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3RD GENERATION  
PARTNERSHIP  
PROJECT 2  
"3GPP2"

# **eHRPD – EUTRAN Interworking Matrix**

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*Technical Report*

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**REVISION HISTORY**

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2 **Foreword**

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4 This Foreword is not part of this document.

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6 This document contains a matrix of interworking features of eHRPD and  
7 EUTRAN.

# 1 INTRODUCTION AND SCOPE

## 2 1.1 Scope

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4 This document provides a reference of features and functions pertinent for  
5 interworking between eHRPD and EUTRAN, and contains a list of specifications  
6 of both 3GPP and 3GPP2 for each of the features listed.

7 3GPP Rel. 8 is the first release for LTE, and subject of Interworking Matrix in  
8 the current form. Revisions of this document will be used to address  
9 subsequent 3GPP releases.

## 12 1.2 REFERENCES

13 References are either specific (identified by date of publication, revision  
14 identifier, and version number) or non-specific. For a specific reference,  
15 subsequent revisions may not apply. For a non-specific reference, the latest  
16 revision applies.

17 Unless otherwise noted, when a reference to 3GPP2 document is made in  
18 Section 4, the intention is to point to the earliest 3GPP2 document Revision or  
19 Version supporting the stated functionality as implemented in Release 8 of  
20 3GPP.

21 The document references which are applicable to this specification include the  
22 following:

### 23 1.2.1 Normative References

24 Not applicable for a reference document containing no specifications.

### 25 1.2.2 Informative References

- 26 [23.402] 3GPP TS 23.402 8.10.0, 3rd Generation Partnership Project;  
27 Technical Specification Group Services and System Aspects;  
28 Architecture enhancements for non-3GPP accesses  
29
- 30 [C.S0087-0] 3GPP2 C.S0087-0, v3.0, "E-UTRAN – cdma2000 HRPD  
31 Connectivity and Inter-working Air Interface Specification,"  
32 2011-04 (3GPP Release 8 compatibility)
- 33 [C.S0087-A] 3GPP2 C.S0087-A, 2.0, "E-UTRAN – cdma2000 HRPD  
34 Connectivity and Inter-working Air Interface Specification,"  
35 2012-07 (3GPP Release 9 compatibility)
- 36 [A.S0022-0] 3GPP2 A.S0022-0 v2.0, "Interoperability Specification (IOS) for  
37 Evolved High Rate Packet Data (eHRPD) Radio Access Network  
38 Interfaces and Interworking with Enhanced Universal

- 1 Terrestrial Radio Access Network (EUTRAN)”, 2010-04 (3GPP
- 2 Release 8 compatibility)
- 3 [A.S0022-A] 3GPP2 A.S0022-A v2.0, “Interoperability Specification (IOS) for
- 4 Evolved High Rate Packet Data (eHRPD) Radio Access Network
- 5 Interfaces and Interworking with Enhanced Universal
- 6 Terrestrial Radio Access Network (E-UTRAN, 2012-04 (3GPP
- 7 Release 9 compatibility)[A.S0022-B] 3GPP2 A.S0022-B v1.0,
- 8 “Interoperability Specification (IOS) for Evolved High Rate
- 9 Packet Data (eHRPD) Radio Access Network Interfaces and
- 10 Interworking with Enhanced Universal Terrestrial Radio Access
- 11 Network (E-UTRAN), 2012-04 (3GPP Release 10 compatibility)
- 12 [X.S0057-0] 3GPP2 X.S0057-0 v3.0, “E-UTRAN - eHRPD Connectivity and
- 13 Interworking: Core Network Aspects”, 2010-09 (3GPP Release 8
- 14 compatibility)
- 15 [X.S0057-A] 3GPP2 X.S0057-A v2.0, “E-UTRAN - eHRPD Connectivity and
- 16 Interworking: Core Network Aspects,” 2012-10 (3GPP Release 9
- 17 compatibility)
- 18 [X.S0057-B] 3GPP2 X.S0057-B v1.0 “E-UTRAN - eHRPD Connectivity and
- 19 Interworking: Core Network Aspects”, 2012-10 (3GPP Release
- 20 10 compatibility)
- 21 [S.R0129-A] 3GPP2 S.R0129-A v2.0 “HRPD/1x RTT and 3GPP E-UTRAN
- 22 (LTE) Interworking and Inter-Technology Handoff – Stage 1
- 23 Requirements”, 2009-12
- 24
- 25

**2 DEFINITIONS AND ABBREVIATIONS**

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

**2.1 Definitions**

Active Handoff	A handoff for which a bearer path exists before and after the handoff. The bearer may carry active traffic before and after the handoff. The UE may be active before and after the handoff but during the transition from one access technology to another, the UE may be in an idle state.
Idle Handoff	A handoff for which a bearer path does not exist or is dormant before and after the handoff. The UE is idle before and after the handoff.
Optimized Handoff	A handoff which uses S101 (MME – AN) and

	S103 (SGW – HSGW) interfaces.
Non-optimized Handoff	A handoff which does not use S101 (MME – AN) or S103 (SGW- HSGW) interfaces.

1 **2.2 Abbreviations**

eHRPD	Evolved High Rate Packet Data
EUTRAN	Evolved Universal Telecommunication Radio Access Network
PCC	Policy and Charging Control

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### **3 eHRPD – EUTRAN Interworking**

eHRPD - EUTRAN interworking is captured in tables categorized by key interworking features. For each interworking feature, relevant 3GPP publication(s) is/are referenced, and likewise for 3GPP2 publication(s). The document is meant as a high level guide to key interworking features.

Section references capture only “representative” sections, i.e. those where the bulk of the procedure is described.

#### **3.1 Handoff Interworking Scenarios**

1. In the EUTRAN → eHRPD direction optimized active and idle handoffs are fully specified in 3GPP and 3GPP2.
2. In the eHRPD → EUTRAN direction non-optimized idle handoff is fully specified in 3GPP and 3GPP2.
3. In the eHRPD → EUTRAN direction non-optimized active handoff is fully specified in 3GPP and 3GPP2.



1 **Table 1: EUTRAN – eHRPD Handoff Scenarios**

No.	Handoff Scenario	3GPP References	3GPP2 References
1	EUTRAN → eHRPD Optimized – active	[23.402] Section 9.3	[S.R0129-A] Requirements ITHO-04, ITHO-05 [C.S0087-0] Fig A-5 and Fig A-6 provide an example of signaling flow. [A.S0022-0] Sections 1.14.1.7, 3.2.2 [X.S0057-0] Section 13.1.2
2	EUTRAN → eHRPD Optimized – idle	[23.402] Section 9.4	[C.S0087-0] Fig A-3 and Fig A-4 provide an example of signaling flow. [A.S0022-0] Sections 1.14.1.8, 3.2.3 [X.S0057-0] Section 13.1.3
3	EUTRAN → eHRPD non-optimized active	[23.402] Section 8.2.7, (see Note a)	[S.R0129-A] Requirements ITHO-04, ITHO-05 [C.S0087-0] (See Note d) [A.S0022-0] (See Note d) [X.S0057-0] Section 13.2.3, b
4	EUTRAN → eHRPD non-optimized idle	[23.402] Section 8.2.7, (See Note a)	[C.S0087-0] (See Note d) [A.S0022-0] (See Note d) [X.S0057-0] Section 13.2.3, (See Note b)

No.	Handoff Scenario	3GPP References	3GPP2 References
5	eHRPD → EUTRAN Optimized – active	[23.402] Section 9.5	[S.R0129-A] Requirements ITHO-04, ITHO-05 [C.S0087] (See Note e) [A.S0022] (See Note e) [X.S0057] (See Note e)
6	eHRPD → EUTRAN Optimized – idle	[23.402] Section 9.6	[C.S0087] (See Note e) [A.S0022] (See Note e) [X.S0057] (See Note e)
7	eHRPD → EUTRAN non-optimized active	[23.402] Section 8.2.1, (See Note c)	[S.R0129-A] ITHO-04, ITHO-05 [C.S0087] (See Note e) [A.S0022-0] Sections 1.14.1.x, Section 3.3.x [X.S0057] Section 14.1
8	eHRPD → EUTRAN non-optimized idle	[23.402] Section 8.2.1, (See Note c)	[C.S0087-0] Section 4.1.2 [A.S0022-0] Sections 1.14.1.9, 3.3.1 [X.S0057-0] Section 14.1

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3 Notes:

- 4 a. [23.402] Section 8.2.7 apply to both active and idle handoff.
- 5 b. [X.S0057-0] Section 13.2.3. Except for step 14, 13.2.3 applies to both active and idle handoff.
- 6 c. [23.402] Section 8.2.1 applies to both active and idle handoff.
- 7 d. There is transparent support of this feature by virtue of eHRPD attach.

1 e. There are currently no 3GPP2 specifications to support this feature for Release 8 interworking.  
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### 4 **3.2 Other Interworking Scenarios**

5 **Table 2: Additional Interworking Scenarios**  
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<b>No.</b>	<b>Interworking Scenario</b>	<b>3GPP References</b>	<b>3GPP2 References</b>
1	Access network detection	[23.402] Section 4.1.4	[X.S0057-0] Section 4 (See Note k)(See Note l)
2	IP Address Allocation in Trusted Non-3GPP IP Access using PMIPv6 on S2a	[23.402] Section 4.7.2	[X.S0057-0] Section 5.4.3 (See Note k) (See Note l)
3	Initial Attach Procedure with DSMIPv6 on S2c in Trusted Non-3GPP IP Access	[23.402] Section 6.3	[X.S0057-0] N/A (See Note g) (See Note k) (See Note l)
4	Detach and PDN Disconnection for S2a	[23.402] Section 6.4	[X.S0057-0] Sections 11.1, 11.2, 11.3 (See Note k) (See Note l)
5	Detach and PDN Disconnection for S2c in Trusted Non-3GPP IP Access	[23.402] Section 6.5	[X.S0057-0] N/A (See Note g) (See Note k) (See Note l)

<b>No.</b>	<b>Interworking Scenario</b>	<b>3GPP References</b>	<b>3GPP2 References</b>
6	Network-initiated Dynamic PCC	[23.402] Section 6.6	[X.S0057-0] Section 8 (See Note k) (See Note l)
7	UE-initiated Resource Request and Release	[23.402] Section 6.7	[X.S0057-0] Sections 11.1, 11.2 (See Note k) (See Note l)
8	UE-initiated Connectivity to Additional PDN from Trusted Non-3GPP IP Access with DSMIPv6 on S2c	[23.402] Section 6.8.3	[X.S0057-0] N/A (See Note g) (See Note k) (See Note l)
9	S2c Bootstrapping via DSMIPv6 Home Link over a Trusted Access	[23.402] Section 6.11	[X.S0057-0] N/A (See Note g) (See Note k) (See Note l)
10	Non-3GPP access initiated IPv4 address Delete Procedure	[23.402] Section 6.14	[X.S0057-0] N/A (See Note k) (See Note l)
13	Handoff from 3GPP access to Trusted Non-3GPP IP Access with MIPv4 FACoA on S2a	[23.402] Section 8.3	[X.S0057-0] (See Note i) (See Note k) (See Note l)
14	Handoffs with DSMIPv6 on S2c	[23.402] Section 8.4	[X.S0057-0] N/A (See Note g) (See Note k) (See Note l)

<b>No.</b>	<b>Interworking Scenario</b>	<b>3GPP References</b>	<b>3GPP2 References</b>
15	Handoff with Access Network Discovery and Selection	[23.402] Section 8.5	[X.S0057-0] N/A (See Note j) (See Note l)
17	Overview of Handoff Procedures	[23.402] Section 8.2	[X.S0057-0] Sections 12.1, 12.2, 12.3 [A.S0022-0] Section 3 [C.S0087-0 Annex A
22	S101 Tunnel Redirection Procedure	[23.402] Section 9.7	[X.S0057-0] Section N/A [A.S0022-0] Section 2.13. (See Note l)

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Notes:

- f. There is no stage 3 support for this feature in 3GPP.
- g. eHRPD does not use interface S2c.
- h. Feature applies to interface S2a only; interface S2b is not supported.
- i. This feature is not supported.
- j. Support is included in other handoff entries in this table.
- k. For IOS series A.Snnnn there are no applicable specifications.
- l. For radio interface C.Snnnn there are no applicable specifications.
- m. For networking X.Snnnn series there are no applicable specifications.