IEEE P802.11
Wireless LANs

|  |
| --- |
| TGaz Meeting MinutesMarch 12-14th, 2019Vancouver, Canada |
| Date: 2019-03-12 |
| Author(s): |
| Name | Affiliation | Address | Phone | Email |
| Roy Want  | Google | 1541 Morton Ave, Los Altos,CA 94024 | +1-650-691-3600 | roywant@google.com |

Abstract

Minutes for the TGaz meeting, beginning on March 12th, 2019.

**IEEE 802.11 Task Group AZ**

**March 12th – 14th, 2019**

1. **TGaz – Tuesday, March 14th, 2018 – Slot #1 AM2**
	1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **10.30am PST**; Vice Chair Assaf Kasher (Qualcomm), Technical Co-Editor, Chao Chun (MediaTek); Technical Co-Editor, Roy Want (Google Inc.); Secretary, Roy Want (Google Inc.).
	2. Agenda Doc. **IEEE 802.11-19/200r2 (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. Chair reminded all to record their attendance
		5. Recorded Participation requirement
			1. Headcount: ~36 present
	4. Review Agenda
		1. Agenda review and setting: reviewed submissions for the week.
		2. Chair called for any additional feedback and changes to agenda.
			1. None given. Agenda set.
		3. Motions to ratify the session and telecon minutes.
		4. **Motion:
		Move to approve document 11-19/127 r0 as TGaz meeting minutes for the Jan. meeting.**
		5. **Moved by:** Assaf Kasher
		6. **Seconded by:** Qinghua Li
		7. **Results (Y/N/A):** 22/0/1 **Motion passes.**
		8. **Motion:
		Move to approve document 11-19/374r0 as TGaz meeting minutes for the March 6th Telecon.**
		9. **Moved by**: Roy Want
		10. **Seconded by**: Ganesh Venkatesan
		11. **Results (Y/N/A):** 20/0/3, **Motion passes.**
	5. Dorothy Stanley (HPE) Presented documents **11-19/223r0** and **11-13/230r3**
		1. **Title #1**: “Comment Resolution Resources” (slide 21) in **11-19/223r0**
		2. **Title #2: “**A Tutorial on Comment Resolution”in **11-13/230r3**.
		(originally created by Adrian Stephens)
		3. Good practice examples:
			1. Example #1: **11-18/930r0**
			2. Example #2: **11-18/669r4**
			3. Example #3: **11-18/1410r6**
		4. **Discussion of presentation**
		5. C: Before draft D2.0 goes out, make sure actual document page numbers align with page number references for comments.
		6. R. Agreed. Check by finding page numbers, for each comment resolution.
		7. C. Some comments are for different TG editors.
		8. C. Instructions in bold italics for local editor (e.g., TGaz editor). Use word’s ‘track changes’ feature for baseline edits.
		9. C. The amendment document should follow the IEEE style document, or it won’t be picked up. Must use literal underlined and strike-through throughout.
	6. Roy Want (Google) presented document **11-19/0431r0**
		1. **Title**: TGaz LB240 Comment Database
		2. **Summary**: Presented the ballot voting stats/analysis
		3. **Letter Ballot: passed.**
		4. Requirements:
			1. 84.19% of voting pool returned (> 50% required)
			2. 10.47% abstains (<30% requirement)
			3. 79.15% approval rate out of approve + disapprove
			(>= 75% requirement)
		5. Vote breakdown
			1. Approve 186
			2. Disapprove 49
			3. Abstain 29
		6. High-level breakdown of the 1525 comments:
			1. Technical Comments: 785 (51%)
			2. Editorial Comments: 694 (46%)
			3. General Comments: 46 (3%)
		7. In summary: Roughly half technical and half editorial comments.
		8. Procedure: Individuals should volunteer to address all comments in a particular section to avoid mixing solutions and having to merge text later.
		9. Volunteers to date added to spreadsheet: Dibakar Das, Debashis Dash, Erik Lindskog (We request Erik converts comment number requests to section number requests).
	7. Reminder to do attendance
	8. Session in recess at 12.30pm.
2. **TGaz – March 12th, 2019 – Slot #2 PM1**
	1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **1.30 PST**; Vice Chair Assaf Kasher (Qualcomm); Technical Co-Editor, Chao Chun (MediaTek); Technical Co-Editor, Roy Want (Google Inc.); Secretary, Roy Want (Google Inc.).
	2. Agenda Doc. **IEEE 802.11-19/0200r3 (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. Chair reminded everyone to record their attendance
		5. Recorded Participation requirement
			1. Headcount: ~31 present
	4. Review Agenda
		1. Agenda review and setting:
			1. C. Add submission 11-19/468. ISTA2RSTA LMR Overview.
		2. Agenda approved.
	5. Roy Want (Google Inc) – Comment Resolution assignment based on **11-19/431r0**
		1. Volunteers to date added to spreadsheet
		2. Previously: Dibakar Das, Debashis Dash
		3. Now: Christian Berger, Erik Lindskog, Assaf Kasher, Ganesh Venkatesan
	6. Girish Madpuwar (Broadcom) presented document **11-19/412r2**
		1. **Title**: CR for Location
		2. **Summary**: This submission proposes resolutions of comments received from LB240CID: 1824. The comments are based on TGaz Draft 1.0:
		Revision 0: initial draft
		Revision 1: reference to LB240

Revision 2: editorial changes

* + 1. **Discussion of submission**
		2. C. 11.22.6.3.4 Should use ‘ranging subfield’ (rather that field, no field within field) R. Ack.
		3. C. Question on LTF Support field – should also mention it is used in the iFTMR frame, which also sets it to one.
		4. R. Believe not necessary.
		5. C. Resolution status: Refined -> Revised. R. Ack
		6. C. Are you trying to remove all uses of that Secure LTF Support bit as its in other places too (e.g. beacon). Why would we need 2 bits? There is another request field that is now useless.
		7. C: the commenter is indicating a problem with the use of the ‘Secure LTF support’ in the FTM Req in conjunction with use of the bit Secure LTF Req. If the Secure LTF Req. is clear, i.e. the ISTA does not require the secure LTF mode, the use of the Secure LTF support is futile because the parameters the ISTA provided refers to those of the non-secure mode. As a result the RSTA cannot, based on the parameters in the FTM Req establish a service with Secure LTF.
		8. R. Will look at this again based on the discussion (revise and motion later)
	1. Qinghua Li (Intel Corp.) presented document **11-19/326r1**
		1. **Title**: 802.11az PHY Spec Text for Adaptation of Secure LTF Sequence to Bandwidth/Antenna Change.
		2. **Summary**: How to generate secured bits when there is a bandwidth reduction of e.g. 80MHz to 40MHz.
		3. **Discussion of submission**
		4. C. When does this situation occur?
		5. R. It occurs, for example, when a BW of 80MHz was negotiated, but because of medium occupancy, only a 40MHz channel can be reserved for measurement.
		6. C. Why doesn’t the station always use the maximum bandwidth i.e. 160MHz?
		7. R. It’s possible that for sequence generation the standard specifies all stations to use the max bandwidth allowed by the spec even if they don’t support the actual bandwidth.
		8. C. It will put a constraint on stations in terms of memory beyond that needed to support the bandwidth they are capable of.
		9. C. What property of the Golay sequence allows for the described behavior.
		10. C. The property of the Golay sequence is that each half of the sequence is exactly the sequence of the previous stage, while maintaining all the other properties.
		11. C. There is a randomized counter in the TXVector, but it’s not clear how this is used to generate the LTF sequence.
		12. R. There is text that covers its derivation from the session key to the LTF sequence generation; it is currently in the negotiation part which is in the wrong place. There is a CID that refers to this.
		13. **Strawpoll:
		Do you support adoption of resolutions depicted by document 11-19-326r1 for CIDs 1821?**
		14. **Results (Y/N/A):** 21/0/9
		15. **Motion (Ref: #200):**
		**Move to adopt the resolutions depicted by document 11-19-326r1 for CID 1821, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**
		16. **Discussion of the motion**
		17. C. Speaking against the proposal. Need to understand if all these changes are needed for the PHY. May need more security analysis.
		18. R. Ack. Note these were not the points in the comment resolution.
		19. **Mover:** Yongho Seok
		20. **Seconder:** Ganesh Venkatesan
		21. **Results (Y/N/A):** 22/3/4; **Motion passes**.
	2. Meeting logistics discussion (should have been earlier) for TGaz 3-day ad hoc meetings
		1. First proposed date: May 1-3 (hosted by Samsung)
		2. Potential second event date: May/June timeframe
		3. Requesting group feedback.
	3. Qi Wang (Apple) presented document **11-19/331r1**
		1. **Title:** Text proposal on ISTA-2-RSTA LMR feedback
		2. **Summary:**  ISTA requests LMR feedback, and the RSTA agrees to the request or not. This proposal describes rules to be added to the negotiation.
		3. **Discussion of submission**
		4. C. Against grain of negotiation to force the AP to accept the ranging parameters.
		5. C. Its unprecedented to make this condition based on the request.
		6. C. How do you know why the AP has responded (unless there is a condition code). Is there any AP indication of the level of support it will give?
		7. C. It may be better to know ahead of time, before making the request.
		8. R. If an AP advertises it supports a ranging service, it should support this.
		9. **Chair**: Out of time for presentation/discussion.
	4. We will continue in the next session with a strawpoll and motion for **11-19/331r0**.
	5. Reminder to do attendance
	6. **TGaz in recess at 3.30pm**.
1. **TGaz – March 13th, 2019 – Slot # PM1**
	1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **01.30pm PST**; Vice Chair Assaf Kasher (Qualcomm); Technical Co-Editor, Chao Chun (MediaTek); Technical Co-Editor, Roy Want (Google Inc.); Secretary, Roy Want (Google Inc.).
	2. Agenda Doc. **IEEE 802.11-19/200r4 (in progress)**
	3. Review Patent Policy and logistics
		1. Chair reviewed the IEEE-SA Patent Policy, 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 an individual professional, and anti-trust requirements – no clarification requested.
		4. Chair reminded all to record their attendance
		5. Recorded Participation requirement
			1. Headcount: ~55 present
	4. Review Agenda
		1. Agenda was presented to session with request for revisions.
		2. C. There is a paper in the next session that is relevant to the discussion of document **11-19/331r2**, success discuss **11-19/331r2** and **11-19/481r1** together.
		3. R. Agreed. **11-19/481r1** added to the agenda (replaces need for **11-19/468r0**)
		4. Any objection to approve the agenda? None (agenda approved).
	5. Qi Wang (Apple) continued earlier presentation now with document **11-19/331r2**
		1. **Title:** Text proposal on ISTA-2-RSTA LMR feedback
		2. **Summary**: Now proposing adding a bit to the beacon that is a positive indication that the RSTA will range with the ISTA, even if the ISTA will not share its LMR.
		3. **Discussion of presentation**
		4. C. At High-level, I’m okay reversing the logic of the bit. But in Annex C the default value is set to false should be **true**.
		5. R. Ack.
		6. C. Don’t know why this is a different proposal.
		7. R. Positive vs negative + undefined (the undefines are slightly different)
		8. C. Edit “Shall not” in paragraph to “RSTA shall not”
		9. R. There is a precedent for a positive bit like this in security systems.
		10. C. I’m Okay with it because the AP can still reject the request.
		11. C. Avoid double negative. How do we check property in conformance testing?
		12. R. Quite easy to set up test cases and see if the request is rejected or not.
		13. C. What if it’s not the right ISTA? Perhaps the ISTA is faking the MAC?
		14. R. If we have WFA tests, then this is covered.
		15. [**Interjection**: WFA procedures should not be discussed.]: sustained.
		16. C. How can the parameter be verified? Do we need to track all parameters in the request/response at the AP?
		17. C. I’m in support of this version of the text. But not a big fan of the text the ‘RSTA should not reject’ (better if any STA). But this is a good solution.
		18. C. Should STA to STA ranging do this? And for Passive Ranging?
		19. R. Do not think this is an issue. We are mainly concerned with an RSTA=AP.
		20. C. Privacy is important (maintain it). In sentence: “RSTA independent of how set…”, avoid the double negative.
		21. R. We can work out better text later on, after its agreed in principle.
		22. C. Recommend change the “shall not” to “should not”.
		23. R. ISTA is announcing it is willing to give location in the beacon, so this is a requirement.
	6. Ganesh Venkatesan (Intel) doc **11-19/481**
		1. **Title**: RSTA requires ISTA-to-RSTA LMR.
		2. **Summary**: This submission proposes advertisement of RSTA policy requiring ISTA-to-RSTA LMR capability from ISTAs. This submission is a proposal to resolve CID 1624. Note: This is the opposite behavior to the new **11-19/331r2**
		proposal version(r2).
		3. **Discussion of submission**
		4. C. Change ‘shall reject’, to ‘may reject’
		5. C. You didn’t have an objection to the 331 definition.
		6. C. What does this mean for my phone finding its location?
		7. R. The consequence is you will not be able to range if the bit is set, but you could fall back to the earlier FTM ranging protocol in REVmc.
		8. C. There is a lot of text in this doc (6+pages) – why so many?
		9. R. some information may not be necessary.
		10. C. Behaviour is more efficient, but would support document **11-19/331r2** as a compromise.
		11. R. The proposals are effectively equivalent. But it’s worth considering the use of shall or may.
		12. C. Suggest authors work on integrating these two proposals into one.
		13. R. We’ll take the process off-line and bring it back as one proposal.
	7. Feng Jiang (Intel Corp.) presented document **11-19/461**
		1. **Title**: Replay Attack to Secured TB Ranging
		2. **Summary**: This submission relates to the replay attack model described in CID 1580 in TGaz LB240 Comment. And proposes a solution.
		3. **Discussion of submission**
		4. C. Option 1 adds redundancy; Option 2. Is a better solution; Option 3: is elegant too.
		5. C. Replay attack for UL (R. it’s only the DL that gets replayed). Let’s assume you cannot suppress the signal, and then you will get two DL NDPA.
		6. R. We are assuming a high-power transmission is used to suppress the response.
		7. C. The attacker transmits the fake earlier is the process. You first need to decode then encode the data, which would take time.
		8. R. You don’t need to decode because you can listen to previous info to generate the attacker NDPA.
		9. Will follow-up with a motion in a future presentation.
	8. Erik Lindskog (Samsung) presented document **11-19/455r1**
		1. **Title**: Phase Shift Based TOA Reporting in Passive Location Ranging
		2. **Ballot Ref:** TGaz LB 240 CIDs 1515, 1557 and 1563
		3. **Summary**: We now have the option to use phase-shift based TOA reporting in TB Ranging. There is no reason why we should not also enable this for the Passive Location Ranging case. However, to enable this capability we need to make some additions to the time-stamp reporting.
		4. **Discussion of submission**
		5. C. Good model to simplify the calculation at the RSTA.
		6. C. Slide 14: You don’t need to transmit corrections. You can just make the adjustments to the timing values.
		7. R. The timestamps reported here are the final timestamps, or you have to pack and repackage the timestamps.
		8. C. Solution addresses both types of implementation depending if it can do the correction on the fly or not.
		9. **Strawpoll:
		Do you support to add a bit to the ‘Passive Location Ranging’ time-stamp type to get two new time-stamp types:**
* **PS-TOA**
* **Correction to peer PS-TOA time stamp**

**as shown in slides 5-7 of 11-19/455r1, and use it to report PS-TOAs and corrections to peer PS-TOAs?**

* + 1. **Results (Y/N/A):** 30/0/4
	1. Assaf Kasher (Qualcomm) document **11-19/149r1.**
		1. **Title:** Multiband 60GHz location capability publication
		2. **Summary:** The proposed methodology is to use two fields in the extended capability element. One field would indicate the existence of 60GHz APs with location services in the vicinity of the publishing AP.

The second field will indicate that the AP is capable of providing additional information about 60 GHz location service APs: their operating channels, their locations (Location Civic Information), their beacon schedule.

* + 1. **Discussion of submission:** None.
		2. Allocated time in next session for a motion to give attendees time to review.
	1. Reminder to do attendance
	2. **TGaz in recess at 3.21pm**
1. **TGaz – March 14th, 2019 – Slot #AM1**
	1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **8.00am PST**; Vice Chair Assaf Kasher (Qualcomm), Technical Co-Editor, Chao Chun (MediaTek); Technical Co-Editor, Roy Want (Google Inc); Secretary, Roy Want (Google Inc.).
	2. Agenda Doc. **IEEE 802.11-19/200r5 (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 individual professional, and anti-trust requirements – no clarification requested.
		4. Chair reminded all to record their attendance.
		5. Recorded Participation requirement
			1. Headcount: ~58 present
	4. Review Agenda
		1. Agenda reviewed and request for changes/additions.
		2. **Discussion**
		3. C. Note in reference to **11-19/481**; worked with Qi to update **11-19/331** as a combined proposal.
		4. C. Request **11-19/454** reference corrected and added to agenda.
	5. TGaz ad-hoc ratification of 1st ad hoc meeting
		1. **Motion**

**Authorize TGaz to hold an ad-hoc meeting on May 1st- May 3rd, 2019, Sponsored by Samsung Semiconductor, 3655N 1st st., San Jose, Ca., USA, for the purpose of comment resolution**.

* + 1. **Mover**: Ganesh Venkatesan
		2. **Seconder**: Christian Berger
		3. **Results (Y/N/A):** 17/0/0; **motion passes**
	1. P802.11az Availability of IEEE-SA Store (D1.0) – should we make the draft available
		1. C. Propose waiting until D2.0 because there are some comments that need resolution that would improve the draft.
		2. C. Any repercussions for releasing it now? R. None.
		3. C. It would be a good thing.
		4. **Motion**

**Move to approve to sale of P802.11az in the IEEE-SA store.**

* + 1. **Mover**: Assaf Kasher
		2. **Seconder**: Erik Lindskog
		3. **Results(Y/N/A):** 19/3/8, **motion passes**.
	1. Qi Wang (Apple) presented document **11-19/331r3** (continuation of previous presentation)
		1. **Title**: Text proposal on ISTA-2-RSTA LMR feedback
		2. **Summary:** (see slot #3) document updated after yesterday’s group discussion and clarifications.
		3. **Discussion of submission**
		4. C. Every time we add a bit in the Extended Capabilities element, we need to add a paragraph explaining it in 11.22.6.2.
		5. C. Why the rush, we can refine the text and motion later?
		6. R. It’s the result of a lot of intense discussion – we need to make progress.
		7. C. Last sentence of 1st paragraph; this should apply to both TB and non-TB frames. R. Ack.
		8. C. In favor of having a motion. It will establish a technical way forward, and limit extensive discussion.
		9. C. As pointed out, there are missing pieces that will generate comments.
		10. R. There are lots of examples of imperfect text, but we won’t move forward if we delay every one.
		11. C. I still have issue with the text “…should not solely…”. We don’t usually put this kind of restriction on an RSTA response.
		12. R. There are 600+ uses of ‘…should not...’ in the spec.
		13. R. We already compromised ‘…shall not…’ to ‘…should not…’.
		14. C. Where is the resolution to the CID? That section of document 331’s table is not filled in.
		15. R. It can also be added as text in the motion.
		16. **Motion** (to amend)

**Move to amend the motion to read “resolve CID 2295 as, ‘Revised.**

**Incorporate the changes depicted by document 11-19-331r3 in the 802.11az draft amendment text and grant editorial rights to the technical editor.”**

* + 1. **Discussion of the motion**
		2. C. ‘…Should not…’ should be removed. I want that to be clear.
		3. C. I want to table the motion to adopt the submission as the resolution.
		4. R. A motion to table at this point will stop the motion to amend, and then we would return to the original motion.

Believe your intention is to table the motion to adopt, thus recommend to do that past the motion to amend.

* + 1. C. If the amend motion passes, we’ll revise the original motion, and then vote on that motion.
		2. C. The Amend motion process is procedural and only needs a 50%+ majority.
		3. **Mover:** Chris Hartman
		4. **Seconder:** Steven McCann
		5. **Results (Y/N/A)**: 28/2/10; **Motion passes**
		6. **Motion [postponed]**

**Resolve CID 2295 as, ‘Revised.**

**Incorporate the changes depicted by document 11-19-331r3 in the 802.11az draft amendment text and grant editorial rights to the technical editor.’**

* + 1. **Discussion**
		2. C. Request to table this motion
		3. R. Motion to table verbally. Procedural, so 50% + of votes required (not 75%).
		4. C. How long to table?
		5. R. To end of this meeting slot, i.e. can be brought at the next meeting slot
		6. C. There is also a motion to un-table.
		7. C. There is also a version to table, and postpone to a particular time; a specific time needs to be identified, and it’s a procedural motion i.e. 50% majority.
		8. **Moved:** Chris Hartman
		9. **Second**: Ganesh Venkatesan
		10. **Results (Y/N/A):** [**postponed**]
		11. **Motion**

**Motion to postpone the amended motion on the floor to first TGaz meeting slot during the IEEE May 2019 meeting.**

* + 1. **Discussion of motion**
		2. **Chair (request-to-document)**: Guidance that the group received: the owner of the document may not be interested in running the motion at the postponed time.
		3. C. One of the unintended consequences is the postponed motion may not be relevant in the future, because we’ll have a new document by the May meeting.
		4. C. Try to get more time to revise the text, as there is much discussion.
		5. C. Broad agreement can only be determined, if we run the motion.
		6. **Moved:** Chitto Ghosh
		7. **Second:** Ali Raissinia
		8. **Results (Y/N/A)**: 26/25/2; **Motion passes.**
	1. Erik Lindskog (Samsung) presented document **11-19/454r1**
		1. **Title**:FTM TOA measurement on non-HT duplicate PPDUs
		2. **Summary:** In practice, implementations of non-HT duplicate PPDUs may not be transmitted in a standards’ compliant manner. As a result, the responders that want to interoperate with all REVmc initiators cannot make their TOA estimations on the non-HT duplicate PPDUs using the full BW in a coherent manner. The result is reduced ranging-accuracy in REVmc ranging using non-HT duplicate PPDU ACKs. If the initiator can let the responder know that it is transmitting its non-HT PPDUs in a standards compliant fashion, then we can mitigate this problem.
		3. **Discussion of submission**
		4. C. We are trying to resolve this in 11az?
		5. R. Yes
		6. C. What do the bits that have to move do: 1) a secure time of flight request, and 2) EDMG ranging priority bits x 2.
		7. R. At this time, I’m just going to strawpoll if we can move these bits.
		8. C. What does, “The bits may not be transmitted in a compliance standard fashion.” Mean?
		9. R. The standard specifies what to do, but in practice it’s not followed.
		10. C. We need to specify the relationship between the phases of the duplicate acks.
		11. R. We have that text in the standard already.
		12. C. The bit qualifies the packet is actually standards compliant. R. Ack.
		13. C. Need to clarify what full bandwidth is.
		14. C. Shouldn’t this be in 802.11md, R. We have the same text for 802.11md.
		15. C. It is preferable that we transmit the VHT ack, but it’s not in the standard now.
		16. R. Problem is that the standard will change after the hardware has been built.
		17. C. Don’t add a bit to specify non-standard compliance.
		18. R. Bit actually says you can request full bandwidth or not, and does not specify bandwidth/coding compliance.
		19. R. There may be [non-compliant] hardware ready to be put in products, that can be fixed by a firmware upgrade using this bit.
		20. C. We have text to qualify this.
		21. **Strawpoll:**
		**Do you support using a bit, assuming one can be freed-up, to negotiate the FTM TOA estimation to full bandwidth or unspecified bandwidth on Non-HT Duplicate ACKs.**
		22. **Results (Y/N/A):** 5/8/6
	2. Assaf Kasher (Qualcomm) continues presentation of document **11-19/149r1**
		1. **Title:** Multiband 60GHz location capability publication
		2. **Summary**: adding small protocol changes to indicate the presence of nearby 60GHz stations.
		3. **Motion**

**Move to adopt the text changes depicted by document 11-19-149r1, instruct the technical editor to incorporate it in the 802.11az draft amendment text and grant editorial rights to the technical editor.**

* + 1. **Mover:** Assaf Kasher
		2. **Seconder:** Ganesh Venkatesan
		3. **Results (Y/N/A**): 14/0/8, **motion passes**
	1. Reminder to do attendance
	2. TGaz in recess at 9.56am.
1. **TGaz – March 14th, 2019 – Slot #AM2**
	1. Called to order by TGaz chair, Jonathan Segev (Intel Corporation) at **10.33am PST**; Vice Chair Assaf Kasher (Qualcomm); Technical Co-Editor, Chao Chun (MediaTek); Technical Co-Editor, Roy Want (Google Inc.); Secretary, Roy Want (Google Inc.).
	2. Agenda Doc. **IEEE 802.11-19/200r6 (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. Chair reminded all to record their attendance
		5. Recorded Participation requirement
			1. Headcount: ~14 present
	4. Review Agenda
		1. Agenda reviewed and requests for changes/additions.
		2. No submissions pending at this time.
		3. Added review of CID resolution assignment.
		4. Agenda approved – no objection.
	5. Roy Want (Google) presented the update status for comment resolution assignments.
		1. The latest edits to **11-19/431r0** will be uploaded to mentor after **slot #5** as **r1.**
	6. Review of timelines
		1. Recirculation ballot likely coming out of Sept 2019 meeting.
		2. Schedule Summary: D2.0 2019-09; D3.0 2020-01; D4.0 2020-07; sponsor ballot date expected after that, but currently not estimated at this time,
		3. Possible publication with work group approval in March 2021.
		4. For comparison: TGay processed 400 comments in 2 meetings, and TGax 1500 comments since July.
		5. We have ~700 technical comments (there is some duplication), which gives us some confidence our September target is possible.
		6. **Motion**

**TGaz commits to the timelines as depicted by slide 60 of submission 11-19-200r6.**

* + 1. **Mover:** Christian Berger
		2. **Seconder:** Erik Lindskog
		3. **Results (Y/N/A):** 11/0/4; **motion passes**
	1. TG status and Work Completed
		1. Successful Initial WG ballot LB240 with 79.15%, ~800 technical/~700 editorial.
		2. Performed comment assignment of 481 CIDs.
		3. Group met for 5 meeting slots and reviewed a total of 14 submissions.
	2. Teleconference Schedule Proposal
		1. **Mar. 27th (Wednesday), 13:00 ET – 14:30 ET**
		2. **Apr. 3rd (Wednesday), 13:00 ET – 14:30 ET**
		3. **Apr. 10th (Wednesday), 13:00 ET – 14:30 ET**
		4. **Apr. 17th (Wednesday), 13:00 ET – 14:30 ET**
		5. **Apr. 24th (Wednesday), 13:00 ET – 14:30 ET**
		6. **May 22nd (Wednesday), 13:00 ET – 14:30 ET**
	3. TGaz Process going forward
		1. We’ll have a number of F2FAd hoc meetings, but can’t run motions. If a strawpoll clears a 75% majority vote, we’ll motion the text at the next IEEE meeting.
		2. C. What about Batch vs Individual voting– I prefer the option of individual votes.
		3. R. In the case of a batch vote, you can request to pull out an individual item for a separate motion.
			1. Don’t need to motion that – just verbally request it.
		4. Text edited by the group to accurately reflect discussion (below):
		5. **“CR submissions that are presented in telecons and ad hoc and are brought to a strawpoll to adopt.**

**For such a strawpoll that meets the approval requirement for a motion, then the chair will prepare a batch motion for the first meeting of the upcoming session for formal approval, without additional review. If any member requests to have a CID considered separately, it will be pulled out of the batch motion.**

* 1. May Meeting Goals
		1. Continue comment resolution for LB240.
		2. Continue comment assignment as needed.
	2. Reminder to do attendance.
	3. AOB? – None
	4. TGaz is adjourned at 11.27pm

**References:**

1. [https://mentor.ieee.org/802.11/dcn/19/11-19-0200-06-00az-tgaz-march-meeting-agenda.pptx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C1.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0200-06-00az-tgaz-march-meeting-agenda.pptx)
2. [https://mentor.ieee.org/802.11/dcn/19/11-19-0127-00-00az-meeting-minutes-january-2019-session.docx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C2.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0127-00-00az-meeting-minutes-january-2019-session.docx)
3. [https://mentor.ieee.org/802.11/dcn/19/11-19-0374-00-00az-tgaz-telecon-minutes-mar-6th-2019.docx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C3.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0374-00-00az-tgaz-telecon-minutes-mar-6th-2019.docx)
4. [https://mentor.ieee.org/802.11/dcn/19/11-19-0215-01-00az-csd-update.docx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C4.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0215-01-00az-csd-update.docx)
5. <https://mentor.ieee.org/802.11/dcn/13/11-13-0230-02-0000-comment-resolution-tutorial.ppt>
**Comment Resolution Examples**
	1. <https://mentor.ieee.org/802.11/dcn/18/11-18-0930-00-000m-cid-1007.docx>
	2. <https://mentor.ieee.org/802.11/dcn/18/11-18-0669-17-000m-revmd-mac-comments-assigned-to-hamilton.docx>
	3. <https://mentor.ieee.org/802.11/dcn/18/11-18-1410-06-00ax-lb233-cr-spatial-reuse.docx>
6. <https://mentor.ieee.org/802.11/dcn/19/11-19-0431-01-00az-tgaz-lb240-comment.xlsx>
7. [https://mentor.ieee.org/802.11/dcn/19/11-19-0412-02-00az-amendment-to-secure-ltf-measurement-setup.docx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C7.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0412-02-00az-amendment-to-secure-ltf-measurement-setup.docx)
8. [https://mentor.ieee.org/802.11/dcn/19/11-19-0326-01-00az-spec-text-for-the-adaptation-of-secure-sounding-signal-to-bandwidth-and-antenna-changes.docx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C8.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0326-01-00az-spec-text-for-the-adaptation-of-secure-sounding-signal-to-bandwidth-and-antenna-changes.docx)
9. [https://mentor.ieee.org/802.11/dcn/19/11-19-0331-03-00az-text-clarification-on-ista-to-rsta-lmr.doc](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C9.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0331-03-00az-text-clarification-on-ista-to-rsta-lmr.doc)
10. <https://mentor.ieee.org/802.11/dcn/19/11-19-0481-01-00az-negotiating-ltf-repetition-values-in-iftmr-iftm-exchange-proposed-text-changes.docx>
11. [https://mentor.ieee.org/802.11/dcn/19/11-19-0468-00-00az-ista-to-rsta-lmr-required-overview.pptx](file:///C%3A%5CUsers%5Croywant%5CDesktop%5C15.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0468-00-00az-ista-to-rsta-lmr-required-overview.pptx)
12. [https://mentor.ieee.org/802.11/dcn/19/11-19-0461-01-00az-replay-attack-to-secured-tb-ranging.pptx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C11.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0461-01-00az-replay-attack-to-secured-tb-ranging.pptx)
13. [https://mentor.ieee.org/802.11/dcn/19/11-19-0455-01-00az-phase-shift-based-toa-reporting-in-passive-location-ranging.pptx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C13.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0455-01-00az-phase-shift-based-toa-reporting-in-passive-location-ranging.pptx)
14. [https://mentor.ieee.org/802.11/dcn/19/11-19-0149-01-00az-multiband-60ghz-loc-capability-publishing-txt.docx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C14.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0149-01-00az-multiband-60ghz-loc-capability-publishing-txt.docx)
15. [https://mentor.ieee.org/802.11/dcn/19/11-19-0454-01-00az-ftm-toa-measurement-on-non-ht-duplicate-ppdus.pptx](file:///C%3A%5CUsers%5Cjsegev%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CINetCache%5CContent.Outlook%5C8TFG6N59%5C16.%09https%3A%5Cmentor.ieee.org%5C802.11%5Cdcn%5C19%5C11-19-0454-01-00az-ftm-toa-measurement-on-non-ht-duplicate-ppdus.pptx)