IEEE P802.11
Wireless LANs

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| Comment Resolution SA1 – RSTA Assigned Max Bandwidth |
| Date: 2021-11-10 |
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Abstract

This submission proposes the comment resolution of CIDs 288244, 288245, 288281, 288282, 288284, 288316; as part of SA1, changes are relative to Draft 4.0.

Revisions:

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGaz Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGaz Editor: Editing instructions preceded by “TGaz Editor” are instructions to the TGaz editor to modify existing material in the TGaz draft. As a result of adopting the changes, the TGaz editor will execute the instructions rather than copy them to the TGaz Draft.***

**The text preceded by “Discussion” is not part of the adopted changes.**

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| **288244** | 131.33 | 11.21.6.3.3 | "When a Ranging Parameters element is included in the IFTMR frame, the ISTA shall indicate the following parameters in the Ranging Parameters field" - this is missing instructions for the Format and Bandwidth subfield (not self evident) | Add a bullet point "the maximum supported bandwidth in the Format and Bandwidth subfield" | Revised |
| **288245** | 133.42 | 11.21.6.3.3 | "When the negotiation is successful for TB ranging and non-TB ranging, the corresponding IFTM 42 frame from the RSTA shall include a Ranging Parameters element with the parameters that defines 43 the negotiated range measurement session. The RSTA shall indicate the following parameters in 44 the Ranging Parameters field:" - this is missing instructions for the Format and Bandwidth subfield (not self evident) | Add a bullet point "In the Format and Bandwidth subfield, it assigns the maximum allowed bandwidth used during measurement exchanges (referred to as RSTA Assigned Bandwidth)" | Revised |
| **288281** | 133.42 | 11.21.6.3.3 | "When the negotiation is successful for TB ranging and non-TB ranging, the corresponding IFTM 42 frame from the RSTA shall include a Ranging Parameters element with the parameters that defines 43 the negotiated range measurement session. The RSTA shall indicate the following parameters in 44 the Ranging Parameters field:" - this is missing instructions for the Format and Bandwidth subfield (not self evident) | Add a bullet point "In the Format and Bandwidth subfield, it assigns the maximum allowed bandwidth used during measurement exchanges (referred to as RSTA Assigned Max Bandwidth)" | Duplicate of 288245 |
| **288282** | 153.5 | 11.21.6.4.3.3 | "The RSTA shall select a bandwidth value for the measurement sounding phase based on the Format And Bandwidth subfield of the Ranging Parameters element(s); see 9.4.2.298 (Ranging Parameters element), provided by each of the ISTAs during negotiation. This bandwidth shall be equal to or smaller than the bandwidth indicated by the RSTA in the IFTM frame." - change if we created "RSTA Assigned Max Bandwidth" | Change to "The RSTA shall select a bandwidth value for the measurement sounding phase that is smaller or equal to any of the RSTA Assigned Max Bandwidth of each of the ISTAs that are being allocated resources during this measurement instance." | Revised |
| **288284** | 154.27 | 11.21.6.4.3.3 | "if different ISTAs have indicated varying, incompatible Format And Bandwidth parameters in their Ranging Parameters fields" - change if we created "RSTA Assigned Max Bandwidth" | Change to "if different ISTAs have varying, incompatible RSTA Assigned Max Bandwidth values" | Revised |
| **288316** | 161.27 | 11.21.6.4.4.2 | "The allowed bandwidths for the Ranging NDP Announcements, I2R NDP and R2I NDP, are specified in the Format And Bandwidth subfield of the Ranging Parameters field; see 9.4.2.298 (Ranging Parameters element)." - change to RSTA Assigned Max Bandwidth | Change to "The bandwidths for the Ranging NDP Announcements, I2R NDP and R2I NDP, shall be no greater than the RSTA Assigned Max Bandwidth." Also remove first bullet point | Revised |
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**Discussion:**

The standard in Section 11 does not explain in detail how the values of the Format and Bandwdith subfield in the Ranging Parameters element are negotioated and used during the measurement exchange.

**Proposal:**

Create a “RSTA Assigned Max Bandwidth” that can be references in the subclause on TB and Non-TB measurement exchange.

11.21.6.3.3 Negotiation for TB and Non-TB ranging measurement exchange

TGaz Editor: Change text on page 131 starting at line 33 as follows

When a Ranging Parameters element is included in the IFTMR frame, the ISTA shall indicate the following parameters in the Ranging Parameters field:

* Maximum supported bandwidth in the Format and Bandwidth subfield
* Maximum number of LTF repetitions it is capable of receiving in the preamble of the R2I NDP, in the Max R2I Rep subfield.
* Maximum number of LTF repetitions it is capable of transmitting in the preamble of the I2R NDP, in the Max I2R Rep subfield.
* Maximum number of space-time streams it is capable of receiving in the R2I NDP for bandwidths less than or equal to 80 MHz, in the Max R2I STS ≤ 80 MHz subfield.
* Maximum number of space-time streams it is capable of receiving in the R2I NDP for bandwidths greater than 80 MHz, in the Max R2I STS > 80 MHz subfield.

TGaz Editor: Change text on page 133 starting at line 42 as follows

When the negotiation is successful for TB ranging and Non-TB ranging, the corresponding IFTM frame from the RSTA shall include a Ranging Parameters element with the parameters that defines the negotiated range measurement session. The RSTA shall indicate the following parameters in the Ranging Parameters field:

* In the Format and Bandwidth subfield, it assigns the maximum allowed bandwidth used during measurement exchanges (referred to as RSTA Assigned Max Bandwidth). This value shall not be greater than the value in the corresponding IFTMR frame.
* In the Max R2I Rep subfield, it assigns the maximum number of LTF repetitions in the preamble of the R2I NDP for this session (referred to as RSTA Assigned R2I Rep). This value shall not be greater than the value in the corresponding IFTMR frame.
* In the Max I2R Rep subfield, it assigns the maximum number of LTF repetitions in the preamble of the I2R NDP for this session (referred to as RSTA Assigned I2R Rep). This value shall not be greater than the value in the corresponding IFTMR frame.
* In the Max R2I STS ≤ 80 MHz subfield, either the maximum number of space-time streams it is capable of transmitting in the R2I NDP for bandwidths less than or equal to 80 MHz, or the value in the corresponding IFTMR, whichever is smaller (referred to as RSTA Assigned R2I STS ≤ 80 MHz).

**11.21.6.4.3.3 Measurement Sounding phase of TB Ranging**

TGaz Editor: Change text on page 153 starting at line 5 as follows

The RSTA shall select a bandwidth value for the measurement sounding phase that is equal to or smaller than the RSTA Assigned Max Bandwidth of each of the ISTAs that are being allocated resources during this measurement instance. It may be different from the bandwidth used in the Polling phase, but shall adhere to the rules of multiple frame transmission in an EDCA TXOP; see 10.23.2.8 (Multiple frame transmission in an EDCA TXOP).

TGaz Editor: Change text on page 154 starting at line 19 as follows

The RSTA may schedule some ISTAs that replied during the Polling phase to the first measurement sounding phase instance and other ISTAs to one of possibly multiple extra measurement sounding phase instances; see Figure 11-37b (TB Ranging availability window with two instances of polling/sounding/reporting triplets within a single TXOP), and Figure 11-37c (TB Ranging availability window with two instances of polling/sounding/reporting triplets in separate TXOPs). The RSTA shall only schedule measurement sounding resources to an ISTA in a measurement sounding instance, if a valid poll response was received from that ISTA in the corresponding Polling phase instance. This may require an RSTA to poll an ISTA multiple times. This is necessary, for example, if different ISTAs have varying, incompatible RSTA Assigned Max Bandwidth values or if the RSTA wants to limit the time duration of each range measurement sounding instance.

**11.21.6.4.4.2 Measurement sounding phase of non-TB ranging**

TGaz Editor: Change text on page 161 starting at line 24 as follows

The RSTA shall transmit the R2I NDP with the same bandwidth as the Ranging NDP Announcement frame, while the LMR can be transmitted at a different bandwidth, according to the rules of multiple frame transmission in an EDCA TXOP, see 10.23.2.8 (Multiple frame transmission in an EDCA TXOP). The bandwidth for the Ranging NDP Announcement, I2R NDP and R2I NDP shall be no greater than the RSTA Assigned Max Bandwidth.

* An ISTA transmitting an I2R NDP shall set the TXVECTOR parameter CH\_BANDWIDTH to the same value as the TXVECTOR parameter CH\_BANDWIDTH in the preceding Ranging NDP Announcement frame.
* An RSTA transmitting a R2I NDP shall set the TXVECTOR parameter CH\_BANDWIDTH to the bandwidth of the Ranging NDP Announcement frame and/or the I2R NDP; which are obtained from the RXVECTOR parameter CH\_BANDWIDTH of the Ranging NDP Announcement frame or I2R NDP respectively. For the Ranging NDP Announcement frame, when not received in an HE/VHT/HT PPDU: from the RXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT when the Ranging NDP Announcement frame is received in a non-HT duplicate PPDU and is 20 MHz when the Ranging NDP Announcement frame is received in a non-HT PPDU.