IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CC35 -- 13 GEN CIDs | | | | |
| Date: 2021-11-11 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Jon Rosdahl | Qualcomm Technology, Inc. | 10871 N 5750 W  Highland, UT 84003 | 801-492-4023 | jrosdahl @ gmail . com |
|  |  |  |  |  |

Abstract

This submission contains 13 CIDs assigned to Jon Rosdahl.

R0: Initial file.

R1: Updates to CID 111, 164, 181, 249, 393, 336, 497, 230 and 423 now ready for Review.

Updates to 182, 184, 563 (related) and 372 updated, but still need discussion.

R2: Update to CID 164 Resolution.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 497 |  | C.3 | It is meaningless for capability MIB attributes to have defaults | Delete all DEFAULT lines for MIB attributes where the DESCRIPTION says the attribute is a "capability variable" (e.g. dot11OpportunisticTransmissionsImplemented) |

AdHoc Notes:

"GEN: 2021-09-16 21:55:45Z - status set to: Submission Required -

Check the ARC Template - No value in having a DEFAULT, so look for how many need to be removed.

IF a Submission is not submitted, this CID will be resolved with ""Reject; The comment fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined.""

GEN: 2021-05-15 23:39:25Z - status set to: Discuss"

Offline discussion:

RFC 2578, section 7.9 gives a pretty good description. It pretty clearly says DEFVAL is appropriate for anything that's read-only. And it is optional for anything that is read-write.

so a capability having a default is really not that bad IMHO...kind of gives minimum capability that a STA/device should have.

That's a different point-of-view than CID 497. I can see both points-of-view. Interesting...

Claim that ARC (or anybody else in 802.11) has no guidance on this. So, we need to decide as a TG what we think is sensible.

Proposed Resolution:

Reject: RFC 2578, section 7.9 gives a pretty good description. It pretty clearly says DEFVAL is appropriate for anything that's read-only. And it is optional for anything that is read-write. A Capability entry having a default indicates a minimum capability a device should have.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 230 |  | C.3 |  |  | Status variables, e.g. dot11CMMGCurrentChannelWidth, should not have defaults | Remove the DEFVAL line for all status variables |

AdHoc Notes:

GEN: 2021-05-12 22:26:40Z - status set to: Submission Required

From offline discussions:

RFC 2578, section 7.9 gives a pretty good description. It pretty clearly says DEFVAL is appropriate for anything that's read-only. And it is optional for anything that is read-write.

so a status variable having a default is really not that bad IMHO...kind of gives expected initial starting value that a STA should have.

ARC (or anybody else in 802.11) has no guidance on this. So, we need to decide as a TG what we think is sensible.

Proposed Resolution:

Reject: RFC 2578, section 7.9 gives a pretty good description. It pretty clearly says DEFVAL is appropriate for anything that's read-only. And it is optional for anything that is read-write. A DEFVAL for a status variable could indicate expected initial starting value that a STA should have.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 423 |  | B.4 | DMG only uses Extended Channel Switch Announcement, but PICS doesn't capture this (SM4.5 has the DMG exclusion, but SM20 and DSE9 don't mention DMG) | As it says in the comment |

AdHoc Notes:

"GEN: 2021-09-16 21:50:22Z - status set to: Submission Required

Correct cited clause should be B.4

""AND NOT CFDMG:M"" to SM20. \* and DSE9.\* would be the change to the PICs - need to have page and line number - about 20 instances.

GEN: 2021-05-15 23:41:15Z - status set to: Discuss"

From the Minutes – Sept 16:

3.8.8 CID 423 (GEN):

3.8.8.1 Do we agree on the direction suggested?

3.8.8.2 Note the clause reference should be B.4, not D.4.

3.8.8.3 Suggestion is to add “AND NOT CFDMG:M" to SM20.\* and DSE9.\*. About 20 instances.

3.8.8.4 Assign to Jon ROSDAHL.

Proposed resolution:

Revised: Make the changes as noted:

P3642.49 – add “AND NOT CFDMG:M” to SM20.1 Status cell

P3642.53 – add “AND NOT CFDMG:M” to SM20.2 Status cell

P3642.57 – add “AND NOT CFDMG:M” to SM20.3 Status cell

P3643.6 – add “AND NOT CFDMG:M” to SM20.4 Status cell

P3643.20 – add “AND NOT CFDMG:M” to SM20.5 Status cell

P3643.31 – add “AND NOT CFDMG:M” to SM20.6 Status cell

P3643.40 – add “AND NOT CFDMG:M” to SM20.7 Status cell

P3643.50 – add “AND NOT CFDMG:M” to SM20.8 Status cell

P3644.08 – add “AND NOT CFDMG:M” to SM20.9 Status cell

P3644.16 – add “AND NOT CFDMG:M” to SM20.10 Status cell

P3644.21 – add “AND NOT CFDMG:M” to SM20.11 Status cell

And at

P3662.12 – add “AND NOT CFDMG:M” to DSE9.1 Status cell

P3662.21 – add “AND NOT CFDMG:M” to DSE9.2 Status cell

P3662.28 – add “AND NOT CFDMG:M” to DSE9.3 Status cell

P3662.37 – add “AND NOT CFDMG:M” to DSE9.4 Status cell

P3662.46 – add “AND NOT CFDMG:M” to DSE9.5 Status cell

P3662.55 – add “AND NOT CFDMG:M” to DSE9.6 Status cell

P3663.08 – add “AND NOT CFDMG:M” to DSE9.7 Status cell

P3663.18 – add “AND NOT CFDMG:M” to DSE9.8 Status cell

P3663.26 – add “AND NOT CFDMG:M” to DSE9.9 Status cell

P3663.37 – add “AND NOT CFDMG:M” to DSE9.10 Status cell

P3663.46 – add “AND NOT CFDMG:M” to DSE9.11 Status cell

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 372 | 199.00 | 3.2 | "transmitted basic service set identifier (BSSID): The BSSID included in the medium access control (MAC) header transmitter address field of a Beacon frame when the multiple BSSID capability is supported." -- "transmitter address" should be "TA" since the field is referred to as the TA field | As it says in the comment |

AdHoc Notes:

"GEN: 2021-10-25 16:44:13Z - AI: Jon circulated discussion on reflector. -

Options for resolution:

A) Change ""...transmitter address field..."" to ""...transmitter address (TA) field…""

B) Change to ""...transmitter address field..."" to ""...TA field…""

C) Change ""...transmitter address field… to ""... Address 2 field…""

GEN: 2021-05-24 15:51:34Z - status set to: Discuss

Straw Poll for a Proposed Resolution for CID 372

A) Change ""...transmitter address field..."" to ""...transmitter address (TA) field…""

B) Change to ""...transmitter address field..."" to ""...TA field…""

C) Abstain.

Results: 4-4-2 (8 no response)

GEN: 2021-05-14 15:57:02Z - status set to: Review

GEN: 2021-05-14 14:15:38Z -

Proposed Resolution: Revised

p199.51

""transmitted basic service set identifier (BSSID): The BSSID included in the medium access control

(MAC) header transmitter address field of a Beacon frame when the multiple BSSID capability is supported."" --

Change ""...transmitter address field..."" to ""...transmitter address (TA) field…"""

**Discussion:**

Discussion:

There are 32 instances of "transmitter address" in the D0.0 standard.

In the definitions clause 3.2, transmitter address is used 3 times:

1. p175.58: "bandwidth signaling transmitter address (TA): A TA that is used......"
2. p187.27: "nonbandwidth signaling transmitter address (TA): An address in the TA field of an medium access"
3. p199.51(D0.0) – the one in question.

"transmitted basic service set identifier (BSSID): The BSSID included in the medium access control (MAC) header transmitter address field of a Beacon frame when the multiple BSSID capability is supported."

In clause 3.4 Acronyms:

TA transmitter address or transmitting station address

TTAK TKIP-mixed transmitter address and key

The use of "transmitter address" followed by (TA) in two of 3 instances in the definition clause leads to justification for using it in the 3rd definition. Interesting the TA in the first two instances has a pre adjective given in both cases, but the acronym TA is used without the pre adjective when used in the definition.

The "Medium Access Control (MAC)" is spelled out and an acronym given, which also gives support for the use of transmitter address (TA).

There are 8 instances of "transmitter address (TA)" in the standard.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 336 |  | C.3 | "Its value is determined by device capabilities." should be "Its value is determined by STA capabilities." | As it says in the comment |

AdHoc Notes:

"GEN: 2021-09-16 21:42:43Z - status set to: Submission Required –

Some MIB Attributes have co-located logical entities, so a check for each would have to be made to make a global change.

The Use of ""device"" is in an ARC Doc - Jon To check on the template doc and look for definition of ""Device"" as opposed to ""STA"". If a thing contains multiple devices, then it may be ambiguous.

Device is used in many places, and it is not always a STA. There is a large number of ""Device"" and it would require a check one by one.

ED2: 2021-04-26 16:05:47Z - Transfer to GEN ad-hoc.

ED2: 2021-04-25 11:08:40Z - status set to: Discuss"

From Minutes: **Thursday Sept 16, 2021,**

3.8.5 CID 336 (GEN):

3.8.5.1 Should MIB attributes apply to a “device” or a “STA”?

3.8.5.2 This came from the ARC document with recommendations on MIB wording.

3.8.5.3 ARC Chair commented that he thinks there was discussion of this in ARC, and because some attributes apply to more than one STA (for example, apply to the relationship to co-located STAs), the decision was to leave it open as “device”.

3.8.5.4 But, “device” is vague, in those cases where it is a specific capability of the specific STA. Should we make specific changes?

3.8.5.5 Agree, we should not make a global change. Either leave as “device” or make only specific changes that are accurate.

3.8.5.6 Currently assigned to Jon ROSDAHL. He will do some more investigation and bring it back.

Discussion:

There is no ARC Template to address Device vs STA.

There are 292 Instances of "Its value is determined by device capabilities."

The statement is not incorrect.

Proposed Resolution:

Reject; The current text is not incorrect. There are 292 instances of “Its value is determined by device capabilities.". The commentor is objecting to the use of “device” instead of “STA”. The TGme (REVme) task group determined that “device” was sufficient and did not need to be changed.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 393 | 300.00 | 5.1.1.4 | "-- QoSAck, if the frame is an individually addressed frame and is acknowledged by the STA. -- QoSNoAck, if the frame is a group addressed frame and is not acknowledged by the STA." is weird, because it suggests you might have a unicast Data frame that is not acked, or a group-addressed Data frame that is acked | Change to "(and so is acknowledged by the STA)" or similar |

Discussion:

Context:

P300.1: When a non-QoS Data frame is received at a QoS STA, the service class parameter in the

MA-UNITDATA.indication primitive is set to

"-- QoSAck, if the frame is an individually addressed frame and is acknowledged by the STA.

-- QoSNoAck, if the frame is a group addressed frame and is not acknowledged by the STA."

The “and” makes it seem that if a frame is not acknowledged by the STA, that it may not be acked.

Given that this not the case, the proposed change can be applied as shown in the proposed resolution.

Proposed Resolution:

Revised: on p300.4 Change “frame and is acknowledged by the STA” to "frame (and so is acknowledged by the STA)."

p300.5 Change “frame and is not acknowledged by the STA." to “frame (and so is not acknowledged by the STA)."

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 249 | 299.00 | 5.1.1.3 | "The received individually addressed frames at a QoS STA may be as follows: a) Non-QoS subtypes, in which case the STA shall assign to them a priority of Contention." -- this is also true if they're group addressed | Change to "Data frames received by a STA may be of: [...]" |

GEN AdHoc Notes:

GEN: 2021-11-05 04:05:44Z - status set to: Review

Email discussion offered the following options:

1) “Received Data frames as a QoS STA may be as follows:”

2) "The received frames at a QoS STA may be as follows:"

3) "Data frames received by a STA may be of: "

4)"Data frames received by a STA may have:"

5) "Data frames received by a QoS STA may be of:"

Proposed Resolution: Revised; Change ""The received individually addressed frames at a QoS STA may be as follows:" with "Data frames received by a QoS STA may be of:"

**From Reflector Questions/Comments:**

5.1.1 is entitled “Data service” so why is this change required?

Also why is the scope of the cited text being expanded to data (group and individual)?

**Proposed Resolution:** Revised; Change ""The received individually addressed frames at a QoS STA may be as follows:" with "Data frames received by a QoS STA may be of:"

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 184 | 165.00 | 3.2 | "peer-to-peer link: A direct link within a quality-of-service (QoS) basic service set (BSS), a tunneled direct- link setup (TDLS) link, or a station-to-station (STA-to-STA) communication in an independent basic service set (IBSS)." is broken since it mixes "link" with "communication" | Change to "peer-to-peer link: A station-to-station (STA-to-STA) link between tunneled direct- link setup (TDLS) peer STAs in an infrastructure basic service set (BSS) or between STAs in an independent basic service set (IBSS)." |

GEN Adhoc Notes:

GEN: 2021-05-24 15:40:09Z - status set to: Discuss

GEN: 2021-05-13 13:17:16Z - status set to: Review

Similar to CID 563, 183 and 184

Proposed Resolution: Change peer to peer link definition:

Option 1: (Revised)

peer-to-peer link: A tunneled direct-link setup (TDLS) link, or a station-to-station (STA-to-STA) communication in a directional multi-gigabit (DMG) basic service set (BSS) or independent basic service set (IBSS).

Option2: (Accept)

peer-to-peer link: A station-to-station (STA-to-STA) link between tunneled direct-

link setup (TDLS) peer STAs in an infrastructure basic service set (BSS) or between STAs in an independent basic service set (IBSS).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 183 | 165.00 | 3.2 | "peer-to-peer link: A direct link within a quality-of-service (QoS) basic service set (BSS), a tunneled direct- link setup (TDLS) link, or a station-to-station (STA-to-STA) communication in an independent basic service set (IBSS)." is broken since there are no direct links other than TDLS and IBSS ones | Change to "peer-to-peer link: A tunneled direct- link setup (TDLS) link or a station-to-station (STA-to-STA) communication in an independent basic service set (IBSS)." |

AdHoc Notes:

GEN: 2021-05-24 15:39:22Z - status set to: Discuss

GEN: 2021-05-13 13:11:44Z - status set to: Review

Similar to CID 563, 183 and 184

Proposed Resolution: Revised; Change peer to peer link definition:

Option 1: (Accept)

peer-to-peer link: A tunneled direct-link setup (TDLS) link, or a station-to-station (STA-to-STA) communication in a directional multi-gigabit (DMG) basic service set (BSS) or independent basic service set (IBSS).

Option2: (Revised)

peer-to-peer link: A station-to-station (STA-to-STA) link between tunneled direct-

link setup (TDLS) peer STAs in an infrastructure basic service set (BSS) or between STAs in an independent basic service set (IBSS).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | |
| 563 | 165.00 | 3.1 | We already have the following definition for "direct link": "A bidirectional link from one quality-of-service (QoS) station (STA) to another QoS STA operating in the same infrastructure QoS basic service set (BSS) that does not pass through a QoS access point (AP)..."  and DLS has been removed in 802.11-2020. We can drop "direct link" from the peer-to-peer definition. | | Change peer-to-peer link definition to: "Peer-to-peer link: A tunneled direct-link setup (TDLS) link, or a station-to-station (STA-to-STA) communication in a directional multi-gigabit (DMG) basic service set (BSS) or independent basic service set (IBSS). |

AdHoc Notes:

"GEN: 2021-05-24 15:39:13Z - status set to: Discuss

GEN: 2021-05-13 13:10:05Z - status set to: Review

Similar to CID 563, 183 and 184

Proposed Resolution: Change peer to peer link definition:

Option 1: (Accept)

peer-to-peer link: A tunneled direct-link setup (TDLS) link, or a station-to-station (STA-to-STA) communication in a directional multi-gigabit (DMG) basic service set (BSS) or independent basic service set (IBSS).

Option2: (Revised)

peer-to-peer link: A station-to-station (STA-to-STA) link between tunneled direct-

link setup (TDLS) peer STAs in an infrastructure basic service set (BSS) or between STAs in an independent basic service set (IBSS)."

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 181 |  |  | "shall be able to" should be "shall" or "shall, if <condition>,". Ditto "shall be capable of" | As it says in the comment |

AdHoc Notes:

GEN: 2021-10-01 15:32:56Z - status set to: Discuss  
  
From Minutes 2021-05-24:

1.9.5. CID 183 (GEN):  
1.9.5.1. See also CIDs 184 and 563.  
1.9.5.2. Presented two options. Second option does not include DMG case in the definition of peer-to-peer link.  
1.9.5.3. Request for more time to review.  
1.9.5.4. ACTION ITEM #3: Jon ROSDAHL: Send proposed resolutions to the reflector.  
1.9.5.5. Move 183, 194 and 563 to Comment “Group Definitions Clause 3” and mark as Discuss.

GEN: 2021-05-20 16:19:20Z - See also 164 and 546   
GEN: 2021-05-12 22:17:08Z - status set to: Submission Required

Email Exchange:

There are 24 instances of “shall be able to”.

**Discussion:**

  Changing “shall be able to" should be "shall" is fine in most cases, but it seems that for a particular STA that must be able to perform certain tasks, as described in the phrase after the “shall be able to”….it may be proper to leave as is.

CID 546 changed “shall be capable of” to “shall support”.

**Proposed resolution:**

Incorporate the Proposed Resolution Changes for CID 181 in doc 11-21/1821r1 <<https://mentor.ieee.org/802.11/dcn/21/11-21-1821-01-000m-cc35-13-gen-cids.docx>>

**Proposed Resolution Changes:**

Review (remove "be able to") pages relative to D0.0 in 24 instances

**P773.7** change "A STA shall be able to properly construct a subset

of the frames specified in this clause for transmission and to decode a…”

* "A STA shall properly construct a subset of the frames specified in this clause for transmission and decode a…”

**P773.12** change A STA shall be able to validate every received frame using the frame check sequence (FCS) and to interpret certain fields from the MAC headers of all frames.”

* “A STA shall validate every received frame using the frame check sequence (FCS) and interpret certain fields from the MAC headers of all frames.”

**p1701.34** change "a non-DMG STA shall be able to interpret Control frames"

* " a non-DMG STA shall interpret Control frames"

**p1701.36** change "a DMG STA shall be able to interpret Control Frames”

* "a DMG STA shall interpret Control frames"

**p1820.30** change "non-S1G STA shall be able to respond to QoS"

* "non-S1G STA shall respond to QoS"

**p1825.12** change "A QoS STA shall be able to receive QoS"

* "A QoS STA shall support receiving QoS"

**p1825.30** change "A Qos STA shall be able to process received QoS"

* "A Qos STA shall process received QoS"

**p1831.10** change "A non-AP STA with dot11RAWOperationImplemented equal to true shall be able to follow the RAW procedure, as described in this subclause."

* "A non-AP STA with dot11RAWOperationImplemented equal to true shall follow the RAW procedure, as described in this subclause."

**p1840.39** change "A mesh STA with dot11MCCAActivated equal to true shall be able to track at least dot11MCCATrackStatesActive MCCAOP reservations, including its own reservations.”

* “A mesh STA with dot11MCCAActivated equal to true tracks at least dot11MCCATrackStatesActive MCCAOP reservations, including its own reservations.”
* Or “equal to true shall support tracking of at least"

**p1840.40** change "If the number of tracked MCCAOP reservations is less than dot11MCCATrackStatesActive, the mesh STA shall be able to track, set up, and accept additional reservations.

* "If the number of tracked MCCAOP reservations is less than dot11MCCATrackStatesActive, the mesh STA shall track, set up, and accept additional reservations.
* OR “mesh STA shall support accepting, setting up, and tracking of additional reservation.”

**P1889.4** change to "shall support", in alignment with CID 546

change "During a PSMP sequence, a STA shall be able to receive frames"

* "During a PSMP sequence, a STA shall support receiving frames"

**p2051.1** change to "shall support", in alignment with CID 546

change "An S1G STA that is starting a BSS shall be able to receive and transmit"

* "An S1G STA that is starting a BSS shall support receiving and transmitting"

**p2051.4** change to "shall support", in alignment with CID 546

change "MLME-START.request primitive and shall be able to receive at each"

* "MLME-START.request primitive and shall support receiving at each"

**P2081.36** change to "shall support", in alignment with CID 546

Change "A Sectorized beam capable AP supporting TXOP-based sectorization operation shall be able to transmit or receive through both the omnidirectional beam or the sectorized beams."

* "A Sectorized beam capable AP supporting TXOP-based sectorization operation shall support transmitting or receiving through both the omnidirectional beam or the sectorized beams.

**P2303.3** change to "shall support", in alignment with CID 546

change - "An HT STA that is starting or joining a BSS shall be able to receive and transmit at each of the MCS values listed…”

* “An HT STA that is starting or joining a BSS shall support receiving and transmitting at each of the MCS values listed…”

**P2426.14** change - "An HCCA AP for which dot11PublicTXOPNegotiationActivated is true or dot11ProtectedTXOPNegotiationActivated is true shall be able to maintain one or more dot11APCEntry(s) for each collaboration candidate in the dot11APCTable. These fields indicate the schedules that the AP should try to avoid using when creating schedules for new TS requests."

* "An HCCA AP for which dot11PublicTXOPNegotiationActivated is true or dot11ProtectedTXOPNegotiationActivated is true shall support maintaining one or more dot11APCEntry(s) for each collaboration candidate in the dot11APCTable. These fields indicate the schedules that the AP should try to avoid using when creating schedules for new TS requests."

**P2470.63-2471.4** change to "shall support", in alignment with CID 546

“A STA that is starting a VHT BSS shall be able to receive and transmit at each of the <VHT-MCS, NSS> tuple values indicated by the Basic VHT-MCS And NSS Set field of the VHT Operation parameter of the MLME-START.request primitive and shall be able to receive at each of the <VHT-MCS, NSS> tuple values indicated by the Supported VHT-MCS And NSS Set field of the VHT Capabilities parameter of the MLME-START.request primitive.”

* “A STA that is starting a VHT BSS shall support receiving and transmitting at each of the <VHT-MCS, NSS> tuple values indicated by the Basic VHT-MCS And NSS Set field of the VHT Operation parameter of the MLME-START.request primitive and shall support receiving at each of the <VHT-MCS, NSS> tuple values indicated by the Supported VHT-MCS And NSS Set field of the VHT Capabilities parameter of the MLME-START.request primitive.”

**P2482.34-39** change to "shall support", in alignment with CID 546

“The STA that is starting a TVHT BSS shall be able to receive and transmit at each of the <VHT-MCS, NSS> tuple values indicated by the Basic VHT-MCS And NSS Set field of the VHT Operation parameter of the MLME-START.request primitive and shall be able to receive at each of the <VHT-MCS, NSS> tuple values indicated by the Supported VHT-MCS and NSS Set field of the VHT Capabilities parameter of the MLMESTART.request primitive.”

* “The STA that is starting a TVHT BSS shall support receiving and transmitting at each of the <VHT-MCS, NSS> tuple values indicated by the Basic VHT-MCS And NSS Set field of the VHT Operation parameter of the MLME-START.request primitive and shall support receiving at each of the <VHT-MCS, NSS> tuple values indicated by the Supported VHT-MCS and NSS Set field of the VHT Capabilities parameter of the MLMESTART.request primitive.”

**P2508.59-65** change to "shall support", in alignment with CID 546

“A STA that is starting a CMMG BSS shall be able to receive and transmit at each of the <CMMG-MCS, NSS> tuple values indicated by the Basic CMMG-MCS and NSS Set field of the CMMG Operation parameter of the MLME-START.request primitive and shall be able to receive at each of the <CMMG-MCS, NSS> tuple values indicated by the Supported CMMG-MCS and NSS Set field of the CMMG Capabilities parameter of the MLME-START.request primitive.

* “A STA that is starting a CMMG BSS shall support receiving and transmitting at each of the <CMMG-MCS, NSS> tuple values indicated by the Basic CMMG-MCS and NSS Set field of the CMMG Operation parameter of the MLME-START.request primitive and shall support receiving at each of the <CMMG-MCS, NSS> tuple values indicated by the Supported CMMG-MCS and NSS Set field of the CMMG Capabilities parameter of the MLME-START.request primitive.

**P2954.38** change to "shall support", in alignment with CID 546-

Change “An HT STA that does not support the reception of an HT-greenfield format packet shall be able to detect that an HT-greenfield format packet is an HT transmission (as opposed to a non-HT transmission)”

* “An HT STA that does not support the reception of an HT-greenfield format packet shall support detection that an HT-greenfield format packet is an HT transmission (as opposed to a non-HT transmission)
* Or No Change:

**P3035.19** change to “shall support”, in alignment with CID 546- – “The receiver shall be able to decode a PPDU that was transmitted with a RIFS separation from the previous PPDU.”

* “The receiver shall support decoding a PPDU that was transmitted with a RIFS separation from the previous PPDU.”

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 164 |  |  | “shall be capable of” is not clear. It might allow a device to be capable of doing something, but not actually do it | Change to “shall” in each case. Ditto “shall be able to” |

**AdHoc Notes:**

GEN: 2021-10-01 15:33:36Z – status set to: Submission Required  
  
GEN: 2021-05-12 22:27:19Z – status set to: Submission Required

**Discussion:**

28 Instances of “shall be capable of”

The first instance at P1745.5 “A STA shall be capable of receiving MPDUs, containing all or part of an MSDU, of arbitrary length that is less than or equal to the maximum MSDU size as defined in 9.2.4.7 (Frame Body field), plus any security encapsulation overhead, plus MAC header and FCS.

Changing as requested:

A STA shall receive MPDUs, containing all or part of an MSDU, of arbitrary length that is less

than or equal to the maximum MSDU size as defined in 9.2.4.7 (Frame Body field), plus any security

encapsulation overhead, plus MAC header and FCS.

Does not read correctly.

**From Email exchange:**

CID 546 resolution was Change “shall be capable of” to “shall support” and “Shall be capable of” to “Shall support” in the locations shown in the table shown under “Discussion” for CID 546 in in 11-21/0829r4

So the “shall be capable of” was done already.

For the Comment, the change in CID 546 makes the changes that completely address the comment itself.

We already fixed the "shall be capable of"s under CID 546. What we discussed yesterday was the "shall be able to"s. And as for CID 546 change to "shall support" is the best term if it's really something that needs to be supported rather than actually done at that point (which should be just "shall").

The Proposed Change requests a new change for “shall be able to” – 24 instances.

This is a different comment/request, but trying to be accommodating the change requested is in the Proposed Changes for Updated Resolution:

These 24 Instances are addressed in CID 181. There is nothing more for CID 164 to do.

Original Proposed Resolution:

Reject: The change of “shall be capable of” to “shall” does not provide a complete sentence. While changing the sentence to some other form may be done, the sentence is not wrong and unambiguous.

Proposed Resolution:

Revised; The changes requested in the Comment for “shall be capable of” to “shall” have been made regarding changes in CID 546 and the changes in CID 181 cover the “shall be able to” instances (x24) called out by the Proposed Change .

Therefore, as a combined resolutions would be to incorporate the changes in doc 11-21/829r4 for CID 546 and 11-21/1821r2 for CID 181. Note to Editor, changes have been made in CID 546 and 181.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 111 |  |  | "that intends" is used 23 times in md D5.0, STAs and APs do not intend to do anything, these requirements should be reworded, and the phrase removed. | Remove "that intends". e.g. Current "A source DMG STA that intends to set up relay operation with a destination DMG STA shall obtain the capabilities of the destination DMG STA prior to initiating the relay setup ..." propose: "A source DMG STA shall obtain the capabilities of the destination DMG STA prior to initiating the relay setup ...". |

AdHoc Notes:

GEN: 2021-05-11 21:13:16Z - status set to: Submission Required

Discussion:

The proposed change: Remove "that intends". e.g.

Current "A source DMG STA that intends to set up relay operation with a destination DMG STA shall obtain the capabilities of the destination DMG STA prior to initiating the relay setup ..."  
propose: "A source DMG STA shall obtain the capabilities of the destination DMG STA prior to initiating the relay setup ...".

**Proposed Resolution**:

Remove “intends” in 23 instances

**P1312.22** – Change: “A STA that intends to participate in relay operation (11.34 (DMG relay procedures)) advertises its capabilities through the Relay Capabilities element.”

* “A STA advertises its capabilities through the Relay Capabilities element prior to participation in a relay operation (11.34 (DMG relay procedures)).

**P1313.21 –** Change “A source REDS that intends to transfer frames via an RDS advertises the parameters for the relay operation with the transmission of a Relay Transfer Parameter Set element (11.34 (DMG relay procedures)).”

* **“**A source REDS advertises the parameters for the relay operation with the transmission of a Relay Transfer Parameter Set element (11.34 (DMG relay procedures)) prior to transferring frames via an RDS. “

**P1424.8** – Change “The Extended Cluster Report element is also used by an S-AP to report the cluster information of the S-Aps within the same CCSS for an AP or PCP that intends to join the centralized cluster.”

* “The Extended Cluster Report element is used to join the centralized cluster and is also used by an S-AP to report the cluster information of the S-Aps within the same CCSS for an AP or PCP.”

**P1732.41** Change “An S1G STA that intends to transmit two or more SIFS-separated PV1 frames for which it does not follow the BDT rules defined in 10.50 (Bidirectional TXOP) should protect the sequence with a protective

mechanism that uses multiple protection as described in 9.2.5.2 (Setting for single and multiple protection

under enhanced distributed channel access (EDCA)).”

* “An S1G STA should protect the sequence of two or more SIFS-separated PV1 frames for which it does not follow the BDT rules defined in 10.50 (Bidirectional TXOP) with a protective mechanism that uses multiple protection as described in 9.2.5.2 (Setting for single and multiple protection under enhanced distributed channel access (EDCA)).”

**P1808.58** Change – “An S1G STA that intends to transmit an 8 or 16 MHz PPDU may also invoke a backoff procedure at the primary 2 MHz channel using the CCA conditions defined in 23.3.18.5.4.2 (CCA sensitivity for

devices in type 2 channels implementing intended 8 or 16 MHz transmit channel width channel access procedure), if the S1G STA is permitted to begin a TXOP (as defined in 10.23.2.4 (Obtaining an EDCA TXOP)) and the S1G STA has at least one MSDU pending for transmission for the AC of the permitted TXOP.

* “An S1G STA that prepares to transmit an 8 or 16 MHz PPDU may also invoke a backoff procedure at the primary 2 MHz channel using the CCA conditions defined in 23.3.18.5.4.2 (CCA sensitivity for devices in type 2 channels implementing the 8 or 16 MHz transmit channel width channel access procedure), if the S1G STA is permitted to begin a TXOP (as defined in 10.23.2.4 (Obtaining an EDCA TXOP)) and the S1G STA has at least one MSDU pending for transmission for the AC of the permitted TXOP.

**P1813.11** – Change “An S1G STA that intends to transmit an 8 MHz or 16 MHz PPDU invoking a backoff procedure in the primary 2 MHz channel using the channel busy conditions defined in 23.3.18.5.4.2… “

* “An S1G STA that prepares to transmit an 8 MHz or 16 MHz PPDU invoking a backoff procedure in the primary 2 MHz channel using the channel busy conditions defined in 23.3.18.5.4.2

P1966.3 - Change “An AP or PCP that intends to dynamically allocate an SP within the DTI shall commence a GP at a time instant indicated by at least one of the following:”

* An AP or PCP that prepares to dynamically allocate an SP within the DTI shall commence a GP at a time instant indicated by at least one of the following:

**P1992.24** Change “After receiving a DMG Beacon frame including cluster information transmitted by an S-AP, a centralized clustering enabled AP or PCP that intends to become a member AP or member PCP shall successfully perform the following steps in order:

* After receiving a DMG Beacon frame including cluster information transmitted by an S-AP, a centralized clustering enabled AP or PCP that prepares to become a member AP or member PCP shall successfully perform the following steps in order:

**P2047.17** – Change “The source REDS that intends to use the block ack mechanism through the RDS shall perform the block ack setup procedure with the RDS using the same TID as it is used for the direct communication between the source REDS and the destination REDS.”

* “The source REDS that uses the block ack mechanism through the RDS shall perform the block ack setup procedure with the RDS using the same TID as it is used for the direct communication between the source REDS and the destination REDS.”

**P2071.11** - Change “an S1G AP that intends to respond with immediate Data frames may use”

* “an S1G AP that responds with immediate Data frames may use”

**P2095.22** – Change “A non-AP STA (AP) that intends to start a relay-shared TXOP starts it by sending a PV1 QoS Data frame addressed to the S1G relay AP (S1G relay STA) with the Relayed Frame field equal to 1.”

* “A non-AP STA (AP) that starts a relay-shared TXOP starts it by sending a PV1 QoS Data frame addressed to the S1G relay AP (S1G relay STA) with the Relayed Frame field equal to 1.”

**P2095.24** – Change “The S1G relay AP (S1G relay STA), addressed by an RTS frame, that intends to use the explicit Ack procedure,

* The S1G relay AP (S1G relay STA), addressed by an RTS frame, that uses the explicit Ack procedure,

**P2096.22** – Change “A STA that intends to share the TXOP with the S1G relay may start the TXOP by sending”

* “A STA that shares the TXOP with the S1G relay may start the TXOP by sending”

**P2115.42** – Change “The CDMG AP or PCP that intends to allocate time on the 2.16 GHz channel may also

transmit a CDMG Allocation Request frame…”

* “The CDMG AP or PCP that allocates time on the 2.16 GHz channel may also transmit a CDMG Allocation Request frame…”

**P2160.13 –** Change “Upon receiving a PS-Poll frame, the S1G AP that intends to respond with immediate

Data frame may use the RTS/CTS scheme to protect the transmission of the frame.”

* “Upon receiving a PS-Poll frame, the S1G AP that prepares to respond with an immediate Data frame may use the RTS/CTS scheme to protect the transmission of the frame.”

**P2164.42** – Change “A STA that intends to enter TDLS peer PSM (TDLS peer PSM initiator) shall send a TDLS Peer PSM Request frame to the TDLS peer STA (TDLS peer PSM responder) …”

* “A STA that prepares to enter TDLS peer PSM (TDLS peer PSM initiator) shall send a TDLS Peer PSM Request frame to the TDLS peer STA (TDLS peer PSM responder) …”

**P2239.3 –** Change **“**Upon receipt of an MLME-ADDBA.request primitive, an initiating STA that intends to send QoS Data frames under the block ack mechanism shall set up the block ack agreement using the following procedure:”

* Upon receipt of an MLME-ADDBA.request primitive, an initiating STA that prepares to send QoS Data frames under the block ack mechanism shall set up the block ack agreement using the following procedure:

**P2319.1** – Change “When admission control is required for an AC on the base channel, then the TDLS peer STA that intends to use this AC for direct-link transmissions on the base channel is responsible for setting up a TS with Direction of Direct Link with the AP, as defined in 10.23.4.2…”

* “When admission control is required for an AC on the base channel, then the TDLS peer STA that prepares to use this AC for direct-link transmissions on the base channel is responsible for setting up a TS with Direction of Direct Link with the AP, as defined in 10.23.4.2…”

**P2463.50** – Change “A source DMG STA that intends to set up relay operation with a destination DMG STA shall obtain the capabilities of the destination DMG STA prior to initiating the relay setup procedure…”

* “A source DMG STA that prepares to set up relay operation with a destination DMG STA shall obtain the capabilities of the destination DMG STA prior to initiating the relay setup procedure…”

**P2504.58** – Change “An EL STA may indicate these limitations to an S1G STA that intends to communicate with it by using the signaling described in this subclause.”

* “An EL STA may indicate these limitations to an S1G STA that prepares to communicate with it by using the signaling described in this subclause.”

**P2505.36** – Change “In cases 1, 2, and 3, a CDMG AP or PCP that intends to start a new BSS can request one of the two BSSs operating on two occupied 1.08 GHz channels to move to one of the two idle channels.”

* “In cases 1, 2, and 3, a CDMG AP or PCP that prepares to start a new BSS can request one of the two BSSs operating on two occupied 1.08 GHz channels to move to one of the two idle channels.”

**P2505.42** – Change “In cases 4 and 5, a CDMG AP or PCP that intends to start a new BSS can request one”

* “In cases 4 and 5, a CDMG AP or PCP that prepares to start a new BSS can request one”

**P2506.47** – Change “A DCS requester AP or PCP that intends to start a new BSS can assess an available channel passively by performing a channel scan or clear channel assessment…”

* “A DCS requester AP or PCP that prepares to start a new BSS can assess an available channel passively by performing a channel scan or clear channel assessment…”

**References:**

IEEE P802.11-REVme/D0.0, March 2021