IEEE P802.11
Wireless LANs

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| 11az LB240 Comment Resolution Section 11.22.6.4.3.3 |
| Date: 2019-04-26 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Christian Berger | Marvell |  |  |  |
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Abstract

This submission proposes the comment resolution of CIDs in LB240 related to section 11.22.6.4.3.3

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** |
| 1472 | 97.26 | 11.22.6.4.3.3 | Do the ISTAs polled in first polling part but not allocated resources during the next sounding instance need to be polled again? | Clarify | **Revised**This is in fact not specified as is.Added language clarifying this. |
| 1847 | 98.28 | 11.22.6.4.3.3 | The RSTA shall select one bandwidth value for the measurement sounding part based on theFormat and Bandwidth subfield of the Ranging Parameters field(s) | Clarify that a partial BW may be used e.g. if the secondary channel is busy. | **Should be addressed in 11.22.6.3.3** |
| 1890 | 94.21 | 11.22.6.4.3.3 | Clarify that the allowed frame sequence clearly, e.g. Trigger+CTS2Self+Trigger+CTS2Self+Trigger+UL NDP+NDPa+NDP... is not allowed. | As in comment | **Revised**“Each polling part instance includes a single Ranging Trigger Frame of subvariant Poll (“TF Ranging Poll”, see 9.3.1.23.9 Ranging Trigger variant). Any ISTA addressed by a User Info field in this TF Ranging Poll, may request to participate in measurements in this availability window by responding with a CTS-to-self in an S-MPDU in its designated RU allocation as identified in the TF Ranging Poll (see Figure 11-36c).” |
| 1893 | 93.04 | 11.22.6.4.3.3 | When the BW for NDP ranging is wider than BSS operation BW, the MCS selection rules ahould be defined. | As in comment | **Rejected**This is not a valid case, the RSTA should not accept BW parameters not supported also in BSS operation, since also associated STA maybe participate in Ranging |
| 1984 | 106.10 | 11.22.6.4.3.3 | The round-trip time is the time for the round trip. What is shown here is not the round-trip time but the total time of flight | At 106.10 change "The Round-Trip Time (RTT) is defined asRTT " to "The total time-of-flight (TToF) is defined asTToF ". Change "RTT" to "TToF" at 88.35, 117.5/7/8, 126.13/15/16/19/20, 130.15/19/25 | **Reject**Total time-of-flight is not a commonly used term and the definition of RTT does not necessarily include processing delays at the other node |
| 2158 | 55.03 | 11.22.6.4.3.3 | [Re-raising …"The Location Measurement part iscomposed by one or more TF of type Location subtype Sounding allocating uplink resources toone or more ISTAs." -- is it Location Measurement of Range Measurement Sounding? | Pick one term, make it lowercase, and use it consistently everywhere. Oh, and "composed of" not "composed by" | **Revised**The three parts of the TB Ranging, Measurement Phase, are1. Polling Part
2. Measurement Sounding Part
3. Measuremetn Reporting Part
 |
| 2159 | 55.28 | 11.22.6.4.3.3 | [Re-raising ...]What is "Code" in the Figure? | Clarify. Oh, and "Freqeuncy" -> "Frequency" on the vertical axis | **Revised**Fixed typo in figures, changed “Code” to “Spatial”, as in dimension. |
| 2160 | 55.03 | 11.22.6.4.3.3 | [Re-raising ...]"The Location Measurement part is composed by one or more TF of type Location subtype Sounding allocating uplink resources toone or more ISTAs. Each TF Location Sounding frame shall be (#Ed) followed by one or moreuplink NDP multiplexed in the frequency (the detail is TBD) and/or spatial stream domain (#Ed).SIFS time after the last UL sounding, the RSTA shall transmit an NDPA frame followed by a DL NDP sounding frame. " is not clear. What is "the last UL sounding"? "is composed by" -- it contains other things | Say something like "The location measurement part consists of a SIFS-separated sequence of one or more location measurement subparts. Each location measurement subpart consists of a Location Sounding Trigger frame [will need to explain somewhere this means type Location subtype Sounding] transmitted by the RSTA, followed by UL NDPs from the ISTAs, followed after SIFS by an NDP Announcement frame from the RSTA, followed after SIFS by DL NDPs from the RSTA." | **Rejected**This part has been rewritten prior to Draft 1.0. It is clearer now. |
| 2161 | 55.08 | 11.22.6.4.3.3 | [Re-raising ...]"a DL NDP sounding frame" -- what is this? | Clarify (and is it a frame or an NDP?) | **Revised**This has been clarified prior to Draft 1.0“and the DL NDP is an HE Ranging NDP, see subclause 28.3.16”Removed any descriptions of NDPs as a frame. |
| 2162 | 55.31 | 11.22.6.4.3.3 | [Re-raising ...]"Using P-matrix " -- the surrounding text makes no reference to this | Clarify what this means for the location measurement part, and what other things could be used instead | **Reject**This has been removed prior to Draft 1.0 |
| 2163 | 55.11 | 11.22.6.4.3.3 | [Re-raising ...]"The DL NDP is used by all ISTA taking part in the exchange. " -- but the figure shows more than one DL NDP, so which is "the DL NDP"? On the other hand it says "the RSTA shall transmit an NDPA frame followed by a DL NDP sounding frame" which suggests only one DL NDP | Clarify. It seems to me that each ISTA has its own dedicated DL NDP, no? | **Reject**The figure tries to depict transmission in spatial domain (MIMO/multiple streams); in case of UL that can be MU-MIMO: multiple ISTA transmit in separate spatial allocations; but DL NDP is from one RSTA to several ISTA, all sounding is shared. |
| 2164 | 55.31 | 11.22.6.4.3.3 | [Re-raising ...]The figure shows a sequence of SIFS-separated transmissions. Will they fit within the TXOP limit? | Clarify what to do if the sequence does not fit within the TXOP Limit, and which AC's TXOP Limit is used. Also add a SIFS arrow between the first two transmissions | **Reject**As with any transmission during an TXOP, the AP will have to ensure they do in fact fit within the allowed duration. See also “Any extra polling /sounding/ reporting triplets can either be transmitted in the same TXOP (see example in Figure 11-36a) or a new TXOP (see example in Figure 11-36b) depending on themaximum allowed TXOP duration and the predicted length of the extra instances of10 polling/sounding/reporting triplets.”In TB operation, an AP can already choose any AC (see 26.5.3.2.5 AP access procedures for UL MU operation) |
| 2165 | 56.01 | 11.22.6.4.3.3 | [Re-raising ...]"the time at which the DL NDP arrives (t3) " -- nope | "the time at which the DL NDP is transmitted (t3) " | **Rejected**Already addressed in Draft 1.0 |
| 2166 | 55.31 | 11.22.6.4.3.3 | [Re-raising ...]The figure is missing the RSTA to ISTA4 LMR | Add to figure | **Reject**Addressed before Draft 1.0. Figures now simply show RST-to-ISTA LMR (which is an HE MU PPDU) |
| 2167 | 55.07 | 11.22.6.4.3.3 | [Re-raising ...]"an NDPA frame" -- it's actually a Ranging NDP Announcement frame | As it says in the comment. Also fix in 11.22.6.4.3.4, 11.22.6.4.4.3 (2x) | **Reject**Addressed before Draft 1.0. Now there is a clear descprition that the term NDP-A refers to a Ranging NDP Announcement frame. |
| 2168 | 55.15 | 11.22.6.4.3.3 | [Re-raising ...]"set the TXVECTOR parameter CH\_BANDWIDTH to be the same value as the BW subfield" -- TXVECTOR params do not come from the same space as subfields so should not be assumed to have the same values/encoding | Change to say that the same bw is indicated. Same in sentences below | **Reject**Addressed before Draft 1.0.  |
| 2169 | 55.18 | 11.22.6.4.3.3 | [Re-raising ...]"An RSTA transmitting a Ranging NDP Announcement frame and a DL NDP after receiving an UL NDP as a response of a Location variant HEz Uplink Sounding Trigger frame shall" makes it sound as if the NDPA/DL NDP are only sent if the UL NDP is received. But the text above suggests they are always sent | Clarify whether the RSTA shall not send the NDPA/DL NDP if it doesn't receive an UL NDP from some/all of the ISTAs, or whether it may send them blind | **Reject**The text is as intended, if no UL NDP is received, NDP-A is not transmitted after SIFS, but regular recovery procedures for medium access with one TXOp according to 11ax trigger based transmission will apply, after medium access is reaquired, AP can choose to continue sequence. |
| 2170 | 55.33 | 11.22.6.4.3.3 | [Re-raising ...]What is the difference between TOF measurement and RTT measurement? | Change all instance of "RTT" to "TOF" | **Reject**Addressed in Draft 1.0. |
| 2171 | 56.10 | 11.22.6.4.3.3 | [Re-raising ...]"Where" is not the start of the sentence | Lowercase | **Reject**Addressed in Draft 1.0. |
| 2172 | 56.18 | 11.22.6.4.3.3 | [Re-raising ...]"with respect to a time base" -- needs to be the same as the one for the TOA, else it's useless | Change to "with respect to the same time base" | **Reject**Addressed in Draft 1.0. |
| 2173 | 57.03 | 11.22.6.4.3.3 | [Re-raising ...]"The UL power control and timing and frequency synchronization requirements in the HEz mode of associated and unassociated STAs shall follow the same rules as those of any other HE STA in associated mode (8). " -- soneed not be stated (and what's "(8)"?) | Delete | **Reject**Addressed in Draft 1.0. Now reads “The UL power control, timing and frequency synchronization requirements of associated and unassociated STAs performing TB ranging shall follow the same rules as those of any associated HE STA.” – points out new behaviour for unassociated STAs. |
| 2174 | 56.22 | 11.22.6.4.3.3 | [Re-raising ...]"If the Range Measurement Sounding phase instance includes more than a single TF Location Sounding frame, the ISTA and RSTA shall refer the t1 and t2 to the UL NDP frame instance associated with their (#Ed) HEz FTM procedure, refer to figure 11-35e. " -- the figure shows a single t2 | Show the other t2 | **Reject**Addressed in Draft 1.0. The figure now shows t2\_1 and t2\_2. |

Editor: modify throughout the document: NDP ~~frame~~ (#2161)

Change the title of this subclause as:

11.22.6.4.3 Measurement Exchange in TB Ranging Mode (#2158)

11.22.6.4.3.1 General

Add this sentence at the end of this section:

An RSTA may use any AC to transmit the frames of the TB Ranging Measuerment Phase.

Change the title of this subclause as:

11.22.6.4.3.2 Polling Part of TB Ranging (#2158)

Change this paragraph as follows:

Each polling part instance includes a single (#1890) Ranging Trigger Frame of subvariant Poll (“TF Ranging Poll”, see 9.3.1.23.9 Ranging Trigger variant). Any ISTA addressed by a User Info field in a TF Ranging Poll, may request to participate in measurements in this availability window by responding with a CTS-to-self in an S-MPDU in its designated RU allocation as identified in the TF Ranging Poll (see Figure 11-36c). In the CTS-to-self frame, the Duration/ID field is set to the value obtained from the Duration/ID field of the TF Ranging Poll that elicited the CTS-to-self frame minus the time, in microseconds, between the end of the PPDU carrying the Trigger frame and the end of the PPDU carrying the CTS-to-self frame.

11.22.6.4.3.3 Measurement Sounding Part of TB Ranging (#2158)

Change this paragraph as follows:

The measurement sounding part commences SIFS time after the polling part and is the second part of each polling/sounding/reporting triplet (see Figure 11-36d). The measurement sounding part consists of one or more Trigger frames of variant Ranging, subvariant Sounding (see 9.3.1.23.9 Ranging Trigger variant) allocating uplink resources to one or more ISTAs (see Figure 11-36d and Figure 11-36e). The Ranging Trigger Frame of subvariant Sounding is called the TF Ranging Sounding (#1977). Each TF Ranging Sounding shall allocate uplink resources for one or more ISTA’s UL NDP multiplexed in the spatial stream domain. The format (#2161) of the UL NDP is an HE TB Ranging NDP (see subclause 28.3.17). SIFS time after receiving the last UL NDP, the RSTA shall transmit an NDP-A frame followed by a DL NDP(#2161); the NDP-A is a Ranging NDP Announcement frame, see subclause 9.3.1.19 and the DL NDP is an HE Ranging NDP, see subclause 28.3.16. Figure 11-36e shows an availability window with an RSTA and two ISTAs (ISTA 1 and ISTA 4) responding to the poll. The TF Ranging Sounding allocates a separate spatial stream to each ISTA. The NDP-A is addressed to and the DL NDP is used by all ISTA taking part in the exchange.

Change this paragraph as follows:

The RSTA may schedule some ISTAs that replied during the polling part to the first measurement sounding part instance and other ISTAs to one of possibly multiple extra measurement sounding part instances (see Figure 11-36b and Figure 11-36c). The RSTA shall only schedule measurement sounding resources to an ISTA in a measurement sounding part instance, if a valid poll response was received from that ISTA in the corresponding polling part instance. This may require an RSTA to poll an ISTA multiple times (#1472). This is necessary, for example, if different ISTAs have indicated varying, incompatible Format and Bandwidth parameters in their Ranging Parameters fields or if the RSTA wants to limit the time duration of each range measurement sounding instance.

Change Figure-11-36d as follows: (#2159)



Change Figure-11-36e as follows: (#2159)

