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IEEE Standard for High Data Rate Wireless Multi-Media Networks

Amendment 3: Extending the Physical Layer (PHY) Specification for Millimeter Wave to Operate from 57.0 GHz to 71 GHz

IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

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New York, NY 10016-5997
USA

IEEE Std 802.15.3f™-2017
(Amendment to
IEEE Std 802.15.3™-2016
as amended by
IEEE Std 802.15.3d™-2017, and
IEEE Std 802.15.3e™-2017)

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Abstract: Extending the RF channelization of the millimeter wave PHY to allow for use of the spectrum up to 71 GHz is presented in this amendment to IEEE Std 802.15.3-2016.

Keywords: 60 GHz, IEEE 802.15.3™, IEEE 802.15.3f™, millimeter wave, wireless

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Introduction

This introduction is not part of IEEE Std 802.15.3f-2017, IEEE Standard for High Data Rate Wireless Multi-Media Networks—Amendment 3: Extending the Physical Layer (PHY) Specification for Millimeter Wave to Operate from 57.0 GHz to 71 GHz.

This amendment updates the channelization of the millimeter wave PHY to use the expanded unlicensed millimeter wave spectrum up to 71 GHz. Applications using multi-Gbps data transfer currently supported by IEEE Std 802.15.3-2016 can use the additional spectrum to enable higher effective throughput, enhance coexistence characteristics, and maintain channel plan consistency with IEEE Std 802.15.3e™-2017 and IEEE Std 802.11™-2016.

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IEEE Standard for High Data Rate Wireless Multi-Media Networks

Amendment 3: Extending the Physical Layer (PHY) Specification for Millimeter Wave to Operate from 57.0 GHz to 71 GHz

(This amendment is based on IEEE Std 802.15.3-2016™ as amended by IEEE Std 802.15.3d™-2017 and IEEE Std 802.15.3e™-2017)

NOTE—The editing instructions contained in this amendment define how to merge the material contained therein into the existing base standard and its amendments to form the comprehensive standard.

The editing instructions are shown in ***bold italic***. Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using ~~strikethrough~~ (to remove old material) and underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Deletions and insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editing instructions, change markings, and this NOTE will not be carried over into future editions because the changes will be incorporated into the base standard.[1]

4. General description

4.5 Characteristics of the mmWave PHY

4.5.1 mmWave PHY characteristics

Change the first sentence of the first paragraph of 4.5.1 as indicated:

The mmWave PHY, as described in Clause 11, is defined for the frequency band of ~~57.0–66.0~~ 57.0 GHz to 71.0 GH, as allocated by the regulatory agencies in Europe, Japan, Canada, and the United States as well as any other areas where the regulatory bodies have been allocated this band.

[1]Notes in text, tables, and figures are given for information only, and do not contain requirements needed to implement the standard.

11. PHY specification for millimeter wave

11.1 General requirements

11.1.1 Regulatory information

Change the first sentence in the first paragraph of 11.1.1 as indicated:

The mmWave PHY operating frequency is within the ~~57.0–66.0~~ 57.0 GHz to 71.0 GHz range as allocated by the regulatory agencies in Europe, Japan, Canada, and the United States.

11.1.5 RF channelization

Change Table 11-3 as indicated:

Table 11-3—mmWave PHY channelization

CHNL_ID	Start frequency	Center frequency	Stop frequency
1	57.240 GHz	58.320 GHz	59.400 GHz
2	59.400 GHz	60.480 GHz	61.560 GHz
3	61.560 GHz	62.640 GHz	63.720 GHz
4	63.720 GHz	64.800 GHz	65.880 GHz
5	65.880 GHz	66.960 GHz	68.040 GHz
6	68.040 GHz	69.120 GHz	70.200 GHz

11.1.13 mmWave PHY PIB

Change the sixth row of Table 11-7 as indicated (unchanged rows not shown):

phyNumChannelsSupported	Variable	~~Value = 0x04 as~~ As defined in 11.1.5.	Read/write

11.3 High Speed Interface mode of mmWave PHY

11.3.1 General operating specifications

11.3.1.1 Operating frequency bands

Change the paragraph as indicated:

The set of operating channels is defined in Table ~~11-5~~ 11-3. A compliant ~~IEEE 802.15.3e~~ IEEE 802.15.3 implementation that implements the HSI PHY shall support at least CHNL_ID 2 or CHNL_ID 3.

11.4 Audio/Visual mode of mmWave PHY

11.4.1 General requirements

11.4.1.1 AV PHY channelization

Change the first paragraph of 11.4.1.1 as indicated:

The HRP mode uses the channels defined in Table 11-3. A compliant ~~IEEE 802.15.3c~~ IEEE 802.15.3 implementation that implements the AV PHY shall support at least channel number 2.

Change Table 11-44 as indicated:

Table 11-44—Mapping between HRP/LRP channel index and CHNL_ID

CHNL_ID	HRP channel index	LRP channel index
1	1	1
2	2	1
3	3	1
4	4	1
5	1	2
6	2	2
7	3	2
8	4	2
9	1	3
10	2	3
11	3	3
12	4	3
13	5	1
14	6	1
15	5	2
16	6	2
17	5	3
18	6	3

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