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Open Radio equipment Interface (ORI); Requirements for Open Radio equipment Interface (ORI) (Release 4)

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Open Radio equipment Interface (ORI).

The contents of the present document are subject to continuing work within the ISG. Should the ISG modify the contents of the present document, it will be re-released by the ISG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit indicates the release number of ORI specification group starting from Release 1.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**may not**", "**need**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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Introduction

Mobile communication networks have evolved from 1st generation to 3rd, and now, many operators are preparing to introduce LTE. Economical and efficient deployment of base stations is one of key issues for the success of mobile services. Operators also consider ecological aspects when renewing a system.

In general mobile radio base stations consist of a BaseBand Unit (BBU) and a Radio Frequency Unit (RFU), which usually is a Remote Radio Head (RRH) in a distributed base station architecture.

Current interfaces between BBU and RRH are provided in a "semi proprietary" nature, although based on industry standards like CPRI or OBSAI. In order to gain flexibility operators are looking for distributed base station architectures with separate BBUs and RRHs. In order to gain interoperability, BBU and RRH are interconnected via an open BBU-RRH Interface (ORI) for flexible combination from different vendors.

ORI is about a digitized radio base station interface that establishes a connection between "Radio Equipment Control" (REC) and "Radio Equipment" (RE) enabling single-hop and multi-hop topologies. Different information flows (User Plane data, Control and Management Plane data, and Synchronization Plane data) are multiplexed over the interface. ORI covers OSI protocol layer 1, Layer 2 up to Layer 7.

The present document aims to define a set of system and link requirements that apply to the Open Radio equipment Interface (ORI).

1 Scope

ETSI Group Specifications (GS) are deliverables produced by Industry Specification Groups (ISG). GSs are written with the style of a Technical Specification (TS), and represent the sole view of the ISG members.

The present document describes system-level requirements that apply to the Open Radio equipment Interface (ORI) and ORI nodes for Release 4.

NOTE: Requirements comply with CPRI specification of CPRI forum [1] and focuses on the following 3GPP radio access technologies namely UTRA-FDD [3], [4] and [5], E-UTRA-FDD [6], E-UTRA-TDD [6] and GSM [12]. Multiplexing between any combination of UTRA-FDD, E-UTRA-FDD, and GSM on an ORI link is also considered.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

[1] "Common Public Radio Interface (CPRI); Interface Specification" V 6.0.

NOTE: Available at http://www.cpri.info/spec.html.

[2] ETSI GS ORI 002-1: "Open Radio equipment Interface (ORI); ORI Interface Specification; Part 1: Low Layers (Release 4)".

[3] ETSI TS 125 104: "Universal Mobile Telecommunications System (UMTS); Base Station (BS) radio transmission and reception (FDD) (3GPP TS 25.104)".

[4] ETSI TS 125 215: "Universal Mobile Telecommunications System (UMTS); Physical layer; Measurements (FDD) (3GPP TS 25.215)".

[5] ETSI TS 125 133: "Universal Mobile Telecommunications System (UMTS); Requirements for support of radio resource management (FDD) (3GPP TS 25.133)".

[6] ETSI TS 136 104: "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception (3GPP TS 36.104)".

[7] ETSI GS ORI 002-2: "Open Radio equipment Interface (ORI); ORI Interface Specification; Part 2: Control and Management (Release 4)".

[8] ETSI TS 125 461 (V10.2.0): "Universal Mobile Telecommunications System (UMTS); UTRAN Iuant interface: Layer 1 (3GPP TS 25.461 version 10.2.0 Release 10)".

[9] ETSI TS 125 462 (V10.1.0): "Universal Mobile Telecommunications System (UMTS); UTRAN Iuant interface: Signalling transport (3GPP TS 25.462 version 10.1.0 Release 10)".

[10] ETSI TS 125 466 (V10.3.0): "Universal Mobile Telecommunications System (UMTS); UTRAN Iuant interface: Application part (3GPP TS 25.466 version 10.3.0 Release 10)".