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3RD GENERATION  
PARTNERSHIP  
PROJECT 2  
"3GPP2"

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

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## *Stage 1 Requirements*

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<b>REVISION HISTORY</b>		
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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<sup>®1</sup> 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.S0001~0006, “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”

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

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)”

## 11 **3 DEFINITIONS AND ABBREVIATIONS**

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

1xRTT	1x Radio Transmission Technology
CSFB	Circuit-Switched Fall-Back
E-UTRA	Evolved Universal Terrestrial Radio Access
E-UTRAN	Evolved Universal Terrestrial Radio Access Network (UTRAN)
GSM	Global System for Mobiles
HRPD	High Rate Packet Data (a.k.a 1xEV-DO)
LTE	Long Term Evolution
UMTS	Universal Mobile Telecommunication System

## 16 **4 GENERAL FEATURE DESCRIPTION**

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

## 20 **5 DETAILED REQUIREMENTS**

21 **ITHO-01:** The system shall support seamless voice service continuity  
22 from LTE [10, 5] to cdma2000 1xRTT Revision 0 [1] and later  
23 revisions.

- 1       **ITHO-02:**       The system shall support bidirectional data service  
2                               continuity between LTE [10,5] and cdma2000 1xRTT [1].
- 3       **ITHO-03:**       The system shall support the ability to set up voice call on  
4                               1XRTT while suspending an existing data session on LTE.  
5                               From the user's perspective, there should not be a noticeable  
6                               difference from the current native 1xRTT call setup.
- 7       **ITHO-04:**       The system shall support bidirectional service continuity  
8                               between cdma2000 HRPD Revision A [3] and LTE [10,5] for  
9                               best effort and real-time applications.
- 10       **ITHO-05:**       The system shall support bidirectional service continuity  
11                              between cdma2000 HRPD (1xEV-DO) Revision B [4] and LTE  
12                              [10,5] for best effort and real-time applications.
- 13       **ITHO-06:**       The system shall support all frequency bands applicable for  
14                              either LTE or cdma2000 family of standards.
- 15       **ITHO-07:**       The system shall support terminals with single radio and  
16                              dual radio solutions.
- 17       **ITHO-08:**       The solution should aim for commonality in the solution for  
18                              support of single radio and dual radio terminals.
- 19       **ITHO-09:**       The solution should minimize the coupling between the E-  
20                              UTRAN and the 3GPP2 accesses (e.g. by using transparent  
21                              signaling through the source system) allowing independent  
22                              protocol evolution in each access.
- 23       **ITHO-10:**       The solution shall not have any impact on deployed  
24                              cdma2000 1xRTT, cdma2000 HRPD Rev 0, cdma2000 HRPD  
25                              Rev A, and cdma2000 HRPD Rev B terminals.
- 26
- 27       **ITHO-11:**       The solutions shall be based on the principles of network  
28                              controlled radio access mobility.
- 29       **ITHO-12:**       The solution should be transparent to E-UTRA only terminal  
30                              or network.
- 31       **ITHO-13:**       Impact on service quality, e.g. Quality of Service (QoS),  
32                              interruption times and call setup time should be minimized.
- 33       **ITHO-14:**       The solution performance should be comparable with the  
34                              similar scenario between GSM/UMTS and LTE., e.g. Circuit-  
35                              switched Fall-Back (CSFB) scenario.
- 36       **ITHO-15:**       Impact on legacy cdma2000 radio access network [6,7,8]  
37                              should be minimized.

- 1     **ITHO-16:**     Impact on legacy cdma2000 circuit switched core network [9]
- 2                     should be minimized.
- 3