TYPE
6		field as defined in [12].
7	MEID_REQDIncluded	If MEID_REQD is included in this message, then this field is set to '1'.
8		Otherwise, this field is set to '0'.
9	MEID_REQD	If MEID_REQDIncluded is '0', this field is omitted-. Otherwise, this field is
10		set according to the definition of the MEID_REQD field as defined in [12].
11	MCCIncluded	If MCC is included in this message, then this field is set to '1'. Otherwise,
12		this field is set to '0'.
13	MCC	If MCCIncluded is '0', this field is omitted-. Otherwise, this field is set
14		according to the definition of the MCC field as defined in [12].
15	IMSI_11_12Included	If IMSI_11_12 is included in this message, then this field is set to '1'.
16		Otherwise, this field is set to '0'.
17	IMSI_11_12	If IMSI_11_12Included is '0', this field is omitted-. Otherwise, this field is
18		set according to the definition of the IMSI_11_12 field as defined in [12].
19	IMSI_T_SUPPORTEDIncluded	
20		If IMSI_T_SUPPORTED is included in this message, then this field is set
21		to '1'. Otherwise, this field is set to '0'.
22	IMSI_T_SUPPORTED	If IMSI_T_SUPPORTEDIncluded is '0', this field is omitted-. Otherwise,
23		this field is set according to the definition of the IMSI_T_SUPPORTED
24		field as defined in [12].
25	RECONNECT_MSG_INDIncluded	
26		If RECONNECT_MSG_IND is included in this message, then this field is
27		set to '1'. Otherwise, this field is set to '0'.
28	RECONNECT_MSG_IND	
29		If RECONNECT_MSG_INDIncluded is '0', this field is omitted-. Otherwise,
30		this field is set according to the definition of the RECONNECT_MSG_IND
31		field as defined in [12].
32	RER_MODE_SUPPORTEDIncluded	

1 If RER_MODE_SUPPORTED is included in this message, then this field is
2 set to '1'. Otherwise, this field is set to '0'.

3 RER_MODE_SUPPORTED

4 If RER_MODE_SUPPORTEDIncluded is '0', this field is omitted—.
5 Otherwise, this field is set according to the definition of the
6 RER_MODE_SUPPORTED field as defined in [12].

7 TKZ_MODE_SUPPORTEDIncluded

8 If TKZ_MODE_SUPPORTED is included in this message, then this field is
9 set to '1'. Otherwise, this field is set to '0'.

10 TKZ_MODE_SUPPORTED

11 If TKZ_MODE_SUPPORTEDIncluded is '0', this field is omitted—.
12 Otherwise, this field is set according to the definition of the
13 TKZ_MODE_SUPPORTED field as defined in [12].

14 TKZ_IDIncluded If TKZ_ID is included in this message, then this field is set to '1'.
15 Otherwise, this field is set to '0'.

16 TKZ_ID If TKZ_IDIncluded is '0', this field is omitted-. Otherwise, this field is set
17 according to the definition of the TKZ_ID field as defined in [12].

18 PILOT_REPORTIncluded

19 If PILOT_REPORT is included in this message, then this field is set to '1'.
20 Otherwise, this field is set to '0'.

21 PILOT_REPORT If PILOT_REPORTIncluded is '0', this field is omitted—. Otherwise, this
22 field is set according to the definition of the PILOT_REPORT field as
23 defined in [12].

24 SDB_SUPPORTEDIncluded

25 If SDB_SUPPORTED is included in this message, then this field is set to
26 '1'. Otherwise, this field is set to '0'.

27 SDB_SUPPORTED If SDB_SUPPORTEDIncluded is '0', this field is omitted-. Otherwise, this
28 field is set according to the definition of the SDB_SUPPORTED field as
29 defined in [12].

30 AUTO_FCSO_ALLOWEDIncluded

31 If AUTO_FCSO_ALLOWED is included in this message, then this field is
32 set to '1'. Otherwise, this field is set to '0'.

1 AUTO_FCISO_ALLOWED

2 If AUTO_FCISO_ALLOWEDIncluded is '0', this field is omitted-. Otherwise,
3 this field is set according to the definition of the AUTO_FCISO_ALLOWED
4 field as defined in [12].

5 SDB_IN_RCNM_INDIIncluded

6 If SDB_IN_RCNM_IND is included in this message, then this field is set to
7 '1'. Otherwise, this field is set to '0'.

8 SDB_IN_RCNM_IND If SDB_IN_RCNM_INDIIncluded is '0', this field is omitted-. Otherwise, this
9 field is set according to the definition of the SDB_IN_RCNM_IND field as
10 defined in [12].

11 FPC_FCH_Included If FPC_FCH_INIT_SETPT is included in this message, then this field is set
12 to '1'. Otherwise, this field is set to '0'.

13 FPC_FCH_INIT_SETPT_RC3

14 If FPC_FCH_Included is '0', this field is omitted-. Otherwise, this field is
15 set according to the definition of the FPC_FCH_INIT_SETPT field as
16 defined in [12] for use with RC3.

17 FPC_FCH_INIT_SETPT_RC4

18 If FPC_FCH_Included is '0', this field is omitted-. Otherwise, this field is
19 set according to the definition of the FPC_FCH_INIT_SETPT field as
20 defined in [12] for use with RC4.

21 FPC_FCH_INIT_SETPT_RC5

22 If FPC_FCH_Included is '0', this field is omitted-. Otherwise, this field is
23 set according to the definition of the FPC_FCH_INIT_SETPT field as
24 defined in [12] for use with RC5.

25 FPC_FCH_INIT_SETPT_RC11

26 If FPC_FCH_Included is '0', this field is omitted-. Otherwise, this field is
27 set according to the definition of the FPC_FCH_INIT_SETPT field as
28 defined in [12] for use with RC11.

29 FPC_FCH_INIT_SETPT_RC12

30 If FPC_FCH_Included is '0', this field is omitted-. Otherwise, this field is
31 set according to the definition of the FPC_FCH_INIT_SETPT field as
32 defined in [12] for use with RC12.

1	T_ADD_Included	If T_ADD is included in this message, then this field is set to '1'. 2 Otherwise, this field is set to '0'.
3	T_ADD	If T_ADD_Included is '0', this field is omitted-. Otherwise, this field is set 4 according to the definition of the T_ADD field as defined in [12].
5	PILOT_INC_Included	If PILOT_INC is included in this message, then this field is set to '1'. 6 Otherwise, this field is set to '0'.
7	PILOT_INC	If PILOT_INC_Included is '0', this field is omitted-. Otherwise, this field is set 8 according to the definition of the PILOT_INC field as defined in [12].
9	RAND_Included	If RAND is included in this message, then this field is set to '1'. Otherwise, 10 this field is set to '0'.
11	RAND	If RAND_Included is '0', this field is omitted. Otherwise, this field is set 12 according to the definition of the RAND field as defined in [12].
13	LP_SEC_Included	If LP_SEC is included in this message, then this field is set to '1'. 14 Otherwise, this field is set to '0'.
15	LP_SEC	If LP_SEC_Included is '0', this field is omitted. Otherwise, this field is 16 included and set according to the definition of the LP_SEC field as 17 defined in [12].
18	LTM_OFF_Included	If LTM_OFF is included in this message, then this field is set to '1'. 19 Otherwise, this field is set to '0'.
20	LTM_OFF	If LTM_OFF_Included is '0', this field is omitted. Otherwise, this field is 21 included and set according to the definition of the LTM_OFF field as 22 defined in [12].
23	DAYLT_Included	If DAYLT is included in this message, then this field is set to '1'. 24 Otherwise, this field is set to '0'.
25	DAYLT	If DAYLT_Included is '0', this field is omitted. Otherwise, this field is 26 included and set according to the definition of the DAYLT field as defined 27 in [12].
28	GCSNAL2AckTimer_Included	
29		If the IWS is configured to use GCSNA L2 ack, this field is set to '1'. 30 Otherwise, this field shall be set to '0'.
31	GCSNAL2AckTimer	If GCSNAL2AckTimer_Included is '0', this field is omitted-. Otherwise, 32 this field is set to the length of time the mobile station or IWS is to wait 33 after it sends <i>GCSNA1xCircuitService</i> message with the AckRequired bit 34 set to '1', in units of 80 ms.

1 GCSNAsSequenceContextTimer_Included

2 If GCSNAsSequenceContextTimer is included in this message, then this
3 field is set to '1'. Otherwise, this field shall be set to '0'.

4 GCSNAsSequenceContextTimer

5 If GCSNAsSequenceContextTimer_Included is set to '0', this field is
6 omitted. Otherwise, this field is set to GCSNAsSequenceContextTimer
7 value. The value of GCSNAsSequenceContextTimer shall be greater than
8 the value of GCSNAL2AckTimer. This field is in units of 100 ms.

9 Reserved The reserved bits are added to make the length of the entire message an integer
10 number of octets. These bits are set to zero. The receiver ignores these bits.

1 This page intentionally left blank.

4 E-UTRAN AND 1X INTERWORKING

4.1 GCSNA1xParameters Requirement for Interworking with E-UTRAN

PREF_MSID_TYPE and IMSI_T_SUPPORTED fields shall be included in CDMA2000Parameters. The PREF_MSID_TYPEIncluded and IMSI_T_SUPPORTEDIncluded fields shall be set to '1'.

If the P_REV value is greater than ten, the EXT_PREF_MSID_TYPEIncluded field shall also be set to '1'. If EXT_PREF_MSID_TYPE is set to '11' and PREF_MSID_TYPE is set to '00' or '11', the MEID_REQDIncluded shall be set to '0', otherwise, the MEID_REQDIncluded shall be set to '1'.

E-UTRAN broadcasts some 1x parameters in SIB8 (System Information Block 8) [4]. If the 1x parameters in SIB8 are duplicated in CDMA2000 Parameters defined in section 3, and the mobile station receives those duplicated parameters from both CDMA2000 Parameters and SIB8, the parameters that are received and stored later take precedence.

The GCSNA layer in the mobile station shall not send the *GCSNA1xParametersRequest* message over the tunnel. The IWS shall not send the *GCSNA1xParameters* message over the tunnel. 1x parameters provisioning is defined in [4].

The mobile station shall not set the AckRequired field to '1' in the *GCSNA1xCircuitService* message when it sends the *Origination* message or *Page Response* message as E-UTRAN RRC does not provide a mechanism to retransmit those 1x messages. The mobile station may set AckRequired field to '1' in the *GCSNA1xCircuitService* when it sends any other 1x messages.

4.2 MobilityParametersCDMA2000 definition for E-UTRAN

The CDMA2000Parameters field defined in section 3 shall be used as MobilityParametersCDMA2000 information element defined in [4]. GCSNAL2AckTimer_Included and GCSNASequenceContextTimer_Included in the CDMA2000Parameters field shall be set to '1'.

The MobilityParametersCDMA2000 information element is included in *CSFBParametersResponseCDMA2000* message or *HandoverFromE-UTRAPreparationRequest* message defined in [4].

4.3 Requirements for Transmission and Reception of 1x messages

The cdma2000 upper layer in the mobile station and the IWS shall use *GCSNA1xCircuitService* message to exchange 1x Layer 3 PDUs.

If a *GCSNA1xCircuitService* message includes the *Universal Handoff Direction Message* or *1x MEID Universal Handoff Direction Message* while the mobile station is in the *1x Page Response Substate* or *1x Origination Substate*, the mobile station shall process the received *Universal Handoff Direction Message* or *1x MEID Universal Handoff Direction Message* specified in section 2.2.1.

If a *GCSNA1xCircuitService* message includes the *(MEID) Universal Handoff Direction Message* and *Alert With Information Message* in *TLACEncapsulated1xL3PDUs*, the mobile station shall process the *(MEID) Universal Handoff Direction Message* first. The mobile station shall hold the

1 *Alert With Information Message* until the mobile station acquires 1x traffic channel and enters
 2 *Waiting for Order Substate*, and then shall process the *Alert With Information Message*. If the
 3 call set up fails at 1x network, the mobile station shall discard the *Alert With Information*
 4 *Message*. If the mobile station receives the *Alert With Information Message* before (*MEID*)
 5 *Universal Handoff Direction Message* in a *GCSNA1xCircuitService Message*, then the mobile
 6 station shall send a *Reject Order* with ‘message not accepted in this state’.

7 The IWS shall not include multiple TLACEncapsulated1xL3PDUs in a *GCSNA1xCircuitService*
 8 *message*, except the combinations described in this section.

10 When TLACEncapsulated1xL3PDU contains *General Page Message*, the SERVICE_OPTION field
 11 in the 1x L3 PDU can be omitted by setting 1xL3PDULength to zero.

12 Receiver shall ignore TLACHeaderRecord that it does not support.

13 **4.4 Notification to cdma2000 1x Base Station**

14 If the mobile station detects a trigger for power up registration, such as Band Class change, as
 15 defined in [12], the mobile station shall perform a power up registration if the POWER_UP_REG
 16 is set to ‘1’ in the 1x overhead message, CDMA2000ParametersARAMETERS, or SIB8. Band
 17 Class information is provided by CDMA2000Parameters. The mobile station shall use the Band
 18 Class information provided by CDMA2000Parameters ~~message~~ for power up registration related
 19 procedure only.

20 **4.5 E-UTRAN Neighbor Record Processing for 1x**

21 4.5.1 E-UTRAN Neighbor Channels Management and E-UTRAN Idle Channel Reselection 22 Procedures

23 This section provides the procedures used by the mobile station to process received “E-UTRAN
 24 Neighbor List Record”, and the requirements to perform idle E-UTRAN frequency channel
 25 reselection. The mobile station uses the information received from *Alternative Technologies*
 26 *Information* message as specified in [12] as radio interface type-specific fields to perform E-
 27 UTRAN frequency channel measurements⁵.

28 4.5.1.1 E-UTRAN Neighbor List Management and E-UTRAN Frequency Channel Measurement

29 If *Alternative Technologies Information* message is received, the mobile station shall perform the
 30 following in the order specified:

- 31 • The mobile station shall delete the existing E-UTRAN neighbor cell list constructed based on
 32 the E-UTRAN neighbor cell list specified in [4] and [2] and the information provided by
 33 previously received *Alternative Technologies Information* message.

⁵ Although the *Alternative Technologies Information* message and the associated *System Parameters* message enhancement are specified in [12], the feature can be supported by base-stations supporting any earlier P_REV enhanced for interworking with E-UTRAN.

- 1 • If PLMNID is included in the *Alternative Technologies Information* message, the mobile
2 station shall remove the E-UTRAN Frequency Channels associates with the PLMNID not
3 selected by the mobile station from the E-UTRAN frequency channel list included in the
4 *Alternative Technologies Information* message.
- 5 • The mobile station shall construct E-UTRAN neighbor cell list based on the E-UTRAN
6 neighbor cell list specified in [4] and [2] and the information provided by the latest
7 *Alternative Technologies Information* message received.

8 If the mobile station has determined to perform E-UTRAN neighbor channel measurement, the
9 mobile station shall perform E-UTRAN neighbor cell measurements according to the procedures
10 and rules specified in [2] and [3].

11 If none of the E-UTRAN frequency channels met the reselection criteria, then

- 12 • If the mobile station received the *Alternative Technologies Information* message with the
13 MinMeasurementBackoff and MaxMeasurementBackoff fields included, the mobile
14 station should retry the measurement procedures T seconds after the mobile station
15 determined the failure, where the T should meet: $2^{\text{MinMeasurementBackoff}} \leq T \leq$
16 $2^{\text{MaxMeasurementBackoff}}$ seconds.
- 17 • Otherwise, the mobile station may retry the measurement procedures after an
18 implementation specific time period.

19 4.5.1.2 E-UTRAN Cell Reselection Procedures in the Idle State

20 When the mobile station is in the Idle State, the mobile station uses E-UTRAN signal quality
21 threshold, serving sector threshold trigger point and other criteria specified in this section and
22 criteria outside the scope of this specification to decide whether the mobile station perform idle
23 reselection to the qualified E-UTRAN neighbor channel.

24 If a mobile station receives an *Alternative Technologies Information* message and decides to
25 perform the reselection procedures, the mobile station in the Idle State shall perform E-UTRAN
26 frequency channel reselection procedures according to the rules specified as follows:

- 27 • If the ServingPriority and EARFCNPriority fields are included in the *Alternative Technologies*
28 *Information* message, and if the mobile station is required to give precedence to the
29 ServingPriority and EARFCNPriority set by the serving network based on the operator's
30 policy, the mobile station shall perform priority based reselection procedures defined by the
31 current serving base station as follows:
 - 32 – The mobile station shall sort the E-UTRAN frequency channels in the order of
33 EARFCNPriority from highest priority to the lowest priority.
 - 34 – The mobile station shall switch to the first E-UTRAN frequency channel in the sorted
35 list that meets all of the following criteria:
 - 36 + One of the following conditions are met
 - 37 o EARFCNPriority of the E-UTRAN frequency channel is greater than the
38 Serving Priority, or

- 1 ○ EARFCNPriority of the E-UTRAN frequency channel is less than or equal to
2 the Serving Priority and the strength of the reference pilot of the serving 1x
3 network is less than the ThreshServing.
- 4 + The Srxlev-value⁶ of the associated E-UTRAN frequency channel is equal to or
5 greater than its corresponding ThreshX value.
- 6 + The EUTRAREselectTimer is started with a value that is set as described in
7 section 4.5.1.2.1.
- 8 + Upon the expiry of the EUTRAREselectTimer, the Srxlev-value of the associated
9 E-UTRAN frequency channel is equal to or greater than its corresponding
10 ThreshX.
- 11 • Otherwise, if the mobile station has determined to switch to an E-UTRAN frequency
12 channel, then the mobile station shall perform the following procedure:
- 13 – The mobile station shall switch to an E-UTRAN frequency channel that meets all of the
14 following criteria:
- 15 + The Srxlev-value of the associated E-UTRAN frequency channel is equal to or greater
16 than its corresponding ThreshX.
- 17 + The EUTRAREselectTimer is started with a value that is set as described in section
18 4.5.1.2.1.
- 19 + Upon the expiry of the EUTRAREselectTimer, the Srxlev-value of the associated E-
20 UTRAN frequency channel is equal to or greater than its corresponding ThreshX.

21 4.5.1.2.1 EUTRAREselectTimer value

22 The mobile station shall select the value of the EUTRAREselectTimer as follows:

- 23 • If MaxReselectionTimer is not included, the mobile station shall set the value of
24 EUTRAREselectTimer to an implementation specific duration of time.
- 25 • Otherwise, the mobile station shall set the value of EUTRAREselectTimer to a uniformly
26 distributed random value between 0 to $2^{\text{MaxReselectionTimer}}$ seconds.

27 4.5.2 E-UTRAN neighbor records format

28 This section contains other RAT neighbor records format associates with *Alternative*
29 *Technologies Information* message specified in [12].

30 In this section, the base station means the base station for cdma2000 1x.

31 4.5.2.1 E-UTRAN Neighbor List Record

32

⁶ Srxlev is defined in [3].

1

Field	Length (bits)
PriorityIncluded	1
ServingPriority	0 or 3
ThreshServing	6
PerEARFCNParamsIncluded	1
RxLevMinEUTRACommon	0 or 7
PEMaxCommon	0 or 6
RxLevMinEUTRAOffsetCommonIncl	0 or 1
RxLevMinEUTRAOffsetCommon	0 or 3
MaxReselectionTimerIncluded	1
MaxReselectionTimer	0 or 4
SearchBackOffTimerIncluded	1
MinMeasurementBackoff	0 or 4
MaxMeasurementBackoff	0 or 4
PLMNIDIncluded	1
NumEUTRAFrequencies	3

NumEUTRAFrequencies occurrences of the following record:

{0

EARFCN	16
EARFCNPriority	0 or 3
ThreshX	5
RxLevMinEUTRA	0 or 7
PEMax	0 or 6
RxLevMinEUTRAOffset Incl	0 or 1
RxLevMinEUTRAOffset	0 or 3
MeasurementBandwidth	3
PLMNSameAsPreviousChannel	0 or 1
NumPLMNIDs	0 or 3

If NumPLMNIDs field is included, the NumPLMNIDs+1 occurrences of the following record; Otherwise, 0 occurrences of the following record.

Field	Length (bits)
{1	
PLMNID	24
}1	
}0	
Reserved0	0-7 (as needed)

1

2 PriorityIncluded If the base station includes priority and priority related fields in this
 3 record, then the base station shall set this field to '1'. Otherwise the base
 4 station shall set this field to '0'.

5 ServingPriority If the PriorityIncluded is set to '0', then the base station shall omit this
 6 field. Otherwise, the base station shall set this field to the value of the
 7 priority which is used by the mobile station as the priority of its current
 8 serving CDMA channel.

9 ThreshServing Serving threshold trigger point for E-UTRAN neighbor selection associate
 10 with ThreshX.
 11 The base station shall set this field to $\lfloor -2 \times 10 \times \log_{10} PS \rfloor$, where PS is
 12 the strength of the reference pilot of the serving Base station, measured
 13 as specified in [12].

14 PerEARFCNParamsIncluded

15 If the base station includes RxLevMinEUTRA for each of the EARFCN,
 16 then the base station shall set this field to '1'. Otherwise the base station
 17 shall set this field to '0'.

18 RxLevMinEUTRACommon

19 Minimum received RSRP level from the EUTRA cell. It is a common value
 20 for all the neighboring EUTRA frequencies.

21 If the PerEARFCNParamsIncluded is set to '1', then the base station shall
 22 omit this field. Otherwise, the base station shall set this field in the range
 23 0 to 96, where $-44 - RxLevMinEUTRACommon$ in dBm is equal to the
 24 minimum reference signal received power (RSRP) level of a EUTRA cell as
 25 specified in [3]

26 PEmaxCommon Maximum TX power level an UE may use when transmitting on the
 27 uplink in E-UTRA.

1 If the PerEARFCNParamsIncluded is set to '1', then the base station shall
 2 omit this field. Otherwise, the base station shall set this field to the
 3 maximum TX power level an UE may use when transmitting on the
 4 uplink in the cell (dBm) as defined in [3].

5 RxLevMinEUTRAOffsetCommonIncl

6 Offset to Minimum reference power level to select EUTRA Included.

7 If the PerEARFCNParamsIncluded is set to '1', then the base station shall
 8 omit this field. Otherwise, if the base station includes
 9 RxLevMinEUTRAOffsetCommon in this record, then the base station
 10 shall set this field to '1'.

11 RxLevMinEUTRAOffsetCommon

12 Offset to Minimum reference power level to select EUTRA. It is a common
 13 value for all the neighboring EUTRA frequencies.

14 If the RxLevMinEUTRAOffsetCommonIncl is set to '0', then the base
 15 station shall omit this field. Otherwise, the base station shall set this
 16 field to one less than the value specified in [3]. The range of values
 17 allowed is 1 through 8.

18 MaxReselectionTimerIncluded Maximum value of Reselection Timer Included

19 If the base station includes Reselection Timer value in this record, then
 20 the base station shall set this field to '1'. Otherwise the base station shall
 21 set this field to '0'.

22 MaxReselectionTimer The maximum value of the Reselection Timer

23 If the MaxReselectionTimerIncluded is set to '0', then the base station
 24 shall omit this field. Otherwise, the base station shall set this field such
 25 that the upper limit of the random reselection timer that the mobile
 26 station selects is set to $2^{\text{MaxReselectionTimer}}$ seconds.

27 Note: The mobile station will start a reselection timer, which is set to a
 28 random value with an upper limit set to $2^{\text{MaxReselectionTimer}}$ seconds when
 29 the mobile station determines that the other conditions to perform a
 30 reselection from 1x to E-UTRAN are met.

31 SearchBackOffTimerIncluded Search Back-off Timer Included

32 If the base station includes the value for Search Back-off Timer in this
 33 message, then the base station shall set this field to '1'. Otherwise the
 34 base station shall set this field to '0'.

35 MinMeasurementBackoff Minimum value of the measurement Back-off Timer

1		If the SearchBackOffTimerIncluded is set to '0', then the base station
2		shall omit this field. Otherwise, the base station shall set this field such
3		that the lower limit of the backoff timer that the mobile station should
4		select is set to $2^{\text{MinMeasurementBackoff}}$ seconds.
5	MaxMeasurementBackoff	Maximum value of the measurement Back-off Timer
6		If the SearchBackOffTimerIncluded is set to '0', then the base station
7		shall omit this field. Otherwise, the base station shall set this field such
8		that the upper limit of the backoff timer that the mobile station should
9		select is set to $2^{\text{MaxMeasurementBackoff}}$ seconds.
10	PLMNIDIncluded	PLMN Identifier Included.
11		If the base station includes PLMN Identifier values in this record, then
12		the base station shall set this field to '1'. Otherwise the base station shall
13		set this field to '0'.
14	NumEUTRAFrequencies	
15		The base station shall set this field to the number of EUTRA frequencies
16		included in this record.
17	EARFCN	EUTRA Absolute Radio Frequency Channel Number.
18		The base station shall set this field to the EARFCN of the neighbor
19		EUTRA system as defined in [4].
20	EARFCNPriority	Priority of the EARFCN of the neighboring EUTRA system
21		If the PriorityIncluded is set to '0', then the base station shall omit this
22		field. Otherwise, the base station shall set this field to the priority of the
23		EARFCN of the neighbor EUTRA system as the cell reselection priority
24		defined in [4].
25	ThreshX	Minimum required reference signal received power quality threshold used
26		for selecting an EARFCN
27		The base station shall set this field in the range 0 to 31. The actual
28		threshold value in dB used to compare against the measured reference
29		signal receive power (RSRP) is equal to ThreshX * 2 as specified in [3].
30	RxLevMinEUTRA	Minimum received RSRP level from the EUTRA cell
31		If the PerEARFCNParamsIncluded is set to '0', then the base station shall
32		omit this field. Otherwise, the base station shall set this field in the range
33		0 to 96, where $-44 - \text{RxLevMinEUTRA}$ in dBm is equal to the minimum
34		reference signal received power (RSRP) level of a EUTRA cell required for
35		the UE to reselect EUTRA, as specified in [3].
36	PEMax	Maximum TX power level an UE may use when transmitting on the
37		uplink in E-UTRA.

1 If the PerEARFCNParamsIncluded is set to '0', then the base station shall
 2 omit this field. Otherwise, the base station shall set this field to the
 3 maximum TX power level an UE may use when transmitting on the
 4 uplink in the cell (dBm) as defined in [3].

5 RxLevMinEUTRAOffsetIncl

6 Offset to Minimum reference power level to select EUTRA Included.
 7 If the PerEARFCNParamsIncluded is set to '0', then the base station shall
 8 omit this field. Otherwise, if the base station includes
 9 RxLevMinEUTRAOffset in this record, then the base station shall set this
 10 field to '1'.

11 RxLevMinEUTRAOffset

12 Offset to Minimum reference power level to select EUTRA.
 13 If the RxLevMinEUTRAOffsetIncl is set to '0', then the base station shall
 14 omit this field. Otherwise, the base station shall set this field to one less
 15 than the value specified in [3]. The range of values allowed is 1 through
 16 8.

17 MeasurementBandwidth

18 Measurement bandwidth information is common for all neighboring cells
 19 on the carrier frequency. It is defined by the parameter Transmission
 20 Bandwidth Configuration, N_{RB} [3]. The values indicate the number of
 21 resource blocks over which the UE could measure.
 22 The base station shall set this field to the binary value corresponding to
 23 the transmission bandwidth configuration, N_{RB} , value in Table 4.5.2-1.

24 **Table 4.5.2-1 Measurement Bandwidth**

Field value (binary)	Transmission bandwidth configuration N_{RB}
'000'	6
'001'	15
'010'	25
'011'	50
'100'	75
'101'	100
'110' ~ '111'	Reserved

25
 26 PLMNSameAsPreviousChannel

27 PLMN ID of this channel is same as the previous EARFCN

1	If the PLMNIDIncluded is set to '0', then the base station shall omit this
2	field. Otherwise, if the number of PLMNIDs of this EARFCN is same as
3	the previous EARFCN, and all the PLMNIDs of this EARFCN are identical
4	to the previous EARFCN, then the base station shall set this field to '1'.
5	Otherwise the base station shall set this field to '0'. If this is the first
6	occurrence of PLMNID in this record, the base station shall set this field
7	to '0'.
8	NumPLMNIDs _____ Number of PLMN IDs that are associated with this EARFCN
9	If the PLMNIDIncluded is set to '0', or if the
10	PLMNSameAsPreviousChannel is included and set to '1', then the base
11	station shall omit this field. Otherwise the base station shall set this field
12	to one less than the number of PLMN IDs that are associated with this
13	EARFCN.
14	PLMNID PLMN ID of the neighboring EUTRA system
15	The base station shall set this field to the PLMN-ID. The 12 most
16	significant bits of the field are the 3-digit MCC in BCD format. The next
17	12 bits are defined for the MNC. For a 3-digit MNC, it takes all 12 bits in
18	3-digit BCD format. For 2-digit MNC, it is encoded as the 1st 2 digits in
19	the first 8 bits, and then the last 4 bit shall be set to 0xF. ⁷

4.6 1xCSFB Access Barring Support

E-UTRAN provides the access class barring parameters (ac-Barring) in the SIB8 [4]. When the ac-Barring values are set, the mobile station shall perform a persistence test only one time using a random value locally generated by the mobile station when the mobile station makes a voice call origination, SMS origination or registration. The persistence test procedure shall be based on [10]. The mobile station shall generate a random number RP, $0 < RP < 1$, using the technique described in the "Pseudorandom Number Generator" [12]. The persistence test passes when RP is less than the value of P (P is computed as detailed in [11] assuming the ac-Barring received in SIB-8 as PSIST values). If the persistence test passes, the mobile station may trigger a voice call origination, SMS origination or registration. If the persistence test fails, the mobile stations behavior is out of scope of this specification.

4.7 1x to E-UTRAN Handoff

4.7.1 Base Station support for Idle Handoff to E-UTRAN

If the cdma2000 1x Base Station supports idle handoff to E-UTRAN it broadcasts "E-UTRAN Neighbor List Record" as specified in section 4.5.2.1 using *Alternative Technologies Information* message as specified in [12] as radio interface type-specific fields⁸.

⁷ The details about PLMN-ID is specified in [4].

⁸ Although the *Alternative Technologies Information* message and the associated *System Parameters* message enhancement are specified in [12], the feature can be supported by base-stations supporting any earlier P_REV enhanced for interworking with E-UTRAN.

4.7.2 Mobile Station support for Idle Handoff to E-UTRAN

If the mobile station supports idle handoff from cdma2000 1x to E-UTRAN it follows the procedure to receive *Alternative Technologies Information* message as specified in [12] as radio interface type-specific fields. The mobile station processes the received “E-UTRAN Neighbor List Record” as specified in section 4.5.2.1 of this document.

4.8 MEID Support

The mobile station shall support MEID and give MEID value to E-UTRAN as defined in [4]. However, this does not mean the mobile station shall use MEID as MSID for 1x messages.

4.9 Processing of MAX CAP SZ

MAX CAP SZ is not included in CDMA2000Parameters. The mobile station shall always assume MAX CAP SZ = ‘111’ (7) when it sends a r-csch message over the tunnel.

4.10 Search Window Size and Search Offset Determination

4.10.1 MS Requirements

If the Search Window Size is available in SIB 8[4], the Search Window Size to be used at Cell Reselection is determined based on SIB 8 information. If the Search Window Size is not available in SIB 8, the mobile station uses a default configuration.

If the Search Window Size is included in the MeasObjectCDMA2000 [4], the mobile station uses it when it performs the inter RAT measurement according to [2] and [4]. If it is not included, the mobile station uses a default configuration.

If the IWS includes Search Window Sizes in the *Universal Handoff Direction Message* or *MEID Universal Handoff Direction Message*, the mobile station shall use the configuration as defined in the message. Otherwise, if those are not included, the mobile station shall use a default configuration.

4.10.2 IWS Requirements

When the IWS sends the *Universal Handoff Direction Message* or *MEID Universal Handoff Direction Message*, the IWS should include Search Window Sizes.

The IWS may use Pilot PN Phase in A21 Pilot List IE to determine SEARCH_OFFSET in *Universal Handoff Direction Message* or *MEID Universal Handoff Direction Message*.

4.11 Tunneled Traffic Channel SMS Support with SO 76

Support of Tunneled Traffic Channel SMS is optional for the mobile station and IWS. If the mobile station does not support SO 76, it shall follow the requirements for SO rejection in [12].

4.11.1 Mobile Station Requirements

If the mobile station receives the *General Page Message* with Service Option 76 and supports SO 76, it shall send the *Page Response Message* over the tunnel without triggering 1xCSFB procedure. When the mobile station receives the *Release order in the Page Response Substate* entered by sending the *Page Response Message* in response to the *General Page Message* with

1 SO 76, the mobile station shall enter the *Idle State*. The mobile station receives the *Data Burst*
2 *Message* after it receives the *Release Order*.

3 The mobile station shall not use SO 76 for SMS origination.

4 4.11.2 IWS Requirements

5 The IWS may replace SMS SO (6 or 14) with SO 76 in the *General Page Message* if an operator
6 configures to use Tunneled Traffic Channel SMS in 1x-E-UTRAN interworking. If the IWS
7 replaces SMS SO to SO 76, it shall send the *Release Order* before it sends the *Data Burst*
8 *Message*. The IWS should set the *AckRequired* field in the *GCSNA1xCircuitService* message to 1
9 when it sends the *Release Order*. After it sends the *Release Order* and receives the
10 *GCSNAL2Ack* if the *AckRequired* field was set to 1, the IWS may send the *Data Burst Message*.
11 When the IWS sends a *Data Burst Message*, *1xLogicalChannel* field in
12 *TLACEncapsulated1xL3PDU* header shall be set to 0.

ANNEX A EXAMPLE FOR CDMA2000PARAMETERS SETTING FOR 1xCSFB IN E-UTRAN (INFORMATIVE)

Table A-1 provides one example of CDMA2000 parameter to be used with the 1xCSFB operation with E-UTRAN. A set of 1x parameters and GCSNA related parameters are defined as CDMA2000Parameters in Section 3 of this document and this set of parameters are included for general use (i.e., not necessary for 1xCSFB operations with E-UTRAN). For practical purposes and in an effort to reduce interoperability issues, Annex A contains a suggested set of parameters to be considered for 1xCSFB.

This example or suggested set of parameters are identified by “Included” or “Not Included”. The parameters noted as “Included” are chosen for this example set of CDMA2000Parameters. The parameters noted as “Not included” are not chosen as example parameters.

Table A-1 CDMA2000Parameters Setting Example for 1xCSFB in E-UTRAN

<u>Parameters</u>	<u>Included/Not included</u>
<u>SID</u>	<u>Included</u>
<u>NID</u>	<u>Included</u>
<u>MULT_SIDS</u>	<u>Included</u>
<u>MULT_NIDS</u>	<u>Included</u>
<u>REG_ZONE</u>	<u>Included</u>
<u>TOTAL_ZONES</u>	<u>Included</u>
<u>ZONE_TIMER</u>	<u>Included</u>
<u>PACKET_ZONE_ID</u>	<u>Not included</u>
<u>PZIDHystParametersIncluded</u>	<u>Not included</u>
<u>PZ_HYST_ENABLED</u>	
<u>PZ_HYST_INFO_INCL</u>	
<u>PZ_HYST_LIST_LEN</u>	
<u>PZ_HYST_ACT_TIMER</u>	
<u>PZ_HYST_TIMER_MUL</u>	
<u>PZ_HYST_TIMER_EXP</u>	
<u>P_REV</u>	<u>Included</u>
<u>MIN_P_REV</u>	<u>Included</u>
<u>NEG_SLOT_CYCLE_INDEX_SUP</u>	<u>Not included</u>
<u>ENCRYPT_MODE</u>	<u>Not included</u>
<u>ENC_SUPPORTED</u>	<u>Not included</u>
<u>SIG_ENCRYPT_SUP</u>	<u>Not included</u>

<u>Parameters</u>	<u>Included/Not included</u>
<u>MSG INTEGRITY SUP</u>	<u>Not included</u>
<u>SIG INTEGRITY SUP INCL</u>	<u>Not included</u>
<u>SIG INTEGRITY SUP</u>	<u>Not included</u>
<u>AUTH</u>	<u>Included</u>
<u>MAX_NUM_ALT_SO</u>	<u>Included</u>
<u>USE_SYNC_ID</u>	<u>Not included</u>
<u>MS_INIT_POS_LOC_SUP_IND</u>	<u>Not included</u>
<u>MOB_QOS</u>	<u>Not included</u>
<u>BAND_CLASS_INFO_REQ</u>	<u>Not included</u>
<u>BAND_CLASS</u>	<u>Included</u> <u>Value is set according to requirements in section 4.4.</u>
<u>BYPASS_REG_IND</u>	<u>Not included</u>
<u>ALT_BAND_CLASS</u>	<u>Not included</u>
<u>MAX_ADD_SERV_INSTANCE</u>	<u>Not included</u>
<u>HOME_REG</u>	<u>Included</u>
<u>FOR_SID_REG</u>	<u>Included</u>
<u>FOR_NID_REG</u>	<u>Included</u>
<u>POWER_UP_REG</u>	<u>Included</u>
<u>POWER_DOWN_REG</u>	<u>Included if SIB8 includes powerDownReg-r9 IE.</u>
<u>PARAMETER_REG</u>	<u>Included</u>
<u>REG_PRD</u>	<u>Included</u>
<u>REG_DIST</u>	<u>Not included</u> ⁹
<u>PREF_MSID_TYPE</u>	<u>Included</u>
<u>EXT_PREF_MSID_TYPE</u>	<u>Not included</u>
<u>MEID_REQD</u>	<u>Not included</u>
<u>MCC</u>	<u>Included</u>
<u>IMSI_11_12</u>	<u>Included</u>
<u>IMSI_T_SUPPORTED</u>	<u>Included</u>
<u>RECONNECT_MSG_IND</u>	<u>Not included</u>
<u>RER_MODE_SUPPORTED</u>	<u>Not included</u>

⁹ E-UTRAN does not provide information that can be used for the distance based registration.

<u>Parameters</u>	<u>Included/Not included</u>
<u>TKZ MODE SUPPORTED</u>	<u>Not included</u>
<u>TKZ ID</u>	<u>Not included</u>
<u>PILOT REPORT</u>	<u>Not included</u>
<u>SDB SUPPORTED</u>	<u>Not included</u>
<u>AUTO FCSD ALLOWED</u>	<u>Not included</u>
<u>SDB IN RCNM IND</u>	<u>Not included</u>
<u>FPC FCH Included</u>	<u>Included</u>
<u>FPC FCH INIT SETPT RC3</u>	
<u>FPC FCH INIT SETPT RC4</u>	
<u>FPC FCH INIT SETPT RC5</u>	
<u>FPC FCH INIT SETPT RC11</u>	
<u>FPC FCH INIT SETPT RC12</u>	
<u>T_ADD</u>	<u>Not included</u> ¹⁰
<u>PILOT_INC</u>	<u>Included</u>
<u>RAND</u>	<u>Not included</u> ¹¹
<u>LP_SEC</u>	<u>Included</u>
<u>LTM_OFF</u>	<u>Included</u>
<u>DAYLT</u>	<u>Included</u>
<u>GCSNAL2AckTimer</u>	<u>Included</u>
<u>GCSNASEquenceContextTimer</u>	<u>Included</u>

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¹⁰ T-ADD in a cdma2000 layer 3 message over the tunnel is always used.

¹¹ RAND value is always provided from E-UTRAN.

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