IEEE P802.11
Wireless LANs

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| 802.11[Resolutions to a few LB240 comments(relative to IEEE 802.11 REVmd D2.0 and P802.11az D1.0) |
| Date: 2019-07-13 |
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**Abstract**

This submission proposes resolutions to the following LB240 CIDs 1699, 1702, 1345, 1347, 1433, 1596 and 1609

History:

R0: Initial Version

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| 1699 | Ganesh Venkatesan | 11.22.6.1 | 78.00 | Baseline text lost. New added text does not make sense.Baseline text: The FTM procedure allows a STA to determine its distance from another STA.D1.0 text: The FTM procedure allows a STA to determine its range, relative range and its direction to or from another STA.Range, relative range and direction can all be looked at as range depending on the co-ordinate system chosen. | Ensure that changes to the baseline text are correctly represented in D1.0. Also, replacing the word 'distance' with 'range' in the baseline text should be sufficient. | REVISE. Replace ‘distance’ in the first line of the baseline with ‘range, relative range and its direction to or’. |

Discussion:

The baseline has the following:

**11.22.6.1 Overview**The FTM procedure allows a STA to determine its distance from another STA. In order for a STA to obtain its location, the STA may perform this procedure with multiple STAs whose locations are known.

TGaz D1.0 has the following:

**11.22.6.1 Overview
*Change the following paragraphs of Clause 11.22.6.1 as shown below:***
The FTM procedure allows a STA to determine its (#1699) range, relative range and its direction to or from another STA. In order for a STA to obtain its location, the STA may perform this procedure with multiple STAs whose locations are known.

Resolution: Revise. Show the changes to the baseline text correctly.

**11.22.6.1 Overview
*Change the following paragraphs of Clause 11.22.6.1 as shown below:***
The FTM procedure allows a STA to determine its range, relative range and its direction to orfrom another STA. In order for a STA to obtain its location, the STA may perform this procedure with multiple STAs whose locations are known.

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| 1702 | GEORGE CHERIAN | 6.3.56.3.1 | 25.20 | Reword the sentence "and a RSTA to ISTA Location Measurement Report is expected imminently " | Reword the sentence | REVISE |

 Discussion: Some editorial issues in the description of the primitive need to be addressed – repetition of ‘this’, ‘that the corresponding sounding exchange completed successfully’, etc.

Resolution: Revise.

**6.3.56.3.1 Function**

***Insert the following paragraph at the end of the clause:***

For RSTA Centric EDCA based measurement exchange (11.22.6.4.2), (#1702)this primitive indicates that a Fine Timing Measurement frame has been received by the peer STA to which it was sent. For Trigger Based (11.22.6.4.3 Measurement Exchange in TB mode) or non-Tigger Based (11.22.6.4.4 Measurement Exchange in non-TB Mode) Sounding Exchange this primitive indicates that the corresponding sounding exchange has (#1702) completed successfully with the specified peer entity; and that (#1702) a RSTA to ISTA Location Measurement Report is expected imminently.

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| 1345 | Carl Kain | 9.3.1.19 | 24.00 | These sentances are a little confusing. There appears to be a little grammar tweaking in addition to deciding whether to use the word "and" or use a + sign. Be consistent. Use one or the other. | The Sounding Dialog Token Number subfield in the Sounding Dialog Token (SDT) field contains a value in the range of 0 to 63 which identifies a Measurement Sounding Part. The Measurement Sounding Part consists of a DL NDP frame and UL NDP frame announced by a Ranging NDP Announcement in non-TB ranging, or UL NDP frames and a DL NDP frame announced by a Sounding Trigger frame and NDP Announcement frame in TB ranging. | Revise. Incorporate the editor instruction from submission 11-19-1276. |

Discussion: strictly editorial change for consistency. However in order to make the long sentence with compound logic easier to parse, it is proposed that we use + to enumerate the sequence of frames exchanged and use ‘or’ to delineate the TB sequence from the non-TB sequence.

Resolution: REVISE.

***TGaz Editor: Change the paragraph describing the Sounding Dialog Token in Cl. 9.3.1.19 as shown below:***

The Sounding Dialog Token Number subfield in the Sounding Dialog Token (SDT) field contains a value in the range of 0 to 63 which identifies a Measurement Sounding Part (DL NDP frame + UL NDP frame announced by a Ranging NDP Announcement in non-TB ranging, or UL NDP frames + DL NDP frame announced by Sounding Trigger frame + NDP Announcement frame in TB ranging).

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| 1347 | Carl Kain | 9.4.2.21.10 | 35.11 | Missing example? | I don't see the example in the note. Either add it, or if it is somewhere else, reference it. | REVISE. Incorporate the editor instructions in submission 11-19-1276. |

Discussion: The example is in the baseline (and should not be shown in D1.0 as new text) and hence not included in the TGaz Draft. However, the text added to the baseline by TGaz separates the NOTE in the baseline from the text that the NOTE is related to. The text inserted by TGaz needs to be moved to after the NOTE, instead of before the NOTE.

Resolution: REVISE

***TGaz Editor: Insert the new paragraphs after the NOTE (instead of before the NOTE):***

***Insert the new paragraphs after the NOTE as shown below: (#1347)***

The definitions of fields within the LCI field are as specified in Section 2.2 of IETF RFC 6225 (July 2011) or as defined herein. This structure and information fields are based onthe LCI format described in IETF RFC 6225.

NOTE— This example shows how to encode the coordinates of the Sydney Opera House using the encoding defined in IETF RFC 6225. The building is a polygon with the following (latitude, longitude) coordinates.

(-33.856 625°, +151.215 906°)

The Relative Compact LCI field is formatted as shown in 256a.

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|  | B0 B15 | B16 B31 | B31 B47 |
|  | Relative Latitude | Relative Longitude | Relative Altitude |
| Octets | 16 | 16 | 16 |

Figure 9-256a - Relative Compact LCI Field

The Relative Latitude subfield contains a signed integer in two’s complement format indicating the latitude offset of the reported location in relation to the specified reference location, in units of 1.8e-07 deg. (Corresponds to approximately two cm.)

The Relative Longitude subfield contains a signed integer in two’s complement format indicating the longitude offset of the reported location in relation to the specified reference location, in unitsof 1.8e-07 deg. (Corresponds to approximately two cm.)

The Relative Altitude subfield contains a signed integer in two’s complement format indicatingthe elevation offset of the reported location on in relation to the specified reference location, in units of 2 cm.

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| 1433 | Dana Ciochina | 11.22.6.2 | 82.10 | Missing sentence to clarify to what the bullets relate to. | If the STA in which dot11FineTimingMsmtRespActivated is true supports, .. And correct the changing fonts | Revise. Incorporate the editor instructions in submission 11-19-1276. |

Discussion: The list should not be bulleted. The contents of the (now bulleted) list should conform to how the related statements are constructed in the baseline.

Resolution: REVISE

***TGaz Editor: Modify the inserted paragraphs in Cl. 11.22.6.2 as shown below:***

A STA in which dot11NonTriggerBasedRangingRespImplemented is trueshall set the non-TB Ranging Responder field of the Extended Capabilities element to 1. Otherwise it shall set the non-TB Ranging Responder field of the Extended Capabilities element to 0.

A STA in which dot11TriggedBasedRangingRespImplemented is true shall set the TBRanging Responder field of the Extended Capabilities element to 1. Otherwise it shall setthe TB Ranging Responder field of the Extended Capabilities element to 0.

<<need to consult Assaf to reword these two paragraphs>>

PDMG Ranging: it shall set the DMG Range Measurement field of the Extended Capabilities element to 1. Otherwise it shall set the Multi User Range Measurement field of the Extended Capabilities element to 0. A STA that additionally supports Direction Measurement shall include a DMG Direction Measurement Capabilities field in the DMG Capabilities element and set one of the first 4 subfields (AOA TX Capability, AOA RX Capability, AOD TX Capability, AOD RX Capability) of this field to 1.

PEDMG Ranging, it shall set the EDMG Range Measurement field of the Extended Capabilities element to 1. It may also set the EDMG OFDM Range Measurement field of the Beamforming Capabilities subelement to 1 if it additionally supports OFDM ranging Otherwise it shall set the EDMG Range Measurement field of the Extended Capabilities element to 0. A STA that additionally supports Direction Measurement shall include a DMG Direction Measurement Capabilities field in the DMG Capabilities element and set one of the first 4 subfields (AOA TX Capability, AOA RX Capability, AOD TX Capability, AOD RX Capability) of this field to 1.

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| 1596 | Ganesh Venkatesan | 6.3.56.1 | 13.00 | Changes relative to baseline (REVmd D2.0) are not correctly indicated in Note 2. | Because time is needed to detect the frame or the relevant LTF in the preamble and synchronize with its logical structure, an implementation determines when the start of the preamble or the relevant LTF in the preamble for the incoming frame arrived at the receive antenna connector by capturing a timestamp some time after it occurred and compensating for the delay by subtracting an offset from the captured value. | Accept |

Discussion: new text added to the baseline text is not shown completely.

Resolution: ACCEPT

***TGaz Editor: underline new text inserted to the baseline as shown below:***

NOTE 2—In Figure 6-17 (Fine timing measurement primitives and timestamps capture), t2 and t4 correspond to the point in time at which the start of the preamble for the incoming frame arrives at the receive antenna connector. In Figures 6-17b (non-TB Sounding Exchange for Ranging) and 6-17c (TB Sounding Exchange for Ranging), t2 and t4 correspond to the point in time at which the incoming HE TB Ranging NDP and/or HE Ranging NDP arrives at the receive antenna connector. The points where the timestamps are captured are therefore not shown for the non-TB and TB Sounding Exchanges. Because time is needed to detect the frame or the relevant LTF in the preamble (#1596) and synchronize with its logical structure, an implementation determines when the start of the preamble or the relevant LTF in the preamble (#1596) for the incoming frame arrived at the receive antenna connector by capturing a timestamp sometime after it occurred and compensating for the delay by subtracting an offset from the captured value.

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| 1609 | Ganesh Venkatesan | 9.3.1.19 | 25.09 | Missing word in "The Offset subfield can take values between 0 and 63 and indicates the number of HE-LTF to skip when processing the following NDP and is set 0 in all cases except in the secure variant of the TB Ranging measurement exchange." | as in comment. | ACCEPT |

Discussion: Editorial

Resolution: ACCEPT

***TGaz Editor: Change the following paragraph in Cl. 9.3.1.19 as follows:***

The Offset subfield can take values between 0 and 63 and indicates the number of HE-LTF to skip when processing the following NDP and is set 0 in all cases except in (#1609) the secure variant of the TB Ranging measurement exchange.