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Intelligent transport systems — Evolved universal terrestrial radio access network (E-UTRAN) —

Part 2: Device to device communications (D2D)

Systèmes intelligents de transport — Réseau d'accès à la radio terrestre universelle évoluée (E-UTRAN) —

Partie 2: Communications directe entre appareils (D2D)

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

A list of all parts in the ISO 17515 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Localized communications are an essential component of hybrid communications in Intelligent Transport Systems (ITS). Various access technologies are suited for localized communications. An increasing interest from ITS stakeholders in "Cooperative ITS" and "Urban ITS" is focussed on the access technology known as LTE, which refers to a packet switched cellular network technology specified by 3GPP. In addition to the "traditional" features of cellular networks, LTE also supports device-to-device communications (LTE-D2D) which can be efficiently used for ITS.

This document provides complements to LTE-D2D specifications from 3GPP needed to operate it as an ITS access technology in an ITS station unit as specified in ISO 21217. An implementation of this document is referred to as an ITS-LTE-D2D communication interface (CI).

ITS-LTE-D2D CIs are capable of:

— operating with the support of an LTE base station, and

— operating without the support of an LTE base station, e.g. outside an LTE coverage area,

as specified by 3GPP.

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Intelligent transport systems — Evolved universal terrestrial radio access network (E-UTRAN) —

Part 2:
Device to device communications (D2D)

1 Scope

This document provides specification on the ITS-Station (ITS-S) access layer for a communication interface (CI) named "ITS-LTE-D2D".

This specification is appropriate in the context of LTE-D2D communications that are being used for the dissemination of ITS information from an ITS-SU to other ITS-SUs, where these ITS-SUs can be either vehicle ITS-SUs, roadside ITS-SUs, or personal ITS-SUs, as specified in ISO 21217. It provides a combination of options from relevant ETSI/3GPP releases and ITS-station management standards in ISO 24102 to enable and achieve this objective.

ITS-LTE-D2D CIs are based on the evolved-universal terrestrial radio access network (E-UTRAN) device-to-device (LTE-D2D) technology standardized at 3GPP Release 13.

This document enables the use of the LTE-D2D technology as an ITS access technology in an ITS station by reference to respective specifications from 3GPP, and by specifying details of the Communication Adaptation Layer (CAL) and the Management Adaptation Entity (MAE) of CIs specified in ISO 21218.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 8825-2, *Information technology — ASN.1 encoding rules: Specification of Packed Encoding Rules (PER) — Part 2*

ISO 21218, *Intelligent transport systems — Hybrid communications — Access technology support*

ISO 24102-3, *Intelligent transport systems — ITS station management — Part 3: Service access points*

3GPP TS 23.303, *3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Proximity-based services (ProSe); Stage 2 (Release 13)*

3GPP TS 24.334 V15.1.0, *3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Proximity-services (ProSe) User Equipment (UE) to ProSe function protocol aspects (Release 13)*

3GPP TS 36.300, *3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (Release 13)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
SideLink
UE to UE interface for direct communication between two or more nearby UEs

Note 1 to entry: The Sidelink corresponds to the *PC5* (3.2) interface as defined in 3GPP TS 23.303.

[SOURCE: 3GPP TS 36.300]

3.2
PC5
reference point between ProSe-enabled UEs used for control and user plane for ProSe Direct Discovery and ProSe Direct Communication

Note 1 to entry: The lower protocol layers of the PC5 reference point can be based on E-UTRA *SideLink* (3.1) capabilities.

[SOURCE: 3GPP TS 36.300]

4 Symbols and abbreviated terms

CAL	communication adaptation sub-layer
CI	communication interface
D2D	device-to-device
eNB	evolved node B
E-UTRA	evolved universal terrestrial radio access
E-UTRAN	evolved universal terrestrial radio access network
HSS	home subscriber subsystem
ITS	intelligent transport systems
ITS-SU	ITS station unit
LCID	logical channel identifier
MAE	management adaptation entity
PPPP	ProSe per packet priority
ProSe	Proximity based service
RNTI	radio network temporary identifier
SL	SideLink
SL-RNTI	SideLink RNTI
SL-SCH	SideLink shared channel

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