SLOVENSKI STANDARD
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Integrirana širokopasovna kabelska telekomunikacijska omrežja (CABLE) - Četrta generacija prenosnih sistemov za storitve interaktivne kabelske televizije - IP-kabelski modemi - 2. del: Fizična plast - DOCSISÂ® 3.1 [ANSI/SCTE 220-1 2016]

Integrated broadband cable telecommunication networks (CABLE) - Fourth generation transmission systems for interactive cable television services - IP cable modems - Part 2: Physical layer - DOCSISÂ® 3.1 [ANSI/SCTE 220-1 2016]

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ICS:

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35.100.10	Fizični sloj	Physical layer

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ETSI ES 203 311-2 V1.1.1 (2019-05)

**Integrated broadband cable telecommunication networks (CABLE);
Fourth generation transmission systems for interactive cable television services - IP cable modems;
Part 2: Physical layer;
DOCSIS® 3.1
[ANSI/SCTE 220-1 2016]**

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Integrated broadband cable telecommunication networks (CABLE).

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The present document is part 2 of a multi-part deliverable covering the fourth generation transmission systems for interactive cable television services - IP cable modems. Full details of the entire series can be found in part 1 [2].

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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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1 Scope

The present document provides the ETSI endorsement of ANSI/SCTE Standard 220-1 [1].

ANSI/SCTE Standard 220-1 is part of a series of specifications that defines the fourth generation of high-speed data-over-cable systems, commonly referred to as the DOCSIS 3.1 specifications. The standard was developed for the benefit of the cable industry, and includes contributions by operators and vendors from North and South America, Europe and Asia.

This generation of the DOCSIS specifications builds upon the previous generations of DOCSIS specifications (commonly referred to as the DOCSIS 3.0 and earlier specifications), leveraging the existing Media Access Control (MAC) and Physical (PHY) layers, but with the addition of a new PHY layer designed to improve spectral efficiency and provide better scaling for larger bandwidths (and appropriate updates to the MAC and management layers to support the new PHY layer). It includes backward compatibility for the existing PHY layers in order to enable a seamless migration to the new technology.

There are differences in the cable spectrum planning practices adopted for different networks in the world. For the new PHY layer defined in the present document, there is flexibility to deploy the technology in any spectrum plan; therefore, no special accommodation for different regions of the world is specified for this new PHY layer.

However, due to the inclusion of the DOCSIS 3.0 PHY layers for backward compatibility purposes, there is still a need for different region-specific physical layer technologies. Therefore, three options for physical layer technologies are included in the present document. One technology option is based on the downstream channel identification plan that is deployed in North America using 6 MHz spacing. The second technology option is based on the corresponding European multi-program television distribution. The third technology option is based on the corresponding Chinese multi-program television distribution. All three options have the same status, notwithstanding that the document structure does not reflect this equal priority. The first of these options is defined in clauses 5 and 6 of [1], whereas the second is defined by replacing the content of those clauses with the content of Annex C of [1]. The third is defined by replacing the content of those clauses with the content of Annex D of [1]. Correspondingly, [14] and [4] apply only to the first option, and [5] applies to the second and third. Compliance with the present document means compliance with one of these implementations, but not with all three. It is not expected that equipment built to one option interoperates with equipment built to the other.

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Compliance with frequency planning and EMC requirements is not covered by the present document and remains the operators' responsibility. In this respect, [11] and [12] are relevant to the USA; [3] and [i.2] to Canada; [i.4], [6], [7], [8], [9] and [10] are relevant to the European Union; [13] and [i.1] are relevant to China.

ANSI/SCTE Standard 220-1 defines the interface for the physical layer, and corresponds to the CableLabs specification [i.3].

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.

Referenced documents which are not found to be publicly available in the expected location might be found at https://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.

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

[1] ANSI/SCTE 220-1 (2016): "DOCSIS 3.1 Part 1: Physical Layer Specification".

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[2] ETSI ES 203 311-1: "Integrated broadband cable telecommunication networks (CABLE); Fourth generation transmission systems for interactive cable television services - IP Cable Modems; Part 1: General; DOCSIS® 3.1".

[3] CISPR 32:2015: "Electromagnetic compatibility of multimedia equipment - Emission requirements".

[4] CEA-542-D (2013): "Cable Television Channel Identification Plan".

[5] ETSI EN 300 429 (V1.2.1): "Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for cable systems".

[6] CENELEC EN 60728-11 (2017): Cable networks for television signals, sound signals and interactive services - Part 11: Safety".

[7] CENELEC EN 50083-2 (2012): "Cable networks for television signals, sound signals and interactive services -- Part 2: Electromagnetic compatibility for equipment".

[8] CENELEC EN 50083-7 (1996): "Cable networks for television signals, sound signals and interactive services -- Part 7: System performance".

[9] CENELEC EN 61000-6-4 (2001): "Electromagnetic compatibility (EMC) -- Part 6-4: Generic standards - Emission standard for industrial environments".

[10] CENELEC EN 61000-6-3 (2007): "Electromagnetic compatibility (EMC) -- Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments".

[11] Code of Federal Regulations, Title 47, Part 15 (October 2005).

[12] Code of Federal Regulations, Title 47, Part 76 (October 2005).

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[13] Standardization Administration of People's Republic of China (SAC) GB 8898 (2011): "Audio, video and similar electronic apparatus - Safety requirements".

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[14] Recommendation ITU-T J.83 (2007) (Annex B): "Digital multi-program systems for television sound and data services for cable distribution".

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.

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

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] China Zhijian Publish House SAC: "Equipments and components used in cabled distribution systems primarily intended for television and sound signals--Part 1: Generic specifications".

[i.2] Information Technology Equipment (ITE): "Limits and methods of measurement".

[i.3] Cable Television Laboratories, Inc.: "DOCSIS 3.1 Physical Layer Specification", CM-SP-PHYv3.1-I08-151210.

[i.4] ETSI EG 201 212 (V1.2.1): "Electrical safety; Classification of interfaces for equipment to be connected to telecommunication networks".

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3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ANSI/SCTE 220-1 [1] apply.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ANSI/SCTE 220-1 [1] apply.

Endorsement notice

All elements of ANSI/SCTE 220-1 [1] shall apply without modifications.

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