IEEE P802.11  
Wireless LANs

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| TGaz Ad Hoc Meeting Minutes  November 6th-8th, 2019  Sunnyvale, CA | | | | |
| Date: 2019-11-06 | | | | |
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Abstract

Minutes for the TGaz Ad Hoc meeting, beginning on Nov 6th, 2019.

**IEEE 802.11 Task Group AZ**

**Nov 6th – 9th, 2019**

1. **TGaz Ad Hoc – Wednesday Nov 6th, 2019 – DAY #1**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **9.26am PST**; Technical Co-Editor: Roy Want (Google Inc.); Acting Secretary(s): Roy Want (Google Inc), Ganesh Venkatesan (Intel).
   2. Agenda Doc. **IEEE 802.11-19/1715r1 (in progress)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as an individual professional, and anti-trust requirements – no clarification requested.
      4. Recorded Participation requirement
         1. Headcount: ~12 present, 2 people on webex-telecon.
   4. Review Agenda
      1. Agenda review and setting: reviewed submissions for the ad hoc meeting.
      2. Chair called for any additional feedback and changes to agenda.
         1. Agenda agreed – no objections.
   5. Assaf Kasher (Qualcomm) presented document **11-19/1691r1**
      1. **Title**: Resolution to miscellaneous CIDs
      2. **Summary**: This document proposes resolution to the following CIDs: 1002, 1037, 2349, 1425, 1057, 2212, 2218, 2213, 1591.
      3. **Discussion**:
      4. C: Some duplication of resolutions for 2218 and 2213 with Erik (resolved in **r2**)
      5. **Strawpoll**

Agree to the resolutions depicted by document 11-19-1691r2 for CIDs 1002, 1037, 1057, 2212, 1591, 1995 and 2147.

* + 1. **Results** (Y/N/A): approved unanimously
  1. Assaf Kasher (Qualcomm) presented document **11-19/1785r2**
     1. **Title**: LB240-Secure-EDMG-FTM-CIDs
     2. **Summary**: This document proposes resolution to CIDs 1454, 1455, 1456, 1450, 1089 on TGaz D1.0. The edits are based on D1.5
     3. **Discussion**:
     4. C: TGaz Editor: Change the text in 11.22.6.4.2.1.6 P127L25-30 and P128L1-8: The 1st bullet has been deleted and the point described later in bullet #3. There is concern that it’s less clear as its not specifying the value (1).
     5. R. This is an enumerated type, and values should not be referred to here. It’s an internal API in the TXVECTOR.
     6. R. Will upload **1785r3** with these changes today.
     7. **Strawpoll**: Deferred strawpoll until Thu meeting.
  2. Assaf Kasher (Qualcomm) presented document **11-19/1674r0**
     1. **Title**: LB240 Resolution of CID1295
     2. **Summary**: Resolutions for CID2124, 1059
     3. **Discussion**:
     4. C. Add text for when the standard no longer has a PEDMG station.
     5. **Strawpoll**: Deferred until Thu meeting to fix PEDMG description issue.
  3. **Lunch 12.00 – 1.04pm**
  4. Dibakar Das (Intel) presented document **11-19/1866r0**
     1. **Title**: CR for CIDs on Ranging Parameters
     2. **Summary**: This document addresses the following CIDs: 1467, 1475, 2073 and 1729.
     3. **Discussion:**
     4. C. CID 2073: Addition for paragraph starting at P132L28 in Section 11.22.6.4.3.2. Question on the definition of the conditions to maintain an ongoing FTM session.
     5. R. Reworked this paragraph for TB (during the presentation) to clarify where the Max Session Expiry interval starts and ends.
     6. R. Also fixed for NTB
     7. C. Count should not be both a field name and value.
     8. R. Using “count” as the value of Count.
     9. **Strawpoll**
     10. Agree to the resolutions depicted by document 11-19-1866r1 for CIDs 1467, 1475, 2073 and 1729.
     11. **Results (Y/N/A):** approvedunanimously
  5. Jonathan (Intel) presented document **11-19/1812r0**
     1. **Title**: LB240 CR for Various Unassigned Comments P.2
     2. **Summary:** This submission contains proposals to resolve LB#240 CIDs 1155, 1156, 1245, 1246, 1365, 1480, 1557, 1772, 1773, 1779, 1809, 1891, 1895, 2132, 2254, 2464, 2465 and 2466
     3. **Discussion:**
     4. C. CID 1155: Clarification on why CFO corrections are done for both end STAs.
     5. C. Question on ability to decode multiple I2R packets which have different lengths. Issues may result related to aggregate power reduction during packet transmission.
     6. R. It’s okay because the power compromise has already been made for the N streams, allowing one stream to be decoded in the presence of N-1 other streams.
     7. **Strawpoll**

Agree to the resolutions depicted by document 11-19-1812r1 for CIDs 1155, 1156, 1245, 1246, 1365, 1480, 1772, 1773, 1779, 1809, 1891, 1895, 2132, 2254, 2464, 2465 and 2466.

* + 1. **Results** (Y/N/A): approved unanimously
  1. Nehru (Broadcom) presented document **11-19/1723r4**
     1. **Title**: CR for Location
     2. **Summary:** Resolution:CIDs: 2148, 1090. Corrected secure operation test vectors for appendix.
     3. **Discussion:** None
     4. **Strawpoll:**

Agree to the resolutions depicted by document 11-19-1723r4 for CIDs 2148 and 1090**.**

* + 1. **Results (Y/N/A**): approved unanimously
  1. Jerome Henry (Cisco) presented document **11-19/1809r2**
     1. **Title:** Proposal for resolution of CID 1968
     2. **Discussion:** This document presents a resolution for CID1968.
     3. C.Use Change, Insert, Replace, Delete for the four editor instructions.
     4. **Strawpoll**

Agree to the resolution depicted by document 11-19-1809r2 for CID 1968.

* + 1. **Results (Y/N/A):** approved unanimously
  1. Chair reviewed status of presentation agenda
  2. **Recess at 5.20pm.**

1. **TGaz Ad Hoc – Thursday Nov 7th, 2019 – DAY #2**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **9.11am PST**; Technical Co-Editor: Roy Want (Google Inc.); Acting Secretary: Ganesh Venkatesan (Intel).
   2. Agenda Doc. **IEEE 802.11-19/1715r3 (in progress)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as an individual professional, and anti-trust requirements – no clarification requested.
      4. Recorded Participation requirement
         1. Headcount: ~12 present in the room + 5 people on webex-telecon.
   4. Review Agenda
      1. Agenda review and setting: reviewed submissions for the ad hoc meeting.
         1. 11-19-1785 – continue discussion from Day-1
         2. 11-19-1674 – continue discussion from Day-1 (move it to next week)
         3. 11-19-1717 –
         4. 11-19-1875 – dropped because of additional time needed to assess member interest in the changes proposed by submission 11-19-1717
         5. 11-19-0035 – spill over from Day-1
         6. 11-19-1043 –
         7. 11-19-1841 –
         8. 11-19-1842 –
         9. 11-19-1677 –
      2. Chair called for any additional feedback and changes to agenda.
   5. Agenda agreed – no objections.
   6. Assaf Kasher (Qualcomm) presented document **11-19/1785**
      1. **Title**: LB240 Secure EDMG FTM CIDs v2
      2. **Summary:** Updated from the discussions during Day-1. Discussed only changes made to the submission relative to the version presented during Day-1
      3. **Discussion**: 64 octet random secret key updated to be a 32 octet random secret key. Moved PHY-specific statements to Clause 29 (from Clause 11).
      4. C. Text in Table 29-60 what does ‘if present’ refer to?
      5. R. to the presence of TRN field
      6. C: doesn’t SECURE\_TRN imply the presence of secure TRN field
      7. R: Referring to .11ay, EDMG\_TRN field indicates the number of TRNs in the TRN field. If it is set to 0 then there are no TRNs in the header. So, ‘if present’ refers to the presence of TRNs in the TRN field of the header.
      8. R: Fixed the text by stating that the SECURE\_TRN field is reserved when EDMG TRN Length field is set to 0.
      9. **Strawpoll:**
      10. Agree to resolutions depicted by document 11-19-1785r4 for CIDs 1454, 1455, 1456, 1450 and 1089.
      11. **Discussion**: none
      12. **Results (Y/N/A**): Approved with unanimous consent.
   7. Nabil Loghin (Sony) presented document **11-19/1717**
      1. **Title**: Strongest Tap FTM for PDMG/PEDMG
      2. **Summary:** selecting the strongest tap (in addition to the first tap) enabling better positioning performance; resolves CIDs #1427 and #2349
      3. **Discussion**:
      4. C. What channel model was used for the simulation?
      5. R. .11ay channel model (large conference room) – detailed in the appendix (slide-14). More details can be provided, if needed.
      6. C: The positioning STAs were uniformly placed in the grid. How many channel realization were performed for each position?
      7. R: 10 realizations (about 4000 in all)
      8. C: The simulation uses a single multi-path; in reality there could be multiple multi-path components. The number of unknown variables correspondingly increase.
      9. R: According to .11ay we only have only two AWV (Antenna Wave Vectors). Other specifications (3GPP for instance) allow for more AWVs.
      10. C: Need to consider more scatter scenarios for the simulation.
      11. R: The algorithm only uses the first tap (LoS) and the strongest tap
      12. C: Are we using only First Path AWV or Strongest tap (regular) AWV using the trigger field setting?
      13. R: Proposed indicating capability during negotiation; and indicate which AWV to use during measurement.
      14. C: Cannot flip during measurement exchange.
      15. R: Indicate which AWV is used in the header (refer to Assaf’s presentation)
      16. C: Should the mechanism (which AWV to use) be fixed at Negotiation? Or be more dynamic during measurement exchange?
      17. R: Depends on the Use Case.
      18. R: using a new bit in the EDMG Header to indicate the choice of First tap or the Strongest tap minimizes the changes needed in the draft
      19. C: EDMG does not use Ranging Parameters (uses FTM Parameters).
      20. C: The proposal describes two measurements First tap/Strongest tap. Why do we need to signal which measurement?
      21. R: both ends need to be aligned as to which (first tap/strongest tap) is used. Hence the need for signalling.
      22. **Next steps** – if there is interest in what is proposed, Assaf’s proposal has corresponding specification changes.
      23. Run a straw poll to assess interest in the proposal. Target a straw poll during the Hawaii F2F meeting on this topic.
      24. C: Slide #14, What does inaccuracy of AoA/D, ToF equal for both paths? This is not a reasonable assumption. Do we have some simulation where ToA/ToD/ToF errors are taken into account? Without including them the simulation is too simplified.
      25. R: Not sure. Could be a typo. Will follow up with a response later.
      26. C: Slide #5: Are you assuming a 2-D model? Should this be a 3-D model?
      27. R: We considered time difference of arrival and the corresponding delta relative to ToF. We did not pursue it since it may have required more changes to the draft.
   8. Erik Lindskog (Samsung) presented document **11-19/0035r3**
      1. **Title**: Information text for Passive Location Ranging
      2. **Summary:** resolution to 11 CIDs related to Passive Location Ranging
      3. Discussion:
      4. CID 1291: Revise.
      5. C: Change the Resolution to reflect Editor instruction to be applied.
      6. **CID 1578:** edits to be done offline; noted required changes.
      7. C: it may be easier to enumerate the CID(s) and the corresponding editor instructions together.
      8. C; What is <PTB meas rep>?
      9. R: This is a place holder for a number that the editor may come up with.
      10. C: The second RSTA to ISTA LMR should be ISTA to RSTA LMR
      11. R: Correct
      12. C: The Colors for the frame exchanges are not consistent (uplinks should all be in dark gray). And representation of OFDMA transmission.
      13. C: The figure seems to imply the protocol execution against two ISTAs. Can it be made generic by using ISTA1 … ISTAn?
      14. C: Figures are exemplary and not normative.
      15. **CID 1575, 1576, 2213:**
      16. C: I2R NDP to PSTA is not addressed to the PSTA. Should this be depicted differently to show it?
      17. R: Not required. It can be understood from the text that describes the frame exchange.
      18. C: Use the style guide to number the equations and refer to them in the text. E.g., P2380L48-50 in RevMD D3.0.
      19. C: Using time instead of distance would be consistent with the rest of the specification. In this case it would be differential time of flight instead of differential distance
      20. R: replace DD(istance) with DT(ime).
      21. **CID 2287:**  Reject. Kept ISTA and RSTA terminology since Passive ranging is a variant of TB ranging. However a PSTA is defined.
      22. **CID 1577:** introduce a new clause 11.22.6.4.8 as an overview for Passive Ranging
      23. **C:** this new subclause belongs in 11.22.6.1.3 where a Passive Ranging Overview is provided.
      24. **Most of the contents in this submission has been presented/discussed.** The submitter intends to have the members read the text and provide feedback, which will be incorporated in a future revision (and brought back for discussion).
   9. Tianyu Wu (Apple) presented document **11-19/1677r0**
      1. **Title**: LB240 CR PHY Service Interface and PPDU format
      2. **Summary:** resolves 22 CIDs (based on D1.4)
      3. **Discussion**:
      4. CID 1172, 1731, 2477: Reject. The group discussed and decided not to create new PHY clause for .11az.
      5. CID 2502, 2503 and 2504: need to differentiate Ranging NDP and HE Sounding NDP.
      6. C: need to incorporate suggestions made during discussion and bring these comments back.
      7. CID 1298, 1299: LTF\_N\_STA and LTF\_REP are defined as parameters governing the reception of the HE/HE TB NDP that follows. In the TX and RX Vector table the parameters describe how the parameters govern the current TX/Rx. Propose to change the description to ‘indicate the number of space-time streams’ and ‘indicate the number of repetition of HE-LTF symbols’ respectively.
      8. C: Remove LTF\_N\_STS from the TX and RX Vector table
      9. R: Execute the change above and ensure that references LTF\_N\_STS in the rest of the draft refers to the correct table where the parameter is defined (and not from where it is deleted as per comment in 2.9.8)
      10. R: the LTF\_N\_STS parameter is defined in the LTF Vector.
      11. C: there is no HE Ranging or HE TB Ranging – it should be non-TB Ranging and TB Ranging.
      12. CID 1319, 1322, 2518: Change the resolution to Revised.
      13. CID 2324, 2353, 2510: Revise. Addressed by an earlier submission and incorporated in D1.5.
      14. CID 2356, 2357, 2359, 2360: Revise.
      15. R: clarify in the Secure LTF case that LTF\_REP does not imply repetition but is a randomization of the LTF. Change ‘LTF Segment’ to ‘LTF field’. The use of segment in Cl. 27 is partitioning the LTF sequence into segments for randomization.
      16. R: Clarify that the NUM\_USERS parameter indicates the number of users (STAs) to which the MU transmission is targeted.
      17. C: How does the .11ax use NUM\_USERS?
      18. R: It is always set to 1. The actual number of users is calculated from RU\_ALLOCATION and STA\_ID for that RU.
      19. CID 1302, 1340, 1371, 2516: Reject
      20. C: Cl. 27.3.17d describes how the baseline equation (27-68) is modified for .11az. A new equation is therefore not needed.
      21. C: Could we modify the baseline equations and render the simplified ones for .11az?
      22. R: If the baseline equation changes, the change has to be applied to the simplified .11az versions too. This may become a maintenance headache (if we develop simplified versions for .11az)
      23. CID 2516: Add to resolution See. 27.3.17 c/d for description of LTF Sequence Generation information.
      24. Revisit this submission after the submitter has posted an updated version.
   10. Ganesh Venkatesan (Intel Corporation) presented document **11-19/1762r0**
       1. **Title**: Resolutions to a few LB240 Comments (Part-9)
       2. **Summary:** resolves 6 CIDs – all these are addressed by earlier submissions
       3. Discussion:
       4. CID 1639
       5. CID 1795
       6. CID 1814
       7. CID 2013
       8. CID 2073 Update Resolution to include “ Revised. TGaz: No further text changes required.”
       9. CID 2128: Update Resolution to include “ Revised. TGaz: No further text changes required.”
       10. **Strawpoll**

Agree to the resolutions depicted by document 11-19-1762r1 for CIDs : 1639, 1795, 1814, 2013, 2073 and 2128.

* + 1. Discussion: None
    2. **Results (Y/N/A)**: approved unanimously
  1. Feng Jiang (Intel Corporation) presented document **11-19/1876r0**
     1. **Title**: Follow up of CID 2274
     2. **Summary:** resolves 22 CIDs (based on D1.4)
     3. **Discussion**: two instances of the identified issue in CID 2274 were not addressed in the last revision of this submission. This submission fixes the references to timestamp values in the ToA and ToD fields in P135L8-12 of D1.5
     4. C: What do we mean by Antenna Connector?
     5. R: The physical separation of the antennas is small compared to the range accuracy we strive for in 11az (~ 1m versus a few centimeters). So, the actual antenna connector.
     6. C: Other features like RSSI measurement refer to antenna connector without being specific about which antenna connector.
     7. **Strawpoll**

Agree to the resolutions depicted by document 11-19-1876r0 for CID 2274.

**Discussion**: None

* + 1. **Results (Y/N/A):** approved unanimously
  1. Erik Lindskog (Samsung) presented document **11-19/1043r9**
     1. **Title**: LB240 Phase roll based ToA in Passive Location Ranging Amendment Text
     2. **Summary:** Amendment text describing how to report and use the reported phase roll based ToA estimates to determine location in Passive Ranging
     3. Discussion:
     4. C: we are yet to agree on using Phase Roll based ToA. Given that do we want to discuss and debate the details of how to specify Phase Roll based ToA?
     5. R: There is no advantage for PSTAs. However, if the RSTAs and ISTAs use Phase Roll based ToA, the timestamp estimates are more robust.
     6. C: Can we remove support for non-Phase Roll based ToA?
     7. R: the ToA (non-Phase Roll based) is the baseline. All implementations are expected to support it. Also, Passive rides on TB-ranging which deals with non-Phase Roll based ToA.
     8. C: Phase Roll based ToA is just one such mechanism, other mechanisms exist (some more complex than others) with similar performance advantages.
     9. C: The complexity in support for both Phase Toll based ToA and non-Phase Roll based ToA is not significant, but the benefit is significant.
     10. **Straw Poll**

Which of the following options do you support\*\* for passive ranging:

O1) Protocol supports\* both Phase shift and First path TOA reporting

O2) Protocol supports\* only first path TOA reporting

O3) Protocol supports\* only phase shift TOA reporting

\*Supports means negotiation and any interoperable implications.

\*\* multiple choices allowed.

* + 1. **Results**: O1) 8 O2) 3 O3) 3
    2. Continue reviewing the submission (given the support for O1)
    3. C: The text in Cl. 11.22.6.4.8 deals exclusively with Passive Location Ranging measurement; and hence does not require the leading phrase.
    4. R: Agree. Will perform this change in the next round.
    5. **Next Steps**: To be reconsidered at the end of the ad hoc, if time permits.
  1. Tianyu Wu (Apple) updated document **11-19/1677r1**
     1. **Title**: LB240 CR PHY Service Interface and PPDU format
     2. **Summary:** resolves 22 CIDs (based on D1.4)
     3. Review of changes made to r0.
        1. Baselined to D1.5
        2. Defined a Ranging Flag which together with HE SU or HE TB identifies the NDP as a Ranging NDP
        3. Revised the entry in the resolution column for all comments to reflect the proposed resolution/corresponding text changes where it applies.
     4. **Straw Poll**
     5. Agree to the resolutions depicted by document 11-19-1677r1 for CIDs 1172, 1298, 1299, 1302, 1319, 1322, 1340, 1371, 1731, 2324, 2353, 2356, 2357, 2359, 2360, 2477, 2502, 2503, 2504, 2510, 2516 and 2518.
     6. **Discussion**: None
     7. **Results** (Y/N/A): Approved unanimously.
  2. Erik Lindskog (Samsung) presented document **11-19/1841r2**
     1. **Title**: LB240 Passive TB Ranging MIB Variables CR.
     2. **Summary:** Amendment text describing how to report and use the reported phase roll based ToA estimates to determine location in Passive Ranging**.**
     3. **Discussion**: Should the MIB variables to Implemented or Activated?
     4. C. Should be Activated – if the device intends to change the value of the variable, the expected behaviour is to terminate all active sessions, change the variable’s value and advertise the changed state in the next Beacon.
     5. C. The implication of this decision is to render all the other MIB variables that are currently Implemented to be Activated.
     6. This submission will be continued to be discussed on Day-3
  3. **Recess at 17:30 PST**

1. **TGaz Ad Hoc – Friday Nov 8th, 2019 – DAY #3**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **9.15am PST**; Technical Co-Editor: Roy Want (Google Inc.); Acting Secretary: Roy Want (Google Inc.
   2. Agenda Doc. **IEEE 802.11-19/1715r4 (in progress)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, and, and logistics – no clarifications requested.
      2. Chair called for any potentially essential patents, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as an individual professional, and anti-trust requirements – no clarification requested.
      4. Recorded Participation requirement
         1. Headcount: ~10 present, 0 people on webex-telecon.
   4. Review Agenda
      1. Agenda review and setting: reviewed submissions for the ad hoc meeting.
      2. Chair called for any additional feedback and changes to agenda.
   5. Agenda agreed – no objections.
   6. Erik Lindskog (Samsung) presented document **11-19/1841r0**
      1. **Title**: Passive TB Ranging MIB variables - CR
      2. **Summary:** This submission proposes resolutions of comments received from TGaz LB240. The proposed change is based on TGaz Draft 1.5: CIDs: 1308, 1886, and 1919.
      3. **Discussion**:
      4. C. CIDs are resolved by YongHo already, although there are some duplicate fields in the data structures. This is an editorial issue, that will be corrected in D2.0.
   7. Feng Jiang (Intel) presented document **11-19/1893r0**
      1. **Title: ISTA LCI Table Updating for Passive Location**
      2. **Summary:** In the passive ranging session, the ISTA’s LCI table may change, the ISTA may be mobile, and location information is dynamic, the ISTA may also switch Tx antennas and the antenna placement info is changed.

The ISTA shall update the new LCI for the RSTA, to guarantee the passive client always uses up-to-date LCI information for passive location.

* + 1. **Discussion**:
    2. C. Of the 3 options, 1 and 2 are similar
    3. C. There is another option of using the LMR to update the table for count 0.
    4. C. Conclusion the options In the Strawpoll (opt 2 or 3) are sufficient to achieve the behaviour that we need for updating the LCI, and these mechanisms already exist.
    5. **As a result, no Strawpoll was taken.**
  1. **Break 10.45 – 11.05pm (+10mins of CID resolution status estimation)**
  2. Dibakar Das (Intel) presented document **11-19/1880r0**
     1. **Title:** CR for misc unassigned CIDs
     2. **Summary:** This document addresses the following CIDs: 1688 1689 1718 2406 1719 1857 2034 2038 2077 2078 2079 2081 2088 2441 2409 2442 2489 2019 2490 2492 2493 2497 2498 1398, 2325, 2412, 2427.
     3. **Discussion**:
     4. C. There are some places where AID/RID should be AID/RSID missed during earlier edits. Need to fix in D2.0.
     5. C. We need a BSS Color for non-TB ranging. We have it for TB but need to add it for the other case.
     6. **Recess 12.22pm until 1.15pm**
  3. Dibakar Das (Intel) continued presentation of document **11-19/1880r1**
     1. **Strawpoll**

Agree to the resolutions depicted by document 11-19-1880r01 for CIDs 1688, 1689, 1718, 2406, 1719, 1857, 2034, 2038, 2077, 2078, 2079, 2081, 2088, 2441, 2409, 2442, 2489, 2019, 2490, 2492, 2493, 2497, 2498, 1398, 2325, 2412 and 2427.

* + 1. **Results (Y/N/A):** approved unanimously
  1. Liwen Chu (Marvell) presented document **11-19/1953r0**
     1. **Title:** 11az Comment Resolution 10.24.2
     2. **Summary:** Resolution of CIDs: 1144, 1145, 1858, 1859.
     3. **Discussion:**
     4. C. Various wordsmithing edits with group. Uploaded as **1953r1**
     5. **Strawpoll**:   
        Agree to the resolutions depicted by document 11-19/**1953r1** for CIDs 1144, 1145, 1858, 1859.
     6. **Results** **(Y/N/A):** approved unanimously
  2. Erik Lindskog (Samsung) presented document **11-19/1043r10**
     1. **Title: LB240 CID Resolutions -** Phase roll based ToA in Passive Location Ranging - Amendment text
     2. **Summary:** This document proposes resolutions to comments related Phase Shift TOA in Passive TB Ranging. The changes here are in relation to [1].

TGaz LB240 CIDs addressed: 1515, 1563, and 1557.

* + 1. **Discussion:**
    2. C. Various simplifications to the amendment text, and for Figure (11-36s) that now puts the ISTA in the middle of the RSTA and PSTA for clarity.
    3. C. Uploaded revision as **1043r11**.
    4. **Strawpoll**

Agree to the resolutions depicted by document 11-19-1043r11 for CIDs 1515, 1563 and 1557.

* + 1. **Results (Y/N/A):** approved unanimously.
  1. Chair reviewed the Current **CID Resolution status**.
     1. Total remaining from the Hanoi Meeting: **257**
        1. Editorial: 50
        2. Technical 207
     2. Work completed since Hanoi
        1. During the telecons: 38
        2. During the ad hoc: 84
        3. Total to motion in Kona: **122**
     3. Remaining at this time: **135**
        1. Editorial: **50**
        2. Technical: **85**
  2. Chair thanked Qi for hosting the TGaz meeting at Apple.
  3. **AOB for the meeting:** – None
  4. **Adjourned at 5.15 pm.**

**References**

1. <https://mentor.ieee.org/802.11/dcn/19/11-19-1715-05-00az-tgaz-oct-nov-ad-hoc-agenda.pptx>
2. <https://mentor.ieee.org/802.11/dcn/19/11-19-1691-02-00az-lb240-resolution-to-misc-cids.docx>
3. <https://mentor.ieee.org/802.11/dcn/19/11-19-1785-04-00az-lb240-secure-edmg-ftm-cids-v2.docx>
4. <https://mentor.ieee.org/802.11/dcn/19/11-19-1674-00-00az-lb240-resolution-to-cid-1059.docx>
5. <https://mentor.ieee.org/802.11/dcn/19/11-19-1866-02-00az-cr-for-cids-ranging-parameters-followup.docx>
6. <https://mentor.ieee.org/802.11/dcn/19/11-19-1812-01-00az-part-2-for-lb240-cr-for-unassigned-comments.docx>
7. <https://mentor.ieee.org/802.11/dcn/19/11-19-1723-04-00az-comment-resolution-for-ftm-overview.docx>
8. <https://mentor.ieee.org/802.11/dcn/19/11-19-1809-02-00az-proposal-for-resolution-of-cid-1968.docx>
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