IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TGac SB 01 Comment Resolution | | | | |
| Date: 2013-05-15 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Jonathan Segev | Intel | 94 Em Hamoshavot rd. PTK, Israel | +972-54-2403587 | [jonathan.segev@intel.com](mailto:jonathan.segev@intel.com) |
|  |  |  |  |  |

Abstract

This submission included proposed resolutions to CIDs 10297, 10298, 10300, 10301,10303, 10304, 10305, 10309.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID |  |  | Comment | Proposed Resolution | Resolution |
| 10297 | 129.42 | 9.7.5.6 | There has been no specification of what a "beamforming steering matrix", nor of what qualifies as such a matrix, before this requirement applying to such matrices. Need a clear definition of this concept and what does and does not qualify as such a thing. | Explicitly specify what is a "beamforming steering matrix" before this point in clause 9. | Proposed resolution:  Reject:  Steering matrix is well defined in 20.3.11.11.2.  There is no requirement to have terminology defined before its usage. |

**Discussion:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10298 | 129.53 | 9.7.5.6 | This non-specific "Except as described below" includes the next "Except as described below" -- so, is this an exception to an exception? | On both lines 53 and 57 replace the non-specific "Except as described below" with "Except as specified in the following list of exceptions". | Proposed resolution:  Revise.  As described in CID 10-13-0588-02-00ac. |

**Discussion:**

“*Except as described below, an HT STA that is a member of a BSS and that is not a VHT STA shall*

*not transmit a frame using a value for the CH\_BANDWIDTH parameter of the TXVECTOR that is*

*not permitted for use in the BSS, as reported in the most recently received HT Operation element.*

*— Except as described below a VHT STA that is a member of a BSS shall not transmit a frame using a*

*value for the CH\_BANDWIDTH parameter of the TXVECTOR that is not permitted for use in the*

*BSS, as reported in the most recently received VHT Operation element.*

*— Exceptions:*

*• Transmissions on a TDLS off-channel link follow the rules described in 10.22.6.1 and 10.22.6.2*

*• Transmissions by a VHT STA on a TDLS link follow the rules described in 10.22.1 and*

*10.22.6.4”*

Proposed text changes:

*~~Except as described below, a~~An HT STA that is a member of a BSS and that is not a VHT STA shall*

*not transmit a frame using a value for the CH\_BANDWIDTH parameter of the TXVECTOR that is*

*not permitted for use in the BSS, as reported in the most recently received HT Operation element with the exception transmissions on a TDLS off-channel link, which follow the rules described in 10.22.6.1 and 10.22.6.2*

*— ~~Except as described below a~~ A VHT STA that is a member of a BSS shall not transmit a frame using a*

*value for the CH\_BANDWIDTH parameter of the TXVECTOR that is not permitted for use in the*

*BSS, as reported in the most recently received VHT Operation element with the following exceptions:*

*~~— Exceptions:~~*

*• Transmissions on a TDLS off-channel link follow the rules described in 10.22.6.1 and 10.22.6.2*

*• Transmissions by a VHT STA on a TDLS link follow the rules described in 10.22.1 and*

*10.22.6.4”*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10300 | 130.37 | 9.7.6.1 | The double negative in this version of the sentence makes it non-informative. | Either describe whatever is meant in positive terms (without the double negative) or delete this NOTE. | Proposed resolution:  Revise.  As described in CID 10-13-0588-02-00ac. |

**Discussion:**

**“9.7.6.1 General rules for rate selection for control frames**

***Change the 1st two paragraphs as follows:***

Control frames carried in an A-MPDU that does not contain a VHT single MPDU shall be sent at a rate selected

from the rules defined in 9.7.5.6 (Rate selection for other individually-addressed data and management

frames).

NOTE—The rules defined in 9.7.6.2 through 9.7.6.5 apply only to control frames not carried in an A-MPDU that does not contain a VHT single MPDU.”

Proposed text change:

NOTE—The rules defined in 9.7.6.2 through 9.7.6.5 apply only to control frames ~~not carried~~ ~~in an A-MPDU that does not contain~~ that are non-A-MPDU frames or VHT single MPDUs.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10301 | 130.41 | 9.7.6.1 | Technically "non-HT" includes VHT as well as legacy. So then "non-HT", "HT" and "VHT" are not exclusive of each other. This statement is equivalent to "non-HT or HT". | If want an exclusive list, perhaps "HT, VHT or other". | Proposed resolution:  Reject.  Non HT PPDU does not include VHT PPDU. |

**Discussion:**

***“3.2 Definitions specific to IEEE 802.11***

*…*

***non-high-throughput (non-HT) physical layer convergence procedure (PLCP) protocol data unit***

***(PPDU)****: A Clause 20 or Clause 22 physical layer (PHY) PPDU with the TXVECTOR FORMAT parameter*

*equal to NON\_HT.*

…

**very high throughput (VHT) physical layer protocol data unit (PPDU)**: A PPDU transmitted with the

TXVECTOR parameter FORMAT equal to VHT.”

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10303 | 131.31 | 9.7.6.1 | Technically this combination states that a STA shall not transmit x if y. But that implies that if not-y, the STA may transmit x. It should be stated clearly whether that consequence is permitted. | If that consequence is intended, at least add a note: "NOTE--If the beamforming steering matrix was not derived from that specific report, then the STA can transmit a frame using a beamforming steering matrix with a greater number of spatial streams." (But is this really intended? If not, then correct the sentence in the list item above.) | Proposed resolution:  Rejected.  It is stated that the constraint only applies if the Operating Mode field has been received from the intended STA. |

**Discussion:**

The following rules determine whether a control frame is carried in a non-HT, HT or VHT PPDU:

a) A control frame shall be carried in an HT PPDU when the control frame meets any of the following

conditions:

…

b) A control response frame shall be carried in an HT PPDU when the control frame is a response to a

frame that meets any of the following conditions:

….

c) A control frame may be carried in an HT PPDU when the control frame meets any of the following

conditions:

….

If an Operating Mode field has been received from the intended receiver STA, the following constraints also

apply:

— If at least one Operating Mode field with the Rx NSS Type subfield equal to 0 was received from the

receiver STA:

• A STA shall not transmit a frame with the number of spatial streams greater than that indicated in

the Rx NSS subfield in the most recently received Operating Mode field with the Rx NSS Type

subfield equal to 0 from the receiver STA.

— If at least one Operating Mode field with the Rx NSS Type subfield equal to 1 was received from the

receiver STA:

• A STA shall not transmit an SU PPDU frame using a beamforming steering matrix with the number

of spatial streams greater than that indicated in the Rx NSS subfield in the most recently

received Operating Mode field with the Rx NSS Type subfield equal to 1 from the receiver STA

if the beamforming steering matrix was derived from a VHT Compressed Beamforming report

with Feedback Type subfield indicating MU in the VHT Compressed Beamforming frame(s).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10304 | 132.08 | 9.7.6.4 | "shall ... STA, as reported in the ... VHT Capabilities element..." makes it unclear whether the "shall" only applies if the element is reported in a frame from the receiver. | Replace "STA, as reported" with "STA. This tuple shall be the same as that reported" and replace "that STA" on the next line with "that receiver". | Proposed resolution:  Revise.  As described in CID 10-13-0588-02-00ac. |

**Discussion:**

**9.7.6.4 Rate selection for control frames that are not control response frames**

**….**

*A frame that is carried in a VHT PPDU shall be transmitted by the STA using a <VHT-MCS, NSS> tuple*

*supported by the receiver STA, as reported in the Supported VHT-MCS and NSS Set field in the VHT Capabilities*

*element received from that STA. When the Supported VHT-MCS and NSS set of the receiving STA*

*or STAs is not known, the transmitting STA shall transmit using a <VHT-MCS, NSS> tuple in the*

*BSSBasicVHTMCS\_NSSSet parameter.*

Proposed text:

*“A frame that is carried in a VHT PPDU shall be transmitted by the STA using a <VHT-MCS, NSS> tuple*

*supported by the receiver STA~~,~~. A <VHT-MCS,NSS> tuple is supported if  ~~as~~ reported as such in the Supported VHT-MCS and NSS Set field in the VHT Capabilities element received from that STA. When the Supported VHT-MCS and NSS set of the receiving STA*

*or STAs is not known, the transmitting STA shall transmit using a <VHT-MCS, NSS> tuple in the*

*BSSBasicVHTMCS\_NSSSet parameter.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10305 | 133.47 | 9.7.6.5.3 | Two primary problems: (a) there are many combinations, including deletion and intersection; (b) how does one combine two parameters -- concatenate their names? Apparently the union of the two sets is intended. | Replace: "the combination of the BSSBasicMCSSet and the BSSBasicVHTMCS\_NSSSet parameters." with: "the union of the BSSBasicMCSSet and the BSSBasicVHTMCS\_NSSSet." | Proposed resolution:  Accept. |

**Discussion:**

**9.7.6.5.3 Control response frame MCS computation**

….

— If none of the above conditions is true, the CandidateMCSSet is the combination of the BSSBasic-

MCSSet and the BSSBasicVHTMCS\_NSSSet parameters. If the frame eliciting the response was an

RTS frame carried in a VHT PPDU, then the CandidateMCSSet may additionally include the <VHTMCS,

NSS> tuple with the same MCS and number of spatial streams as the VHT PPDU. If the combined

BSSBasicMCSSet parameter is empty, the CandidateMCSSet shall consist of

• the set of mandatory HT PHY MCSs, if the STA eliciting the response is an HT STA that is not a

VHT STA;

• the set of mandatory HT MCSs plus the set of <VHT MCS, NSS> tuples corresponding to the

mandatory VHT PHY MCSs with NSS = 1, if the STA eliciting the response is a VHT STA.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10309 | 139.52 | 9.7.11.1 | This NOTE, about implying support, doesn't seem to have a purpose -- though "implies" causes some confusion about what it is trying to say. | Delete the whole NOTE on lines 53 and 54. | Proposed resolution:  Reject.  The “implies” goes toward removing the daubt of short GI may not be supported at the given bandwidth as support for the Long GI is specifically indicated in the VHT-MCS. |

**Discussion:**

**9.7.11.1 Rx Supported VHT-MCS and NSS Set**

….

NOTE—Support for a <VHT-MCS, NSS> tuple at a given bandwidth implies support for both long GI and short GI on

receive, if short GI is supported at that bandwidth.