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3RD GENERATION
PARTNERSHIP
PROJECT 2
"3GPP2"

HRPD/1XRTT and 3GPP E-UTRAN (LTE) Interworking and Inter-Technology Handoff

Stage 1 Requirements

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1 **1 INTRODUCTION AND SCOPE**

2 This document specifies the requirements for Interworking and Inter-
3 Technology Handoff between 3GPP2 High Rate Packet Data (HRPD) [2,3,4] /
4 cdma2000^{®1} 1x Radio Transmission Technology (1xRTT) [1] and 3GPP
5 Evolved Universal Terrestrial Radio Access (E-UTRA) [10,5] (also known
6 as Long Term Evolution (LTE)) systems.

7
8 **2 REFERENCES**

9 Unless explicitly stated in the reference, references are to the latest
10 revision, addendum, version, or date.

11 **2.1 Normative References**

12 The normative references which are applicable to this specification
13 include the following:

- 14 [1] 3GPP2: C.S0001-A~0006-A, “Radio Interface Specifications for
15 cdma2000 Spread Spectrum System”
- 16 [2] 3GPP2: C.S0063-A, cdma2000 High Rate Packet Data
17 Supplemental Services.
- 18 [3] 3GPP2: C.S0024-A, “cdma2000 High Rate Packet Data Air
19 Interface Specification”
- 20 [4] 3GPP2: C.S0024-B, “cdma2000 High Rate Packet Data Air
21 Interface Specification”
- 22 [5] 3GPP: TS 36.300, “Evolved Universal Terrestrial Radio Access (E-
23 UTRA) and Evolved Universal Terrestrial Radio Access Network (E-
24 UTRAN); Overall description; Stage 2”
- 25 [6] 3GPP2: A.S0011~17-D v1.0, “Interoperability Specification (IOS) for
26 cdma2000 Access Network Interfaces”
- 27 [7] 3GPP2: A.S0008-C, “Interoperability Specification (IOS) for High
28 Rate Packet Data (HRPD) Radio Access Network Interfaces with
29 Session Control in the Access Network”

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 [8] 3GPP2: A.S0009-C, “Interoperability Specification (IOS) for High
 2 Rate Packet Data (HRPD) Radio Access Network Interfaces with
 3 Session Control in the Packet Control Function”

4 [9] 3GPP2: X.S0004-E, “Mobile Application Part (MAP)”

5 **2.2 Informative References**

6 The informative references which are applicable to this specification
 7 include the following:

8 [10] 3GPP: TR 25.913, “Requirements for Evolved UTRA (E-UTRA) and
 9 Evolved UTRAN (E-UTRAN)”

10

11 **3 DEFINITIONS AND ABBREVIATIONS**

12 The terms and abbreviations which are used within this specification are
 13 defined as follows:

14

| | |
|---------|---|
| 1xRTT | 1x Radio Transmission Technology |
| E-UTRA | Evolved Universal Terrestrial Radio Access |
| E-UTRAN | Evolved Universal Terrestrial Radio Access Network (UTRAN) |
| HRPD | High Rate Packet Data (a.k.a 1xEV-DO) |
| LTE | Long Term Evolution |

15

16 **4 GENERAL FEATURE DESCRIPTION**

17 This feature enables interworking and inter-technology handoff between
 18 3GPP LTE and 3GPP2 HRPD / cdma2000-1xRTT systems.

19

20 **5 DETAILED REQUIREMENTS**

21 **ITHO-01:** The system shall support seamless voice service continuity
 22 from LTE [10, 5] to cdma2000 1xRTT Revision A [1] and later
 23 revisions.

24 **ITHO-02:** The system shall support bidirectional data service
 25 continuity between LTE [10,5] and cdma2000 1xRTT
 26 Revision A [1].

- 1 **ITHO-03:** The system shall support the ability to set up voice call on
2 1XRTT while suspending an existing data session on LTE.
- 3 **ITHO-04:** The system shall support bidirectional service continuity
4 between cdma2000 HRPD Revision A [3] and LTE [10,5] for
5 best effort and real-time applications.
- 6 **ITHO-05:** The system shall support bidirectional service continuity
7 between cdma2000 HRPD (1xEV-DO) Revision B [4] and LTE
8 [10,5] for best effort and real-time applications.
- 9 **ITHO-06:** The system shall support all frequency bands applicable for
10 either LTE or cdma2000 family of standards.
- 11 **ITHO-07:** The system shall support terminals with single radio and
12 dual radio solutions.
- 13 **ITHO-08:** The solution should aim for commonality in the solution for
14 support of single radio and dual radio terminals.
- 15 **ITHO-09:** The solution should minimize the coupling between the E-
16 UTRAN and the 3GPP2 accesses (e.g. by using transparent
17 signaling through the source system) allowing independent
18 protocol evolution in each access.
- 19 **ITHO-10:** The solution shall not have any impact on deployed
20 cdma2000 1xRTT Rev A, cdma2000 HRPD Rev 0, cdma2000
21 HRPD Rev A, and cdma2000 HRPD Rev B terminals.
- 22
- 23 **ITHO-11:** The solutions shall be based on the principles of network
24 controlled radio access mobility.
- 25 **ITHO-12:** The solution should be transparent to E-UTRA only terminal
26 or network.
- 27 **ITHO-13:** Impact on service quality, e.g. Quality of Service (QoS),
28 interruption times should be minimized.
- 29 **ITHO-14:** Impact on legacy cdma2000 radio access network [6,7,8]
30 should be minimized.
- 31 **ITHO-15:** Impact on legacy cdma2000 circuit switched core network [9]
32 should be minimized.
- 33