

STN	Intelligentné dopravné systémy (ITS) Špecifikácia prístupovej vrstvy ITS-G5 pre intelligentné dopravné systémy pracujúce vo frekvenčnom pásme 5 GHz	STN EN 302 663 V1.3.1 87 2663
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Intelligent Transport Systems (ITS); ITS-G5 Access layer specification for Intelligent Transport Systems operating in the 5 GHz frequency band

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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Intelligent Transport Systems (ITS); ITS-G5 Access layer specification for Intelligent Transport Systems operating in the 5 GHz frequency band

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Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Intelligent Transport Systems (ITS).

National transposition dates	
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Date of latest announcement of this EN (doa):	31 March 2020
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 September 2020
Date of withdrawal of any conflicting National Standard (dow):	30 September 2020

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**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

The present document outlines the two lowest layers - physical layer and data link layer - in the protocol stack for supporting vehicle-to-vehicle communications in an *ad hoc* network to be used at the 5,9 GHz frequency band allocated in Europe in compliance with Commission Decision 2008/671/EC [i.1], ECC/DEC/(08)01 [i.2] and ECC/REC/(08)01 [i.3]. The two lowest layers are termed access layer according to ETSI EN 302 665 [i.4] in the present document and the technology specified for the access layer is collectively called ITS-G5. The ITS-G5 access layer technology is using already existing standards for communications. The data link layer is divided into two sublayers; medium access control and logical link control. The physical layer and the medium access control layer are covered in IEEE 802.11-2016 [1]. The logical link control is based on the IEEE/ISO/IEC 8802-2-1998 [2]. The ITS-G5 standard also adds features for Decentralized Congestion Control (DCC) methods ETSI TS 102 687 [3] to control the network load.

By setting the Management Information Base (MIB) parameter `dot11OCBActivated` to true in IEEE 802.11-2016 [1] a new capability is introduced namely the possibility to communicate outside the context of a Basic Service Set (BSS), which is the smallest building block of an 802.11 network. Communication outside the BSS implies that neither authentication/association procedures nor security mechanisms are supported. Further, no access point functionality is present. The disable of these features also affects other built-in features of IEEE 802.11-2016 [1]. The requirement that nodes should share a common clock is no longer valid while `dot11OCBActivated` is true. Further, scanning of available frequency channels for joining a BSS is also disabled implying that communication outside the context of the BSS requires that a node is configured for a predetermined frequency channel where more information about other available frequency channels can be obtained.

1 Scope

The present document defines the two lowest layers, physical layer and the data link layer, grouped into the access layer of the ITS station reference architecture ETSI EN 302 665 [i.4].

2 References

2.1 Normative 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 referenced document (including any amendments) applies.

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- [1] IEEE 802.11TM-2016: "IEEE Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks-Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".
- [2] IEEE/ISO/IEC 8802-2-1998: "Information technology -- Telecommunications and information exchange between systems -- Local and metropolitan area networks -- Specific requirements -- Part 2: Logical Link Control".
- [3] ETSI TS 102 687 (V1.2.1): "Intelligent Transport Systems (ITS); Decentralized Congestion Control Mechanisms for Intelligent Transport Systems operating in the 5 GHz range; Access layer part".
- [4] IEEE 802TM-2014: "IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture".
- [5] ETSI EN 302 571 (V2.1.1): "Intelligent Transport Systems (ITS); Radiocommunications equipment operating in the 5 855 MHz to 5 925 MHz frequency band; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".
- [6] ETSI TS 102 792 (V1.2.1): "Intelligent Transport Systems (ITS); Mitigation techniques to avoid interference between European CEN Dedicated Short Range Communication (CEN DSRC) equipment and Intelligent Transport Systems (ITS) operating in the 5 GHz frequency range".

2.2 Informative 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 referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] Commission Decision 2008/671/EC of 5 August 2008 on the harmonised use of radio spectrum in the 5 875-5 905 MHz frequency band for safety-related applications of Intelligent Transport Systems (ITS).
- [i.2] ECC/DEC/(08)01: "ECC Decision (08)01 on the harmonised use of the band 5875-5925 MHz for Intelligent Transport Systems (ITS)".
- [i.3] ECC/REC/(08)01: "ECC Recommendation (08)01 on the use of the band 5855-5875 MHz for Intelligent Transport Systems (ITS)".
- [i.4] ETSI EN 302 665 (V1.1.1): "Intelligent Transport Systems (ITS); Communications Architecture".
- [i.5] IEEE 802.11p™-2010: "IEEE Standard for Information technology - Local and metropolitan area networks - Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications Amendment 6: Wireless Access in Vehicular Environments".
- [i.6] IEEE 802.11™-2012: "IEEE Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks-Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".
- [i.7] IEEE 802.11a™-1999: "IEEE Standard for Telecommunications and Information Exchange Between Systems - LAN/MAN Specific Requirements - Part 11: Wireless Medium Access Control (MAC) and physical layer (PHY) specifications: High Speed Physical Layer in the 5 GHz band".
- [i.8] IEEE 802.11e™-2005: "IEEE Standard for Information technology - Local and metropolitan area networks - Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - Amendment: Medium Access Method (MAC) Quality of Service Enhancements".
- [i.9] ANSI/IEEE 802.1D-1998: "IEEE Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Common specifications - Part 3: Media Access Control (MAC) Bridges".
- [i.10] IEEE Registration Authority.
- NOTE: Available at <https://standards.ieee.org/content/ieee-standards/en/products-services/regauth/index.html>.
- [i.11] List of assigned EtherTypes at the IEEE Registration Authority.
- NOTE: Available at <http://standards-oui.ieee.org/ethertype/eth.txt>.
- [i.12] ETSI EN 302 636-4-1 (V1.3.1): "Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 1: Media-Independent Functionality".
- [i.13] ETSI TS 103 175 (V1.1.1): "Intelligent Transport Systems (ITS); Cross Layer DCC Management Entity for operation in the ITS G5A and ITS G5B medium".
- [i.14] IEEE 802.11™-2007: "IEEE Standard for Information Technology - Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks - Specific Requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".

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