IEEE P802.11
Wireless LANs

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| CID Resolution for 30.3.4 Channelization |
| Date: 2018-02-05 |
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|  |  |  |  |  |

Abstract

This document proposes resolution for CIDs 2089, 1455, 1456, 1457, 1458, 1459, 1609, 1672, (8) [1].

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| **CID** | **Comment** | **Proposed change** |
| 2089 | Channelization section is very confusing and needs to be improved | Entire section is very confusing. The notation is confusing. There must be a way to simplify the way that the primary, secondary, seconday1, secondary2 channels are specified. Couldn't it just be as easy to include a simple table. Do we really need the equations? |
| 1455 | If MATLAB syntax is preferred, please define somewhere for index and value mapping and describe. Otherwise, follow the regular mathematical form and expression methodology. | Massage on the mathematical description, e.g., idx0 = [-3, -1, +1, +3], m=1,2,3,4. Either defining the m indexing and value mapping, or follow vector definition. |
| 1456 | Add the constraint that the value of dot11ChannelCenterFrequencyIndex+idx0(m) shall be equal to or greater than zero | In order to prevent for channel to be set below channel starting frequency, restrict the channel configuration only shown in the Figure 120 by adding the constraint that dot11ChannelCenterFrequencyIndex+idx0(m) shall be equal to or greater than zero. If required, the upper bound might be set too. |
| 1457 | Better to expand the table with n parameters instead of MATLAB type of description in Table 43. Few additional rows do not seem to harm for clarity. | Add one column for n, and explicitly describe idxP, idxS, idxS1 and idxS2 per n. For example for 4.32GHz case, it will have two rows (one for n=0, the other is for n=1), and each row would indicate idxP/S/S1/S2 values. Please do the same exercise for 6.48GHz and 8.64GHz. It only cost 6 more rows. |
| 1458 | For 2.16+2.16 case, the value shall be set to 1,3,5,7,9 or 11 unless 2,4,6,8,10 values are also allowed as urrentChannelCenterFrequencyIndex0 or 1 | Clarity the available values for configuration with normative text. |
| 1459 | For 4.32+4.32 case, the value shall be set to 2,4,6,8, or 10 unless 1,3,5,7,9, or 11 values are also allowed as urrentChannelCenterFrequencyIndex0 or 1 | Clarity the available values for configuration with normative text. |
| 1609 | Concerning "dot11ChannelCenterFrequencyIndex". Are 5 and 7 valid values? | As in comment. 5 and 7 should be disallowed. This is also stated on line 14-15 p. 257 |
| 1672 | Index value of 0 is used twice | Not sure if a fix is needed. Does the use of a idxP '0' index for both 2.16GHz and 6.48GHz channel center frequencies have the potential of causing a Software/Firmware bug? |

**CID** 2089, 1455, 1456, 1457, 1458, 1459, 1609, 1672

*Resolution:*

Revised.

*Editor: change the text as below, in subclause 30.3.4 Channelization, page 255, line 6, [2]*

* + 1. Channelization

A channel used by an EDMG STA is specified by the four PLME MIB fields defined in Table 41.

Table 41—Fields that specify a channel used by an EDMG STA

|  |  |
| --- | --- |
| Field | Meaning |
| dot11CurrentChannelWidth | Channel width. Possible values represent 2.16 GHz, 4.32 GHz, 6.48 GHz, 8.64 GHz, 2.16+2.16 GHz, and 4.32+4.32 GHz. |
|  |  |
| dot11CurrentChannelCenterFrequencyIndex0 | For a 2.16 GHz, 4.32 GHz, 6.48 GHz, and 8.64 GHz channel, denotes the channel center frequency.For a 2.16+2.16 GHz channel, denotes the center frequency of the primary channel.For a 4.32+4.32 GHz channel, denotes the center frequency of the 4.32 GHz channel containing the primary 2.16 GHz channel.Value range is 1 – 11. |
| dot11CurrentChannelCenterFrequencyIndex1 | For a 2.16+2.16 GHz channel, denotes the center frequency of the secondary channel.For a 4.32+4.32 GHz channel, denotes the center frequency of the 4.32 GHz channel which contains the secondary 2.16 GHz channels only.For a 2.16 GHz, 4.32 GHz, 6.48 GHz, and 8.64 GHz channel, it is undefined.Value range is 1 – 11. |
| dot11CurrentPrimaryChannel | Denotes the location of the primary 2.16 GHz channel.Value range is 1 – 11. |

The channelization used by an EDMG STAs is shown in Figure 120.

An EDMG STA can use one of the channels shown in Figure 120. The channel number is shown in the center of the trapezoid defining the particular channel location.

The support of 2.16 GHz Channel #2 and 4.32 GHz Channel #10 with Channel #2 as a primary is mandatory. The support of other channels is optional.



Figure 120—Channelization used by EDMG STAs

Table 42 defines the valid configurations for 2.16 GHz, 4.32 GHz, 6.48 GHz, and 8.64 GHz channels. Table 43 defines the valid configurations for 2.16+2.16 GHz channel. Table 44 defines the valid configurations for 4.32+4.32 GHz channel.

An entry in Table 42, Table 43, and Table 44 denoted as *Idx* (#*Ch*) defines the channel index value *Idx* and the corresponding channel number *Ch* as specified in Annex E. The definition of the channel index and channel number is shown in Figure 120.

The channel index is defined in the range from 0 to 12 and is shown near the vertical dotted lines. The increment of the channel index by 1 corresponds to the frequency step equal to the half of channel spacing Δ*f* = 1.08 GHz depicted in the horizontal axis corresponding to the frequency in GHz.

The current center frequency for the channel containing the primary 2.16 GHz channel is defined as follows:

Channel center frequency0 [GHz] = (Channel starting frequency + 1.08) + 1.08 × dot11CurrentChannelCenterFrequencyIndex0

The channel starting frequency is given by the operating class (Annex E).

For 2.16+2.16 GHz and 4.32+4.32 GHz channel configurations, the current center frequency for the channel containing the secondary 2.16 GHz channels only is defined as follows:

Channel center frequency1 [GHz] = (Channel starting frequency + 1.08) + 1.08 × dot11CurrentChannelCenterFrequencyIndex1

For 4.32 GHz, 6.48 GHz, and 8.64 GHz channels, the dot11CurrentChannelCenterFrequencyIndex1 is not defined, which is marked as N/A in Table 42.

The center frequency of the primary 2.16 GHz channel is given by equation:

Primary 2.16 GHz channel center frequency [GHz] = (Channel starting frequency + 1.08) + 1.08 × dot11CurrentPrimaryChannel

**Table 42 — 2.16 GHz, 4.32 GHz, 6.48 GHz, and 8.64 GHz channels used by an EDMG STA**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Channel configuration #** | **dot11****Current****Channel****Width** | **dot11****Current****Channel****Center****Frequency****Index0** | **dot11****Current****Primary****Channel** | **dot11****Current****Channel****Center****Frequency****Index1** |
| 1 | 2.16 GHz | 1 (#1) | 1 (#1) | N/A |
| 2 | 3 (#2) | 3 (#2) |
| 3 | 5 (#3) | 5 (#3) |
| 4 | 7 (#4) | 7 (#4) |
| 5 | 9 (#5) | 9 (#5) |
| 6 | 11 (#6) | 11 (#6) |
| 7 | 4.32 GHz | 2 (#9) | 1 (#1) |
| 8 | 3 (#2) |
| 9 | 4 (#10) | 3 (#2) |
| 10 | 5 (#3) |
| 11 | 6 (#11) | 5 (#3) |
| 12 | 7 (#4) |
| 13 | 8 (#12) | 7 (#4) |
| 14 | 9 (#5) |
| 15 | 10 (#13) | 9 (#5) |
| 16 | 11 (#6) |
| 17 | 6.48 GHz | 11 (#6) | 1 (#1) |
| 18 | 3 (#2) |
| 19 | 5 (#3) |
| 20 | 5 (#18) | 3 (#2) |
| 21 | 5 (#3) |
| 22 | 7 (#4) |
| 23 | 7 (#19) | 5 (#3) |
| 24 | 7 (#4) |
| 25 | 9 (#5) |
| 26 | 9 (#20) | 7 (#4) |
| 27 | 9 (#5) |
| 28 | 11 (#6) |
| 29 | 8.64 GHz | 4 (#25) | 1 (#1) |
| 30 | 3 (#2) |
| 31 | 5 (#3) |
| 32 | 7 (#4) |
| 33 | 6 (#26) | 3 (#2) |
| 34 | 5 (#3) |
| 35 | 7 (#4) |
| 36 | 9 (#5) |
| 37 | 8 (#27) | 5 (#3) |
| 38 | 7 (#4) |
| 39 | 9 (#5) |
| 40 | 11 (#6) |

**Table 43 — 2.16+2.16 GHz channel used by an EDMG STA**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Channel configuration #** | **dot11****Current****Channel****Width** | **dot11****Current****Channel****Center****Frequency****Index0** | **dot11****Current****Primary****Channel** | **dot11****Current****Channel****Center****Frequency****Index1** |
| 41 | 2.16+2.16 GHz | 1 (#1) | 1 (#1) | 3 (#2) |
| 42 | 5 (#3) |
| 43 | 7 (#4) |
| 44 | 9 (#5) |
| 45 | 11 (#6) |
| 46 | 3 (#2) | 3 (#2) | 1 (#1) |
| 47 | 5 (#3) |
| 48 | 7 (#4) |
| 49 | 9 (#5) |
| 50 | 11 (#6) |
| 51 | 5 (#3) | 5 (#3) | 1 (#1) |
| 52 | 3 (#2) |
| 53 | 7 (#4) |
| 54 | 9 (#5) |
| 55 | 11 (#6) |
| 56 | 7 (#4) | 7 (#4) | 1 (#1) |
| 57 | 3 (#2) |
| 58 | 5 (#3) |
| 59 | 9 (#5) |
| 60 | 11 (#6) |
| 61 | 9 (#5) | 9 (#5) | 1 (#1) |
| 62 | 3 (#2) |
| 63 | 5 (#3) |
| 64 | 7 (#4) |
| 65 | 11 (#6) |
| 66 | 11 (#6) | 11 (#6) | 1 (#1) |
| 67 | 3 (#2) |
| 68 | 5 (#3) |
| 69 | 7 (#4) |
| 70 | 9 (#5) |

**Table 44 — 4.32+4.32 GHz channel used by an EDMG STA**

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| --- | --- | --- | --- | --- |
| **Channel configuration #** | **dot11****Current****Channel****Width** | **dot11****Current****Channel****Center****Frequency****Index0** | **dot11****Current****Primary****Channel** | **dot11****Current****Channel****Center****Frequency****Index1** |
| 71 | 4.32+4.32 GHz | 2 (#9) | 1 (#1) | 6 (#11) |
| 72 | 3 (#2) |
| 73 | 1 (#1) | 8 (#12) |
| 74 | 3 (#2) |
| 75 | 1 (#1) | 10 (#13) |
| 76 | 3 (#2) |
| 77 | 4 (#10) | 3 (#2) | 8 (#12) |
| 78 | 5 (#3) |
| 79 | 3 (#2) | 10 (#13) |
| 80 | 5 (#3) |
| 81 | 6 (#11) | 5 (#3) | 2 (#9) |
| 82 | 7 (#4) |
| 83 | 5 (#3) | 10 (#13) |
| 84 | 7 (#4) |
| 85 | 8 (#12) | 7 (#4) | 2 (#9) |
| 86 | 9 (#5) |
| 87 | 7 (#4) | 4 (#10) |
| 88 | 9 (#5) |
| 89 | 10 (#13) | 9 (#5) | 2 (#9) |
| 90 | 11 (#6) |
| 91 | 9 (#5) | 4 (#10) |
| 92 | 11 (#6) |
| 93 | 9 (#5) | 6 (#11) |
| 94 | 11 (#6) |

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The circumstances in which a channel can be used in a regulatory domain is determined by local regulatory rules and any additional rules prescribed by this standard.

*Editor: introduce changes as below, p 232, line 2*

* + 1. PHYCONFIG\_VECTOR parameters

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an EDMG PHY contains a CHANNEL\_WIDTH parameter, which identifies the operating channel width and takes one of the values 2.16 GHz, 4.32 GHz, 6.48 GHz, 8.64 GHz, 2.16+2.16 GHz, or 4.32+4.32 GHz. The PHY shall set dot11CurrentChannelWidth to the value of this parameter.

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an EDMG PHY contains a CENTER\_FREQUENCY\_INDEX\_0 parameter, which identifies the center frequency of the 2.16 GHz, 4.32 GHz, 6.48 GHz, and 8.64 GHz channel. For 2.16+2.16 GHz channel configuration, it identifies the center frequency of the primary channel. For 4.32+4.32 GHz channel configuration, it identifies the center frequency of the 4.32 GHz channel containing the primary 2.16 GHz channel. The PHY shall set dot11CurrentChannelCenterFrequencyIndex0 to the value of this parameter defined in the range from 1 to 11 (see Table 41).

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an EDMG PHY contains a CENTER\_FREQUENCY\_INDEX\_1 parameter, which for 2.16+2.16 GHz channel configuration identifies the center frequency of the secondary channel. For 4.32+4.32 GHz channel configuration, it identifies the center frequency of the 4.32 GHz channel which contains the secondary 2.16 GHz channels only. The PHY shall set dot11CurrentChannelCenterFrequencyIndex1 to the value of this parameter defined in the range from 1 to 11 (see Table 41).

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an EDMG PHY contains an OPERATING\_CHANNEL parameter, which identifies the operating or primary 2.16 GHz channel. The PHY shall set dot11CurrentPrimaryChannel to the value of this parameter defined in the range from 1 to 11 (see Table 41).

The valid channel configurations for an EDMG STA and configuration rules are defined in 30.3.4.

**SP:**

Do you agree to accept the proposed resolutions for CIDs 2089, 1455, 1456, 1457, 1458, 1459, 1609, 1672 in (11-18-0284-00-00ay CID resolution for 30 3 4 Channelization)?

**References:**

1. 11-18-0067-01-00ay-11ay-d1-0-comment-database
2. Draft P802.11ay\_D1.0