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

Stage 1 Requirements
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1 INTRODUCTION AND SCOPE

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

2 REFERENCES

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

2.1 Normative References

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


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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.
2.2 Informative References

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

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

3 DEFINITIONS AND ABBREVIATIONS

The terms and abbreviations which are used within this specification are 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

4 GENERAL FEATURE DESCRIPTION

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

5 DETAILED REQUIREMENTS

ITHO-01: The system shall support seamless voice service continuity from LTE [10, 5] to cdma2000 1xRTT Revision 0 [1] and later revisions.
ITHO-02: The system shall support bidirectional data service continuity between LTE [10,5] and cdma2000 1xRTT [1].

ITHO-03: The system shall support the ability to set up voice call on 1XRTT while suspending an existing data session on LTE. From the user’s perspective, there should not be a noticeable difference from the current native 1xRTT call setup.


ITHO-06: The system shall support all frequency bands applicable for either LTE or cdma2000 family of standards.

ITHO-07: The system shall support terminals with single radio and dual radio solutions.

ITHO-08: The solution should aim for commonality in the solution for support of single radio and dual radio terminals.

ITHO-09: The solution should minimize the coupling between the E-UTRAN and the 3GPP2 accesses (e.g. by using transparent signaling through the source system) allowing independent protocol evolution in each access.


ITHO-11: The solutions shall be based on the principles of network controlled radio access mobility.

ITHO-12: The solution should be transparent to E-UTRA only terminal or network.

ITHO-13: Impact on service quality, e.g. Quality of Service (QoS), interruption times and call setup time should be minimized.

ITHO-14: The solution performance should be comparable with the similar scenario between GSM/UMTS and LTE., e.g. Circuit-switched Fall-Back (CSFB) scenario.

ITHO-15: Impact on legacy cdma2000 radio access network [6,7,8] should be minimized.