IEEE P802.11  
Wireless LANs

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| TGaz Meeting Minutes  November 12-15th, 2018  Bangkok, Thailand | | | | |
| Date: 2018-11-12 | | | | |
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Abstract

Minutes for the TGaz meeting, beginning on November 12th, 2018.

**IEEE 802.11 Task Group AZ**

**November 12th – 15th, 2018**

1. **TGaz – November 12th, 2018 – Ad hoc slot**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **08.00am ICT**; Vice Chair Assaf Kasher (Qualcomm), Technical Editor, Chao Chun (MediaTek); Secretary, Roy Want (Google Inc.).
   2. Agenda Doc. **IEEE 802.11-18/1667r2**
   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 patent, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as individual professional and anti-trust requirements – no clarification requested.
      4. Chair reminded all to record their attendance
      5. Recorded Participation requirement
         1. Headcount: ~17 present
   4. Review Agenda
      1. Called for any additional submissions for the week.
      2. Agenda review and setting:
         1. Reviewed submissions for the week.
      3. Process for ad hoc presentations (no votes) contributions with 75% approval will be bundled for voting in a later slot.
      4. For submissions that do change from ad hoc to main meeting, we’ll consider the documents and review them in the main meeting.
      5. Chair called for any additional feedback and changes to agenda.
         1. None given. Agenda set.
   5. Erik Lindskog (Samsung) presented document **11-18/1936r0**
      1. **Title**: CR for Passive Location
      2. **Summary**: Presented updated text based on comment collection for passive location.
      3. C. Now called “HEz Passive Location Sounding”
      4. C. Not in D0.5 format
      5. C. What does red-underline mean?
      6. R. Red underline represents new text, and red strikethrough indicates deleted.
      7. C. Each change needs to reference a CID (+document). Need detail for each resolution.
      8. R. Ack. Note: Blue is the change from what others see who are also editing the document. Will rationalize blue to red during the clean-up.
      9. C. Needs more description of passive process which is uncoordinated between RSTAs participating.
      10. C. Why is the resolution of the Passive Location Availability Window Partial TSF timer defined as 10uS.
      11. R. May not need to be so fine grained.
      12. C. Note the time is always relative to the next window.
      13. R. Now in agreement that the window units should be 1 TU (1024uS). So now we have the same definition for active and passive ranging [simplifies definition].
      14. C. Need just one IE element for announcing window. Currently not announcing the active window – perhaps we need one?
      15. R. Could use one bit, or something else, to indicate the type of announcement.
      16. C. Need to define the operation of the dialog token better.
      17. C. LMR field CFO should be one byte (not two).
      18. R. Edited – need to revisit the ppm indication – not much headroom.
      19. C. Should clarify the LCI table countdown field is decremented each frame.
      20. R. Will Elaborate.
      21. C. Is the TB process the same?
      22. R. the process has some differences
      23. C. LCI contains relative (lat, lng) – don’t like that the AP has to recalculate it if anything moves.
      24. R. Could be an issue. Need to think about this.
      25. C. ASTAs are not indicated in this spec, just an ISTA with particular properties. e.g. that it’s willing to share its LCI. It’s easier to understand the description calling out ASTA/ISTA or ASTA/RSTA.
      26. C. [Chair] Advise to resolve some of this offline due to limited meeting time.
      27. C. Port these changes to D0.5.
   6. Feng Jiang (Intel Corporation) presenteddocument **11-18/1909r0**
      1. **Title:** CR for PHY Related Topics
      2. **Summary:** CC for 472-474, and 545.
      3. C. CID 472 – it’s not clear where to look up the math formulas.
      4. R. [Chair] leave this to the Tech Editor to clarify.
      5. C. “which are derived from a SAC” -> and “which are derived for a SAC”
      6. C. CID545 – should define TXLTFSEQENCE.request too; R. agreed.
      7. C. Is this based on D0.5; R. Yes
      8. R. Will present these integrated changes later in the week.
   7. Request to modify agenda to allow technical editor to review comment resolution stauts.
      1. Chair asked if there was any call to modify the agenda R -None received, change made.
   8. Chao Chung (MediaTek) provided updates on the Comment Database.
      1. D0.4 is in mentor, and generating D0.5 based on CR.
      2. 243 comments unassigned with no volunteers as yet.
      3. C. [Chair] call for volunteers to take on some of the 243 remaining comments.
   9. Christian Berger (Marvell) presented Document **11-18/1818r1**
      1. **Title**:NDP-A amendment text
      2. **Summary:** Described edits made in document.
      3. C. How do I know which what bandwidth the TA is signalling?
      4. R. Need to check on this (11ac defined this)
      5. C. Has anything changed since the last conference call?
      6. R. Did not show this presentation at that time.
      7. R. Will hold a motion for these changes later in the week.
   10. Reminder to do attendance.
   11. **Adjourned (ad hoc) at 9.59am**
2. **TGaz – November 13th, 2018 – Slot #1 (Regular) AM2**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **10.00am ICT**; Vice Chair Assaf Kasher (Qualcomm), Technical Editor, Chao Chun (MediaTek); Secretary, Roy Want (Google Inc.).
   2. Agenda Doc. **IEEE 802.11-18/1667r4**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, additional guidelines about IEEE-SA meeting and logistics – no clarifications requested.
      2. Chair called for any potentially essential patent, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as individual professional and anti-trust requirements – no clarification requested.
      4. Chair reminded all to record their attendance
      5. Recorded Participation requirement
         1. Headcount: ~17 present
   4. Review Agenda
      1. Called for any additional submissions for the week.
      2. Agenda review and setting:
         1. Total of 1 ad hoc and 6 regular slots scheduled
         2. Reviewed submissions for the week.
      3. Chair called for any additional feedback and changes to agenda: none
      4. Agenda approved listed in **11-18/1667r4** (**in progress**)
   5. Approve previous meeting minutes (posted to Mentor **11-18/1627r0** Sep 25th, 2018)
      1. **Motion  
         Move to approve document 11-18/1627r0 as TGaz meeting minutes for the Sept meeting.**
      2. Mover: Ganesh Venkatesan
      3. Seconder: Roy Want.
      4. Discussion of the motion: none
      5. **Results (Y/N/A)**: **16/0/1**: **motion passes.**
   6. Approve previous telecon minutes (posted to Mentor **11-18/1732r1** on Oct 25th 2018)
      1. **Motion   
         Move to approve document 11-18/1732r1 as TGaz meeting minutes for the Oct 10th Telecon meeting.**
      2. Mover: Assaf Kasher, Seconder: Roy Want.
      3. Discussion of the motion: none
      4. **Results (Y/N/A)**: **17/0/0:** **motion passes.**
   7. Approve previous telecon minutes (posted to Mentor **11-18/1860r0** on Nov 6th, 2018)
      1. **Motion  
         Move to approve document 11-18/1860r0 as TGaz meeting minutes for the Nov 2nd Telecon meeting.**
      2. Mover: Assaf Kasher
      3. Seconder: Qinghua Li,
      4. Discussion of the motion: none
      5. **Results (Y/N/A)**: **17/0/0**: **motion passes.**
   8. Chao Chung (MediaTek) presented document **11-18/1544r6**
      1. **Title**: TGaz CC database.
      2. Volunteers for Comment Resolution (CR):
         1. Girish Madpuvar(Broadcom ): Will resolve set of 11.22.6.\* (61 comments)
         2. Debashis Dash (Quantenna Communications): full set of CIDs will be sent to Tech Editor by email.
   9. Qinghua Li (Intel) presented document **11-18/1623r5**
      1. **Title**: Spec text for subcarrier mapping in secure mode.
      2. **Summary**: Document changes (redline) based on comments.
      3. **Motion**:   
         **Move to adopt document 11-18-1623 r5 to the 802.11az draft, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      4. Discussion of the motion: None
      5. **Mover:** Chao Chun Wang
      6. **Seconder**: Ganesh Venkatesan
      7. **Results (Y/N/A): 16/0/1: Motion Passes**
   10. Assaf Kasher (Qualcomm) presented document **11-18/1728r4**
       1. **Title**: CC28 XDMG Comment Resolution
       2. **Summary**: Document changes (redline) based on comments
       3. Discussion of presentation:
       4. C. [Chair] couldn’t see the CID list at the beginning of the document
       5. R. It’s at the end of document.
       6. [Note: in other documents it’s on the first page as part of the Abstract]
       7. **Motion**  
          **Move to adopt the resolution depicted by document 11-18-1728r4 for CIDs 86, 232, 233, 235, 236, 334, 335, 482, 523, 524, 536, 84, 230, 231, 85, 471, 91, 92, 93, 316, 337, 333, 314, 215, 317, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
       8. Moved: Assaf Kasher
       9. Second: Qinghua Li
       10. **Results (Y/N/A): 14/0/1; motion passes.**
   11. Christian Berger (Marvell) presented document **11-18/1742r4**
       1. **Title**: CC28 CR HEz Protocol Rewrite
       2. **Summary**: Comment Resolution for CIDs in abstract.
       3. Discussion of presentation:
       4. C: Table format at beginning of document. Accept followed by additional resolution. This should not be an ‘Accept’. Examples given.
       5. R. This is not a formal CR process, so it’s okay at this stage. But where possible we’ll try to be more aligned.
       6. Discussion of motion: none
       7. **Motion  
          Move to adopt the resolution depicted by document 11-18-1742r5 for CIDs 491, 387, 43, 122, 397, 392, 396, 45, 132, 393, 394, 400, 401, 402, 403, 404, 40, 41,168,169,339,342,345,346,347,349, 352,353,354,355,356,357,358, 372, 381, 382, 386,388, 389, 395, 41,170,171, 359,260,261,362,363,364, 530,508,510, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
       8. Moved: Ganesh Venkatesan
       9. Seconded: Chao Chun Wang
       10. **Results (Y/N/A): 15/0/1; motion passes**
   12. Christian Berger (Marvell) presented document **11-18/1741/r2**
       1. **Title**: CC28 CR VHTz Protocol Rewrite
       2. **Summary**: Comment Resolution for CIDs in abstract.
       3. Discussion of presentation:
       4. C. In the Figure 11-YY RSTA-ISTA -> RSTA to ISA
       5. C. Resolution “Accepted” should be “Revised” in many cases. Reminder that this will be needed in formal comment resolution.
       6. **Motion**  
          **Move to adopt the resolution depicted by document 11-18-1741r3 for CIDs 405, 406, 407, 408, 413, 47, 48, 176, 409, 410, 411, 493, 415, 417, 414, 177, 49, 50, 178, 422, 423, 424, 426, 418, 419, 420, 421, 416, 179, 430, 428, 431, 432, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
       7. Moved: Assaf Kasher
       8. Second: Qinghua Li
       9. **Results (Y/N/A): 12/0/1; Motion passes.**
       10. Reminder to do attendance
       11. **Recess at 12.30pm**
3. **TGaz – November 13th, 2018 – Slot #2 (Regular)**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **04.00pm ICT**; Vice Chair Assaf Kasher (Qualcomm), Technical Editor, Chao Chun (MediaTek); Secretary, Roy Want (Google Inc.).
   2. Agenda Doc. **IEEE 802.11-18/1667r5**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, additional guidelines about IEEE-SA meeting and logistics – no clarifications requested.
      2. Chair called for any potentially essential patent, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as individual professional and anti-trust requirements – no clarification requested.
      4. Chair reminded all to record their attendance
      5. Recorded Participation requirement
         1. Headcount: ~21 present
   4. Chair reviewed agenda and asked for feedback – none
      1. Agenda approved
   5. Feng Jiang (Intel) presented document **11-18/1909r1**
      1. **Title**: CR for PHY related topics
      2. **Summary**: Comment Resolution for CIDs in abstract.
      3. Discussion of the changes: none
      4. **Motion  
         Move to adopt the resolution depicted by document 11-18-1909r1 for CIDs 472, 473, 474, and 545, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      5. Moved: Feng Jiang
      6. Seconded: Qinghua Li
      7. **Results (Y/N/A): 14/0/0; Motion passes.**
   6. Christian Berger (Marvell) presented document **11-18/1818r2**
      1. **Title:**
      2. **Summary:** Comment Resolution for CIDs in abstract
      3. Discussion: none.
      4. **Motion  
         Move to adopt document 11-18-1818r2 to the 802.11az draft, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor**.
      5. Moved: Assaf Kasher
      6. Seconded: Qinghua Li
      7. **Results (Y/N/A): 13/0/1; Motion passes.**
   7. Assaf Kasher (Qualcomm) presented document **11-18/2003r0**
      1. **Title**: Secure TOF supported
      2. S**ummary**: This document addresses the issue of a capability bit for the Secure ToF measurement in DMG/EDMG
      3. Discussion: None.
      4. **Motion  
         Move to adopt the resolution depicted by document 11-18-2003r0 for CIDs 239 and 240, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      5. Moved: Assaf Kasher
      6. Second: Qinghua Li
      7. **Results (Y/N/A): 13/0/1; Motion passes.**
   8. Assaf Kasher (Qualcomm) presented document **11-18/1845r0**
      1. **Title**: CC28 AOA definition – CIDs
      2. **Summary**: This document proposes resolutions to CC28 CIDs related to the AOA fields. All changes are in reference to D0.41
      3. C. Is use of the bit to indicate true north, or relative angle, changed dynamically? If not, an optimization would be to just include it in the initial negotiation.
      4. R. Did not think about this option, but even so the overhead is small.
      5. **Motion  
         Move to adopt the resolution depicted by document 11-18-1845r0 for CIDs 479,480 and 481, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      6. Moved: Assaf Kasher
      7. Second: Christian Berger
      8. **Results (Y/N/A): 13/0/1; Motion passes.**
   9. Yongho Seok (MediaTek) presented document **11-18/1781r0**
      1. **Title**: CC28 CR of Secure Non-TB Ranging Measurement Exchange Protocol
      2. **Summary**: This submission proposes resolutions of comments received from TGaz CC28. (The proposed change is based on TGaz Draft 0.5.) CIDs: 451, 452, 453, 454, 182, 443, 445, 446, 447, 449, 53, 450, 456 (13 CIDs)
      3. Discussion of presentation:
      4. C. What do you mean by “after transmission of the ranging NDP parameter”?
      5. C. Should the Fine Timing Measurement frame be the Initial FTM frame
      6. R. No, we don’t limit it to the initial frame.
      7. C. Does the FTM from the RSTA always include the SAC
      8. R. Yes, later in the text it states it explicitly.
      9. C. What is the protocol behaviour if I receive an NDP-A and then no NDP. I think the measurement is null, and we start again.
      10. C. If its secure, we need to assume the SAC has gone when NDP is lost.
      11. C. You can define UL NDP and DL NDP once, and use it as shorthand.
      12. R. HE <X> NDP PPDU. In 11az, X equals ‘ranging’ or ‘TB’
   10. Reminder to register attendance.
   11. **Recess at 6.01pm.**
4. **TGaz – November 14th, 2018 – Slot #3 (Regular) – PM2**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **04.00pm ICT**; Vice Chair Assaf Kasher (Qualcomm), Technical Editor, Chao Chun (MediaTek); Secretary, Roy Want (Google Inc.).
   2. Agenda Doc. **IEEE 802.11-18/1667r5 (in progress)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, additional guidelines about IEEE-SA meeting and logistics – no clarifications requested.
      2. Chair called for any potentially essential patent, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as individual professional and anti-trust requirements – no clarification requested.
      4. Chair reminded all to record their attendance
      5. Recorded Participation requirement
         1. Headcount: ~23 present
   4. Chair reviewed agenda and asked for feedback – none
      1. Agenda approved.
   5. Yongho Seok (MediaTek) presented remaining parts of document **11-18/1781r2**
      1. **Title**: CC28 CR of Secure Non-TB Ranging Measurement Exchange Protocol
      2. **Summary**: This submission proposes resolutions of comments received from TGaz CC28. (The proposed change is based on TGaz Draft 0.5) CIDs: 451, 452, 453, 454, 182, 443, 445, 446, 447, 449, 53, 450, 456 (13 CIDs).
      3. C. p6. Are the items (a) (b) (c) assumed to be executed in order? R. Yes
      4. C. p7. Is the SAC new – we want to make sure it’s not used when the protocol state is invalid.
      5. Edits made to generate a new **r3**. Chair instructs author to upload this version.
      6. **Motion  
         Move to adopt the resolution depicted by document 11-18-1781r3 for CIDs 451, 452, 453, 454, 182, 443, 445, 446, 447, 449, 53, 450 and 456, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      7. Moved: Yongho Seok
      8. Second: Qinghua Li
      9. **Results (Y/N/A): 14/0/0 Motion passes.**
   6. Ganesh Venkatesan (Intel) presented document **11-18/1998r1**
      1. **Title**: Resolutions to comment collection #28 CIDs (relative to IEEE 802.11 REVmd D1.0 and P802.11az D0.4)
      2. **Summary**: This submission proposes resolutions to MLME related CIDs from Comment Collection #28 (1, 2, 195, 196, 525).
      3. Discussion of presentation and motion: none.
      4. **Motion  
         Move to adopt the resolution depicted by document 11-18-1998r1 for CIDs 1, 2, 195,196 and 525, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      5. Moved: Ganesh Venkatesan
      6. Second: Chitto Ghosh
      7. **Results (Y/N/A): 14/0/0; Motion passes.**
   7. Chair asked for change to agenda order - no objection.
      1. Moving **11-18/1984r0** to next presentation slot.
   8. Qi Want (Apple) presented document **11-18/1984r0**
      1. **Title**: EVM Requirement Negotiation for NDP Ranging Packets.
      2. **Summary**: Error Vector Magnitude (EVM) can be an indication of the ranging error you can expect in the measurement.
      3. C. There is missing information in this presentation. What is the channel state? What is the SNR?
      4. R. Summary - If you are not limited by your EVM you get less error for lower EVM. Objective to push the ranging capability further.
      5. C. At close range you can give up TX power to improve EVM (less distortion).
      6. C. Device may be moving, so it may not be able to guarantee EVM.
      7. C. Commitment to an EVM value may not be useful in motion.
      8. C. Feel this is not an implementable protocol as any estimation you make has no reference to compare against.
      9. R. Can you suggest an alternative?
      10. R. There is a known relationship between TX and RX, so there is a way to compare in the case when there is a high quality LTF transmitted, and Legacy Signaling (LSIG).
      11. C. The Pre-ample may not be so perfect.
      12. R. The objective is to decide whether to continue with the ranging session or not.
      13. C. What model are you using?
      14. R. Model is similar to 802.15.4a,
      15. C. Some algorithms may not be sensitive to the EVM, only SNR really matters in that case.
      16. R. EVM is still useful for some use cases.
      17. C. There is a lack of information in the protocol exchange. Especially between two different manufacturers, its unclear what transmit power is necessary to get the desired EVM.
      18. C. In your simulation do you use multiple or single antenna?
      19. R. Multiple antennas
      20. C. Repetition or non-repetition?
      21. C. The benefit of considering multi-antennas and repetition may not be much.
      22. C. Agree that in the simulation it depends on your set up. At high SNR, EVM is limited. Managing the EVM may be client specific. Leave the TX power management up to the client.
      23. R. You hope during motion the protocol executes quickly. You know the SNR, so you can know what EVM you should ask for.
      24. C. [Chair] Due to time limitations we need to end here, and revisit later.
   9. Ganesh Vankesan (Intel) presented document **11-18/2005r2**
      1. **Title**: Availability Window parameters modification
      2. **Summary**: This submission addresses the following CIDs from TGaz CC28 and based on TGaz draft 0.5.4: 39, 167. The proposed resolution uses the content in document 11-18-1604-01-00az-Availability\_window\_update.pptx
      3. Discussion of presentation:
      4. C. missing contents of parentheses for reference on page 3.
      5. R. [chair] Editor will add intended reference.
      6. **Motion   
         Move to adopt the resolution depicted by document 11-18-2005r2 for CIDs 39 and 167, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      7. Moved: Ganesh Venkatesan
      8. Seconder: Chitto Ghosh
      9. **Results (Y/N/A): 11/0/0; Motion passes.**
   10. Next timeslot will start with submission **11-18/1805**.
   11. Reminder to do attendance.
   12. **Recess at 5.57pm**
5. **TGaz – November 15th, 2018 – Slot #4 (Regular) – AM1**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **08.00am ICT**; Vice Chair Assaf Kasher (Qualcomm), Technical Editor, Chao Chun (MediaTek); Secretary, Roy Want (Google Inc.).
   2. Agenda Doc. **IEEE 802.11-18/1667r7 (in progress)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, additional guidelines about IEEE-SA meeting and logistics – no clarifications requested.
      2. Chair called for any potentially essential patent, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as individual professional and anti-trust requirements – no clarification requested.
      4. Chair reminded all to record their attendance
      5. Recorded Participation requirement
         1. Headcount: ~11 present
   4. Chair reviewed agenda and asked for feedback – none
      1. Agenda approved
   5. Debashis Dash (Quentella Communications) presented document **11-18/1929r2**
      1. **Title:** CR for PHY Related Topics
      2. **Summary:** This submission addresses the following CIDs from TGaz CC28 and based on TGaz draft 0.5: CID 33, 34, 35, 97, 104, 286, 287, 288, 289, 291, 293 and 489 (12 CIDs).
      3. Discussion of presentation (only most salient points recorded).
      4. C.No such thing as a “… multiuser downlink NDPA …”, so change to   
         “…NDP Announcement …”
      5. C. ‘Trigger location poll’ or ‘Trigger ranging poll’. Check other places in standard. Probably the first.
      6. C. **CR. 97 is reassigned to Assaf Kasher**.
      7. C. ‘TB downlink sounding’ is redundant, it’s just implicitly TB sounding.
      8. C. ‘FTM measurement exchange’ is not clear, ‘TB Ranging Sequence’ is another option. Current proposals: ‘TB Ranging Exchange’ or ‘non-TB Ranging Exchange’
      9. Changes uploaded as **revision 3**
      10. **Motion  
          Move to adopt the resolution depicted by document 11-18-1929r3 for CIDs   
          33, 34, 35, 104, 286, 287, 288, 289, 291, 293 and 489, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      11. Moved: Ganesh Venkatesan
      12. Second: Erik Lindskog
      13. **Results (Y/N/A): 12/0/0; motion passes.**
      14. **Please note later motion voids this motion (Slot #7 see 11-18/1929r4)**
   6. Ganesh Venkatesan (Intel) presented document **11-18/1805r3**
      1. **Title:** CC28 Trigger frame format comment resolution
      2. **Summary:** This submission addresses the following CIDs from TGaz CC28 and based on TGaz draft 0.5.4: 10,11,12,13,224,221,223**.**
      3. Discussion of presentation.
      4. C. Terms now preferred:
         1. C. TB Ranging Poll is used rather TB Poll
         2. C. TB Ranging Poll subvariant (Poll sub-variant)
         3. C. TB Ranging Sounding subvariant (Sounding)
         4. C. Ranging Trigger Variant
         5. C. Subvariants: Secure, Sounding, LMR, Passive subelements
      5. Will bring the document back for a final motion.
   7. Agenda reorganized as we are running a bit behind.
   8. Reminder to do attendance
   9. **Recess at 10am.**

1. **TGaz – November 15th, 2018 – Slot #5 (Regular) – AM2**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **10.00am ICT**; Vice Chair Assaf Kasher (Qualcomm), Technical Editor, Chao Chun (MediaTek); Secretary, Roy Want (Google Inc.).
   2. Agenda Doc. **IEEE 802.11-18/1667r8 (in progress)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, additional guidelines about IEEE-SA meeting and logistics – no clarifications requested.
      2. Chair called for any potentially essential patent, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as individual professional and anti-trust requirements – no clarification requested.
      4. Chair reminded all to record their attendance
      5. Recorded Participation requirement
         1. Headcount: ~11 present
   4. Chair reviewed agenda and asked for feedback – none
      1. Agenda approved
   5. Erik Lindskog (Samsung) presented document **11-18/1936r2**
      1. **Title:** CR for Passive Location
      2. **Summary:** This submission proposes resolutions of comments received from TGaz CC28. CIDs: 68, 101, 107, 108, 109, 117, 118, 119, 120, 124, 125, 126, 128, 127, 129, 130, 131, 226, 227, 458, 459, 461, 463, 464, 465, 466, 467, 534

The comments are based on TGaz Draft 0.4 and the proposed changes are relative to TGaz Draft 0.5 and TGmd Draft 1.0.

* + 1. Only comment revisions based on Monday AM1 discussion will be presented.
    2. Discussion of presentation:
    3. C. Can one ISTA do TB-ranging, and/or non-TB Ranging Passive Ranging.
    4. R. Yes, all combinations.
    5. C. Give description of TB Ranging which is the same for both passive and active.
    6. R. That’s what we are doing, as the description starts out doing that.
    7. C. The spec definition of Anchor STA (ASTA) is no longer used.
    8. C. It would be clearer to call out the Passive Location as a separate mode even if it shares many components with the other modes.
    9. C. Another approach would be to give an example of a common case.
    10. R. Current text won’t have the addition of the ASTA/ISTA mode.
    11. [Chair] Any additional discussion for this text? - None requested.
    12. **Motion  
        Move to adopt the resolution depicted by document 11-18-1936r2 for CIDs 68, 101, 107, 108, 109, 117, 118, 119, 120, 124, 125, 126, 128, 127, 129, 130, 131, 226, 227, 458, 459, 461, 463, 464, 465, 466, 467, and 534, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
    13. Moved: Ganesh Venkatesan
    14. Seconded: Roy Want
    15. **Results (Y/N/A): 13/0/0; motion passes**
  1. Chittabrata Ghosh (Intel) presented document **11-18/1949r3**
     1. **Title:** 802.11az Annex B – PICS
     2. **Summary:** Comments relative to REVmd D5.0
     3. C. Change ref from Passive Location Anchor STA to Passive Location ISTA
     4. C. Remove reference to 11az and replace with FTM.
     5. **Motion  
        Move to adopt document 11-18-1949r4 to the 802.11az draft, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
     6. Moved: Chitto Ghosh
     7. Seconded: Qinghua Li
     8. **Results (Y/N/A): 15/0/0; motion passes.**
  2. Ganesh Venkatesan (Intel) presented document **11-18/1805r4**
     1. **Title:** CC28 Trigger frame format comment resolution
     2. **Summary**: Includes all the feedback in the AM1 session today
     3. Discussion of presentation:
     4. C. Where is the RU in the sounding (reserved)?
     5. R. It’s in the Trigger Frame exchange.
     6. **Motion  
        Move to adopt the resolution depicted by document 11-18-1805r5 for CIDs 10,11,12,13,224,221 and 223, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
     7. Moved: Ganesh Venkatesan
     8. Seconded: Assaf Kasher
     9. **Results (Y/N/A): 14/0/0; motion passes**.
  3. Reminder to do attendance
  4. **Recess at 12.29pm**

1. **TGaz – November 15th, 2018 – Slot #6 (Regular) – PM2**
   1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **04.00pm ICT**; Vice Chair Assaf Kasher (Qualcomm), Technical Editor, Chao Chun (MediaTek); Secretary, Roy Want (Google Inc.).
   2. Agenda Doc. **IEEE 802.11-18/1667r9 (in progress)**
   3. Review Patent Policy and logistics
      1. Chair reviewed the IEEE-SA Patent Policy, additional guidelines about IEEE-SA meeting and logistics – no clarifications requested.
      2. Chair called for any potentially essential patent, no one stepped up.
      3. Chair reviewed IEEE 802 WG participation as individual professional and anti-trust requirements – no clarification requested.
      4. Chair reminded all to record their attendance
      5. Recorded participation requirement
         1. Headcount: ~14 present
   4. Chair reviewed agenda and asked for feedback – none
      1. Agenda approved
   5. Debashis Dash (Quentella Communications) presented document **11-18/1929r4**
      1. **Title**: CR for PHY Related Topics
      2. **Summary**: Edits based on earlier discussion of r3.
      3. **Motion  
         Move to adopt the resolution depicted by document 11-18-1929r4 for CIDs   
         33, 34, 35, 104, 286, 287, 288, 289, 291, 293 and 489, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
      4. Moved: Debashis Dash
      5. Seconded: Chitto Ghosh
      6. **Results (Y/N/A): 11/0/0; motion passes.**
   6. Feng Jiang (Intel) presented document **11-18/0539r6**
      1. **Title**: Existence Indication of Attacker or Jammer in LMR
      2. **Summary**: Strawpoll and motion based on presentation back in March 2018.
      3. Discussion: None
      4. **Strawpoll**

**For secured TB and NTB ranging on 80+80 and 160MHz bandwidths, do you support using same LTF sequence for upper and lower 80MHz segments.**

* + 1. **Results (Y/N/A): 13/0/2**
    2. Discussion: None
    3. **Motion  
       For TB and Non-TB secured Ranging for 80+80 MHz and 160MHz we agree using the same LTF sequence for the upper and lower 80MHz segments.**
    4. Moved: Feng Jiang
    5. Seconded: Qinghua Li
    6. **Results (Y/N/A): 12/0/2; motion passes.**

* 1. Ganesh Venkatesan (Intel) presented document **11-18/2004r3**
     1. **Title**: 802.11az Availability Window for TB Ranging operations

(relative to IEEE REVmd D1.0, 802.11ax D3.1 and 802.11az D0.4)

* + 1. **Summary**: This submission proposes spec text for the frame format and usage of the Availability Window IE in TB Ranging corresponding to document 11-18-1138-03-00az-ranging-availability-window-how-is-it-established-for-hez-ranging.pptx
    2. Discussion of presentation:
    3. C. For ISTA availability element time period, 9-bits may not be enough.
    4. C. Could use a multiplier to get up to 1-24hrs for inventory control.
    5. C. RSTA – need to add mechanism for when the window did not work out.
    6. C. Range Negotiation section may need to be rewritten in the future.
    7. Uploaded latest changes as **11-18/2004r4**
    8. **Motion  
       Move to adopt document 11-18-2004r4 to the 802.11az draft, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
    9. Moved: Ganesh Venkatesan
    10. Seconder: Erik Lindskog
    11. **Results (Y/N/A): 11/0/1; motion passes.**
  1. Qi Wang (Apple) presented document **11-18/1986r0**
     1. **Title**: NTB Ranging Flow Control and Power Save
     2. **Summary:** This document relates to the following CIDs: 495, 496
     3. Discussion of presentation:
     4. C. Don’t we just need to agree on the available window
     5. C. If you are in a STA-to-STA arrangement, it’s a non-TB situation
     6. C. Rather than create a new mechanism, better to use the NAN approach
     7. R. For small numbers (STA-STA), you don’t need NAN to ensure available.
     8. C. In 11ax the TWT mechanism can be used to enable a STA to go into the dose state.
     9. R. If not an AP, there is no mechanism to do this.
     10. C. Need to address P2P 1) approach is NAN. Solution presented is straight forward and does not need NAN or TB approach.
     11. [Chair] Discussion halted due to exhausting allocated time.
  2. Reviewed Achievements for week
     1. Reviewed 23 submissions
     2. Resolved 184 comments
     3. Timelines – holding to timelines
  3. **Motion**

**We commit to the project timelines as shown in slide 73 of submission 11-18-1667r9, and approve the following process: Continue focusing on comment resolution in between now and end of Jan. IEEE meeting. Consider submission targeted towards improving the quality of the protocol in the existing amendment draft. Targeting Initial WG ballot coming out of the January meeting.**

* 1. Moved: Ganesh Venkatesan
  2. Seconded: Roy Want
  3. **Results (Y/N/A): 12/0/1: motion passes**
  4. Teleconferences
     1. Dec 12th and Dec 19th, 2018 at 1.30pm EST
     2. **Approved (no objection)**
  5. Jan. Meeting Goals
     1. Generate new baseline draft coming out of the Nov. meeting by Dec. 10th.
     2. Complete comment resolution for CC28.
     3. Consider submission targeted towards improving the quality of the protocol in the existing amendment draft.
     4. Initiate initial WG ballot coming out of Jan. meeting.
     5. **Approved (no objection)**
  6. AOB – none proposed.
  7. Reminder to do attendance
  8. **Adjourned 5.48pm**

**References:**

1. <https://mentor.ieee.org/802.11/dcn/18/11-18-1667-09-00az-tgaz-nov-meeting-agenda.pptx>
2. <https://mentor.ieee.org/802.11/dcn/18/11-18-1936-02-00az-cr-for-passive-location.docx>
3. <https://mentor.ieee.org/802.11/dcn/18/11-18-1909-01-00az-cr-for-phy-related-topics.docx>
4. <https://mentor.ieee.org/802.11/dcn/18/11-18-1818-02-00az-ranging-ndp-a-amendment-text.docx>
5. <https://mentor.ieee.org/802.11/dcn/18/11-18-1627-00-00az-meeting-minutes-september-2018.docx>
6. <https://mentor.ieee.org/802.11/dcn/18/11-18-1732-01-00az-oct-10th-telecon-meeting.pptx>
7. <https://mentor.ieee.org/802.11/dcn/18/11-18-1860-00-00az-tgaz-teleconference-minutes-nov-2nd-2018.docx>
8. <https://mentor.ieee.org/802.11/dcn/18/11-18-1544-07-00az-tgaz-cc-database.xls>
9. <https://mentor.ieee.org/802.11/dcn/18/11-18-1623-05-00az-spec-text-for-subcarrier-mapping-in-secure-mode.docx>
10. <https://mentor.ieee.org/802.11/dcn/18/11-18-1728-04-00az-cc28-xdmg-comment-resolution.docx>
11. <https://mentor.ieee.org/802.11/dcn/18/11-18-1742-05-00az-cc28-cr-hez-protocol-rewrite-hez-protocol-rewrite.docx>
12. <https://mentor.ieee.org/802.11/dcn/18/11-18-1741-03-00az-cc28-cr-vhtz-protocol-rewrite.docx>
13. <https://mentor.ieee.org/802.11/dcn/18/11-18-2003-00-00az-secure-tof-supported.docx>
14. <https://mentor.ieee.org/802.11/dcn/18/11-18-1845-00-00az-cc28-aoa-definition-cids.docx>
15. <https://mentor.ieee.org/802.11/dcn/18/11-18-1781-03-00az-cc28-cr-secure-non-tb-ranging-measurement-exchange-protocol.docx>
16. <https://mentor.ieee.org/802.11/dcn/18/11-18-1998-01-00az-resolutions-to-mlme-related-comments-from-cc-28.docx>
17. <https://mentor.ieee.org/802.11/dcn/18/11-18-1984-00-00az-evm-requirement-negotiation-for-ndp-ranging-packets.pptx>
18. <https://mentor.ieee.org/802.11/dcn/18/11-18-2005-03-00az-cr-tb-ranging-group-related-scheduling.docx>
19. <https://mentor.ieee.org/802.11/dcn/18/11-18-1805-05-00az-cr-for-trigger-frame-format.docx>
20. <https://mentor.ieee.org/802.11/dcn/18/11-18-1929-04-00az-cr-for-ftm-overview.docx>
21. <https://mentor.ieee.org/802.11/dcn/18/11-18-1949-04-00az-annex-b-pics.docx>
22. <https://mentor.ieee.org/802.11/dcn/18/11-18-0539-07-00az-existence-indication-of-attacker-or-jammer-in-lmr.pptx>
23. <https://mentor.ieee.org/802.11/dcn/18/11-18-2004-04-00az-availability-window-frame-format.docx>
24. <https://mentor.ieee.org/802.11/dcn/18/11-18-1986-01-00az-flow-control-and-power-save-for-ntb-ranging.pptx>