IEEE P802.11  
Wireless LANs

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| Update to 6GHz Operating Classes | | | | |
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Abstract

As a result of regulatory changes in the US and Europe and to maintain harmonization, this contribution proposes an update to Annex E Operational Classes for 6GHz band.

This submission present proposed resolution for CIDs 24047, 24049, 24050, 24052, 24053, 24213, 24255, 24256, 24547.

The discussion is in reference to IEEE P802.11ax™/D6.0, November 2019.

Proposed Changes:

1. **at p767.59, update Section “27.3.23.2 Channel allocation in the 6 GHz band” consistent with start channel frequencies at 5,950 and 5,925 MHz**
2. **at p771.14, remove Editor’s Note**

**In Table E-4**

1. **at p771.29, change row 131 start channel frequencies to 5,950MHz**
2. **at p772.9, change row 132 start channel frequencies to 5,950MHz**
3. **at p772.23, change row 133 start channel frequencies to 5,950MHz**
4. **at p772.30, change row 134 start channel frequencies to 5,950MHz**
5. **at p772.34, change row 135 start channel frequencies to 5,950MHz**
6. **at p772.40, add row <ANA> to accommodate the first 20MHz channel at 5,925-5,945MHz**

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| **CID** | **Commenter** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 24047 | Tanaka, Yusuke | 771.13 | E.1 | The second part of the editor's note, "Channelization may be revised when more information is available", should be refined. "Channelization" may indicate the contents of Table E-4, and "more information" is ambiguous, so both should be clarified for future revising. | Replace the second part of the editor's note with "Contents of Table E-4 might be revised based on rules or oders expected to be issued during the sponsor ballot of this amendment". | **Revised**  Note to commenter:  Removed the Editor’s Note.  Instruction to Editor: Implement the proposed text updates in [11-20-0646-01-00ax](https://mentor.ieee.org/802.11/upload-document?ack=847&t=7872600040%7F1). |
| 24049 | Sato, Naotaka | 771.13 | E.1 | "Regulations on the 6 GHz band are in flux."  This sentence represents the current situation of regulatory discussion, however this is not informative for users of this amendment standard. It should be more informative for them to describe channel availability in the 6GHz band that would be different among the regulatory domain. | Change to "Note" from "Editor Note" as following;  "NOTE - Availability of 6 GHz channels specified in Table E-4 depends on the rules adopted in the regulatory domain where device is used." | **Rejected**  The text prior to Table E-4 at 4375.59 already covers the global regulatory dependent applicability of the table. |
| 24050 | Sato, Naotaka | 771.13 | E.1 | "Channelization may be revised when more information is available."  There is no adopted rule for use of 6 GHz band, but the rule adoption might happen in some country during this Ballot or after this Ballot. The sentence should be clarified so that channelization can be changed based on the rule. | Replace the sentence as "Note".  "There is no adopted rules for use of 6 GHz band in any regulatory domain. Therefore, Table E-4 may be updated based adoption of the rules in some regulatory domain." | **Revised**  Note to commenter:  Removed the Editor’s Note. With progress in the regulatory work, channelization is revised/ proposed for global adoption and is supporting the US ruling as well.  Instruction to Editor: Implement the proposed text updates in [11-20-0646-01-00ax](https://mentor.ieee.org/802.11/upload-document?ack=847&t=7872600040%7F1). |
| 24052 | Furuichi, Sho | 771.13 | E.1 | Comments to the 1st sentence of Editor's Note: The sentence represents the current situation of regulatory discussion, but this is not informative for users of this amendment standard (i.e. developpers). Rather, it is more informative for them to describe channel availability in the 6GHz band that would be different among the regulatory domain. Otherwise, it looks as if all the channels will be available in any regulatory domain because Editor's Note will be removed before publication. | Remove the 1st sentence of the Editor's Note. Instead, add the following NOTE.    "NOTE - Availability of 6 GHz channels specified in Table E-4 depends on the rules adopted in the regulatory domain where device is used." | **Rejected**  Definition of a channel in Table E-4 does not imply that channel is available in all regulatory domains, and it is no different for the 6 GHz band channels. |
| 24053 | Furuichi, Sho | 771.13 | E.1 | Comments to the 2nd sentence of Editor's Note: At this moment, there is no adopted rule for use of 6GHz band, but the rule adoption might happen in some country during the Sponsor Ballot (incl. recirculation) of this amendment standard. The sentence should be clarified so that channelization can be changed upon publication of the rule during the Sponsor Ballot. Behavior limits set may need to be added upon the adopted rule. | Replace the 2nd sentence of the Editor's Note by the following texts:    "There is no adopted rules for use of 6 GHz band in any regulatory domain. Therefore, Table E-4 may be updated during the period of the Sponsor Ballot of this amendment standard upon adoption of the rules in some regulatory domain." | **Revised**  Note to Commenter:  Removed the Editor’s Note. With progress in the regulatory work, channelization is revised/ proposed for global adoption and is supporting the US ruling as well.  Instruction to Editor: Implement the proposed text updates in [11-20-0646-01-00ax](https://mentor.ieee.org/802.11/upload-document?ack=847&t=7872600040%7F1). |
| 24213 | Schelstraete, Sigurd | 771.13 | E.1 | Reminder that the Editor's note calls for a review of the channelization. Submission 19/2041 contains a proposal for consideration. | Consider channelization proposal in 19/2041 | **Revised**  Note to Commenter:  Agree with the commenter that moving the channels starting at 5940 MHz to 5950 MHz is beneficial. As for performing channelization separately for each U-NII band, US LPI ruling is over all U-NII-5 to 8 bands; optimum solution is not separate channelization per sub-bands.  Instruction to Editor: Implement the proposed text updates in [11-20-0646-01-00ax](https://mentor.ieee.org/802.11/upload-document?ack=847&t=7872600040%7F1). |
| 24255 | Petrick, Albert | 771.53 | E.1 | Following the FCC 6 GHz R&O, Annex E Table E-4 should be updated with a channel list (channel plan) for the 6 GHz band as a baseline. The 6 GHz channel list should be added before submitting the final amendment to REVCOM. | Add 6 GHz channel list to Annex E Table E-4. | **Revised**  Note to Commenter:  Channel list is revised considering the latest status of regulations in US and EU.  Instruction to Editor: Implement the proposed text updates in [11-20-0646-01-00ax](https://mentor.ieee.org/802.11/upload-document?ack=847&t=7872600040%7F1). |
| 24256 | Petrick, Albert | 676.61 | 27.3.23.2 | Following the FCC 6 GHz R&O, if there are any changes to the start center frequency 5940 MHz, this should be updated. | As commented | **Revised**  Note to Commenter:  Channel list is revised considering the latest status of regulations in US and EU.  Instruction to Editor: Implement the proposed text updates [11-20-0646-01-00ax](https://mentor.ieee.org/802.11/upload-document?ack=847&t=7872600040%7F1). |
| 24547 | Hamilton, Mark | 771.14 | E.1 | The draft needs to be clear on channelization. Do we have "more information" yet? | Update the tables, if needed, and remove the Editor's Note. | **Revised**  Note to Commenter:  Channel list is revised considering the latest status of regulations in US and EU.  Instruction to Editor: Implement the proposed text updates in [11-20-0646-01-00ax](https://mentor.ieee.org/802.11/upload-document?ack=847&t=7872600040%7F1). |

**Discussion**:

In order to harmonize the 6 GHz channelization across the US and Europe, need to update the channel starting frequency and operating classes for the 6GHz band. More specifically, the lower edge of starting channel should be at 5,945MHz instead of 5,935MHz as it is the case in the current IEEE P802.11ax™/D6.0.

**Proposed Text Updates for CIDs 24047, 24050, 24052, 24053, 24213, 24255, 24256, 24547**

***Instruction to Editor: Update D6.0 P676L61 as shown below.***

**27.3.23.2 Channel allocation in the 6 GHz band**

Channel center frequencies are defined at every integer multiple of 5 MHz above the channel starting frequency. The relationship between center frequency and channel number is given in Equation (27-135).

Channel center frequency = Channel starting frequency + 5 × *nch* (MHz) (27-135)

where

*nch* = 1, …, 253

Channel starting frequency is defined as dot11ChannelStartingFactor × 500 kHz

For example, a channel center frequency of 5.955 GHz is indicated by dot11ChannelStartingFactor = 11,900 and *nch* = 1. A channel center frequency of 5.935 GHz is indicated by dot11ChannelStartingFactor = 11,850 and *nch* = 2.

***Instruction to Editor: Add the following row to Table 27-54 at D6.0 P678L54.***

* PHY MIB

|  |  |  |
| --- | --- | --- |
| * HE PHY MIB attributes | | |
| Managed object | Default value/range | Operational semantics |
| … | | |
| **dot11PHYOFDMTable** | | |
| dot11TwentyMHzOperationImplemented | false/Boolean | Static |
| dot11ChannelStartingFactor | Implementation dependent | Dynamic |

***Instruction to Editor: Update D6.0 P771L13 as shown below.***

**E.1 Country information and operating classes**

***Insert the following rows and update the “reserved” row appropriately in Table E-4:***

**Table E-4—Global operating classes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Operating class** | **Nonglobal operating class(es)** | **Channel starting frequency (GHz)** | **Channel spacing (MHz)** | **Channel set** | **Channel center frequency index** | **Behavior limits set** |
| 131 |  | 5.950 | 20 | — | 1, 5, 9, 13,  17, 21, 25,  29, 33, 37,  41, 45, 49,  53, 57, 61,  65, 69, 73,  77, 81, 85,  89, 93, 97,  101, 105,  109, 113,  117, 121,  125, 129,  133, 137,  141, 145,  149, 153,  157, 161,  165, 169,  173, 177,  181, 185,  189, 193,  197, 201,  205, 209,  213, 217,  221, 225,  229, 233 |  |
| 132 |  | 5.950 | 40 | — | 3, 11, 19, 27, 35, 43, 51, 59, 67, 75, 83, 91, 99, 107, 115, 123, 131, 139, 147, 155, 163, 171, 179, 187, 195, 203, 211, 219, 227 |  |
| 133 |  | 5.950 | 80 | — | 7, 23, 39, 55, 71, 87, 103, 119, 135, 151, 167, 183, 199, 215 |  |
| 134 |  | 5.950 | 160 | — | 15, 47, 79, 111, 143, 175, 207 |  |
| 135 |  | 5.950 | 80 | — | 7, 23, 39, 55, 71, 87, 103, 119, 135, 151, 167, 183, 199, 215 | 80+ |
| <ANA> |  | 5.925 | 20 | — | 2 |  |

**Reference:**

[1] IEEE P802.11ax™/D6.0, November 2019