IEEE P802.11  
Wireless LANs

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| IEEE 802.11bd Task Group Meeting Minutes – January 2019 | | | | |
| Date: 2019-01-28 | | | | |
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Abstract

Minutes for the IEEE 802.11bd task group meeting starting January 14, 2019.

**Minutes**

**Monday AM2**

1. Chair convened the meeting at 10:30am. Approx. 50 participants in the room.
2. Agenda displayed is 802.11-18/2105r1
   1. Comment that powerpoint header has wrong year in the document number
   2. Chair edits on screen, will update r2 after the meeting
   3. Chair makes call for patent claims – slide 5, 6, 7
   4. No responses.
   5. Chair presented Guidelines slides 8, 9
   6. Adenda for the week shown on slide 10
   7. Chair appoints James Lepp as acting secretary for this week.
   8. Chair announces officer election for Tuesday. Deadline for nominations is end of the day, today January 14.
   9. Agenda for this session shown on slide 13
   10. Approval of Agenda
       1. Motion to approve agenda displayed on slide 10.
       2. Moved: Stuart Kerry
       3. Second: Jon Rosdahl,
       4. No objection to approving by unanimous consent (motion passes)
   11. Approval of minutes (slide 14)
       1. Motion: Approve NGV SG minutes of 2018 Nov meeting and TGbd teleconferences in Dec 2018: <https://mentor.ieee.org/802.11/dcn/18/11-18-2048-00-0ngv-ngv-sg-meeting-minutes-11-16-november-plenary-session.docx> <https://mentor.ieee.org/802.11/dcn/18/11-18-2141-00-00bd-minutes-for-tgbd-teleconference-11-december-2018.docx>
       2. Moved: Michael Fischer
       3. Second: second Joe Levy
       4. No objection to approving by unanimous consent (motion passes)
   12. Chair showed tentative timeline slide 15 to introduce next presentation
3. 802.11-19/0042r0
   1. Presentation
   2. Discussion
      1. Discussion about slide two, breakdown of extra rows. Comment that it may be clearer if these match the timeline milestones that 802.11 records.
      2. Comment: Consider editors meeting agenda 802.11-18/2151. Comparing number of pages, vs number of months. Need more information to predict timeline, suggest number of pages is something to consider
      3. Comment on factors affecting 11p historical timeline
      4. Comment on number of drafts
      5. Comment: Only D1 and D2 are measured, but more drafts between D2 and final are expected
      6. Discussion of optimistic vs realistic. Comment that 36 months is optimistic, 48 months is realistic.
      7. Comment: Don’t think 70-month period in 11p should be predictive of 11bd timeline. This should be a more straightforward amendment.
      8. Planning a strawpoll/motion Thursday. Two alternatives are 36 month and 48 month.
4. 802.11-19/0030r0 “802.11bd Selection Procedure (DRAFT)”
   1. Presentation
   2. Discussion
      1. Highlights: No fuctional requirements document (as seen in ac/ax). Split Spec framework in two documents covering 5.9 GHz and 60 GHz seperately. Progress them in parallel without dependencies/delays.
      2. Comment: good idea to reduce number of steps based on size of scope. Doesn’t agree that “functional requirements” is the document to remove. Suggests spec framework could be removed instead. Suggests the group does need to agree the requirements.
      3. Comment: the SFD has been used as a requirements document. Could maybe rename the single document we use.
      4. Comment: regarding “2.b”, 75% to modify SFD is that TG or ad-hoc
      5. Comment: all votes are TG
      6. Comment shouldn’t use 11ax as a model process to follow. We should be driven by contributions brought, not a process. Perhaps a MAC/PHY breakdown makes more sense than frequency band breakdown. Risk of MAC and PHY not coordinating though.
      7. Comment that in this process adhocs may further divide work into MAC/PHY
      8. Comment: how will timeslots be split
      9. Comment: no plan for parallel timeslots at future meetings at this point
      10. Comment: suggest a strawpoll to find interest in 60GHz ad-hoc if its in parallel
      11. Comment: too early to make that decision
      12. Chair suggesting a strawpoll
      13. Point of order. Display the strawpoll
      14. Chair defered the strawpoll until the presenter is finished, and the commenter suggesting one has the floor
      15. Comment: Suggestion to work on technical aspects as opposed to buerocratic organization of different ad-hocs. Identify requirements and move forward.
      16. Presenter: hearing opinions to not decide on ad-hoc groups at this time. Still sees value in putting in place process so different bands don’t cause delays on each other.
      17. Comment: FRD may be more useful for vehicular sector than was for 11ax. Suggesting to have that document. Ad-hoc should be created as contributions come in, not pre-organized.
      18. Comment on flow chart (Annex A). 75% is a gate to show early consensus. Question if we need 3 such gates. Suggest to remove one of the first or second gate. Only if there is significant disagreement would we need to impose the extra gate.
      19. Comment: narrower scope than 11ax. 11ax not a good model to follow. Operational manual doesn’t require this SFD process.
      20. Comment any technical motion requires 75%
      21. Comment: spec framework introduced in 11ac with goal of speeding progress. Historical data has not proven it yields a better speed than earlier ammendments.
      22. Comment no way to prove which aspects improved/delayed these projects.
      23. Comment just don’t consider this built in stone since used from 11ac. Agreement on technical issues early on is helpful
   3. Strawpolls:
      1. “Do you agree that the functional requirement document is necessary in TGbd selection procedure?”
      2. Y24/N9/A18
      3. “Do you agree that the specification framework document is necessary in TGbd selction procedure?”
      4. Y27/N8/A13
      5. “Do you agree the selection procedure document should specify formation of different Ad-Hocs for different bands?”
      6. Third strawpoll was withdrawn after discussion about clarity of the question.
5. Chair’s strawpoll based on suggestion from the floor.
   1. “Are you interested to contribute to a 60GHz adhoc in case TGbd will form a 60GHz adhoc in parallel with 5.9GHz adhoc?”
   2. 11Y/14N/22A
6. Chair announces that the group will resume discussion on the Selection Procedure document on Thursday AM1.
7. 802.11-18/2044r1
   1. Presenter yielded the floor so he could upload presentation
8. Update on IEEE 802.18 WG (presenting 802.18-19/0005r0 slide 17-19)
   1. 802.18 agenda for the week is document 0005 (on the [802.18 mentor site](https://mentor.ieee.org/802.18/documents)).
   2. V2X RFC has 9 questions, many of which pertain to what 802.11bd is doing.
   3. Presenter mentions there are similar questions in WRC, EU, and other places.
   4. Opportunity to add to the record.
   5. Presenter invites members interested in this topic to attend IEEE 802.18 Tuesday AM2.
9. 802.11-18/2044r1
   1. Presenter suggests that this document is not complete and needs more input
   2. Call for show of hands to indicate who has not yet read this latest draft
   3. In response to show of hands, presenter says he will provide a more thorough overview of content
   4. This is proposed as a liaison in response to WFA’s reply to our original liaison. Presenter is highlighting changes in the document since it was last presented on teleconference.
   5. Comment: maybe instead of developing a detailed reply we should just thank them for their liaison letter and move on.
   6. Comment: the last 3 lines of the document is all the is required in a response.
   7. Comment: doesn’t see a requirement from WFA that these questions be answered.
   8. Presenter looking for direction whether or not to redraft this document with just the last paragraph.
   9. Strawpoll
      1. “Do you agree that the document 11-18/2044 should be re-drafted?”
      2. Y13/N1/A24
10. Chair reminded members of the election next session Tuesday AM1.
11. Chair recessed at 12:30

**Tuesday PM2**

1. Chair convened the meeting at 4:00pm. Approx. 86 participants in the room.
2. Agenda displayed in 802.11/18-2105r3 (starting at slide #20)
3. Chair made call for potentially essential patents. No response.
4. Comment that we should decide on the order of the technical presentations
5. Chair: Order of the technical presentations will be discussed when we get to that part of the agenda
6. Officers election
   1. Two candidates for two Vice Chair positions
   2. Two candidates for one Editor position
   3. One candidate for one Secretary position
   4. Brief oral presentations from candidates
   5. Election by secret ballot to advise the chair.
   6. Election:
      1. “Whom do you support as the TGbd Technical Editor?”

Bahar Sadeghi

Michael Fischer

* + 1. Voting members were given ballots to fill out. Ballots were collected and taken from the room to be counted under supervision of IEEE staff.

1. Progress update on V2X RFC discussions in 802.18 meeting
   1. Displaying 802.18-18/0159r6
   2. Presenter: 802.18 will be using this text from a previous submission as the basis of answers for the current V2X RFC
   3. Displaying 802.18-19/0008r0
   4. Presenter summarized the document
   5. 802.18 will not rush a document out this week, but work on it over the next few weeks on teleconferences.
   6. Anyone who wants to contribute to this let this presenter or the chair know if you are interested, there will be an 802.18 adhoc meeting tomorrow.
2. Results of secret ballot arrived
   1. “Whom do you support as the TGbd Technical Editor?”

Bahar Sadeghi 52

Michael Fischer 15

1. Chair thanks the candidates
2. Chair announces the members he will appoint for management positions to be confirmed by the WG
   1. Honghyan Zhang and Joseph Levy as Vice Chair
   2. Bahar Sadeghi as Editor
   3. James Lepp as Secretary
3. Discussion of order of the technical submissions for the week
4. Proposal five categories: General, PHY, MAC, Simulation, Backward compatibility. Chair is categorizing the list of presentations with feedback from the members. Order will start with PHY.
5. Suggestion to have a formal motion to have the TG confirm the candidates the chair announced.
6. Motion: Confirmation of TGbd officers.
   * Vice Chair (two positions)
     + Hongyuan Zhang
     + Joseph Levy
   * Technical Editor (one position)
     + Bahar Sedeghi
   * Secretary (one position)
     + James Lepp
   1. Moved by Marc Emmelmann
   2. Seconded by Stuart Kerry
   3. No objection to approving by unanimous consent (motion passes)
7. 802.11-19/0009r0
   1. Presentation
   2. Discussion
      1. Comment on slide 4, why can’t 172 and 174 not be used as 20MHz?
      2. Response there is a history to the channel plan.
      3. Comment: PAR has two goals – high throughput and improved sensitivity. You proposed 20MHz for high throughput and repetition for improved sensitivity. It would be preferrable to achieve both goals with the single frame format.
      4. Response have two modes shown and prefer to have different frame formats
      5. Comment how do you decide which format to use when transmitting a frame
      6. Comment on which multiple spatial stream technology is being proposed on slide 3
      7. Comment on beamforming
      8. Comment about how use of 20MHz channels will be used in locations where 10MHz channels are specified in regulatory regions and in use.
      9. Question about improvement metric listed in the presentation are compared to 11ax.
      10. Response these are compared to 11p.
8. 802.11-19/0016r0
   1. Presentation
   2. Discussion
      1. Comment: design one PPDU format, or multiple for the different scenarios. Point out that increasing throughput and increasing sensitivity are sometimes opposed to each other. Suggest to focus on the design of the midamble. What is the presenters opinion on single or multiple PPDU types.
      2. Response: probably need 2 or more.
      3. Comment: different technologies to meet the PAR goals. Don’t see the high sensitivity requirement met yet in the simulations. Suggest we need another extra-low datarate (like 11ax or 11ah long range).
      4. Response: didn’t present MCS0, still need something new on top of what was shown in simulations to meet 3dB goal.
      5. Comment: are simulations based on DFE receiver?
      6. Comment: why is it limited. State of the art chipsets have channel tracking.
      7. Response: there are physical limits to the channel estimation updates. It helps, but there are design limitations.
      8. Comment some channel tracking implementations have latency and have buffer requirements
      9. Question on slide 20 how to do channel estimation on the 20MHz portion after receiving two independent Legacy portions?
      10. Response this is just a high level design, those details not presented
      11. Comment: definitely need two different features to achieve 2x throughput and 3dB sensitivity gain.
      12. Question: slide 14 is it comparing 11p and the proposal, or 11ax and the proposal?
      13. Response blue line is 11p
      14. Comment which of the gain is from LDPC and which of the gain is from midamble? Its not a fair comparison. Suggest to simulate performance of the two features separately.
      15. Response this was not to show which adds 1dB and which adds 0.5dB, just to show the potential overall at this point.
      16. Comment: be careful what we compare in these results. SNR might not be the right metric. Resources used on the air is a factor. LDPC has little gain in rural LOS with no diversity for example. If not comparing the right metric we might not make the right decision.
      17. Comment: there are no 20MHz channels in Europe.
      18. Response: We showed SNR gain in dB as that’s what is listed in the PAR. This does take into account efficiency/overhead.
      19. Comment: Need to consider all the factors
9. Chair mentions he gave extra time for the previous two presentations because they contained lots of PHY features.
10. Chair asks if anyone has a presentation they can do in 10 minutes or less.
11. Chair recessed at 5:52pm

**Wednesday AM1**

1. Chair brought the meeting to order at 8:00am. Approx 52 participants in the room.
2. Agenda 2105r3
3. Call for potentially essential patents
4. No response
5. 802.11-19/0048r0
   1. Presented document
   2. Discussion
      1. Question: What is the ACI that can be tolerated by the receiver?
      2. Response: some details were in previous presentation. Depends on the design of the receiver, has a target SNR.
      3. Response: Before transmit estimate if there is a transmission on a neighbour channel
      4. Question: Displayed as a sublayer below the MAC. Consider interaction with CCA in the MAC. Adjecent channel interference is worthy of being taken into consideration
      5. Response: accept the comment, more details to figure out
      6. Comment: in US SAE channel plan, the layout was designed to interleave services by keeping RSUs and V2V in different channels. So there is some mitigation of adjacent channels already designed.
      7. Comment: congestion control is modelled on existing CCA algorithms. If there is a big change to the transmission patern based on adjacent channels it certainly would change the behaviour, but there is a danger it may cause more transmission collisions.
      8. Comment: MAC sublayer state machine (slide 7) how does this affect specification of CCA levels. Would something need to be specified similar to CCA clauses of 11ax. Do we need to define the exact level to transmit or not?
      9. Further discussion about adding more complexity to an already complex state machine
      10. Comment: if we can provide more tools to the upper layers that is beneficial
      11. Comment: take into account the interference probability based on the packet length
      12. Comment: are you targeting synchronous or asynchronous operation across channels?
      13. Response: two transmitters which are asynchronous and two receivers that are asynchronous
      14. Comment: about transmitting simultaneously on two channels. Are you considering using two channels simultaneously to the same receiver (i.e channel bonding)?
      15. Comment: systems problem with IEEE 802.11 CCA, IEEE 1609.4 multichannel operation and SAE J2945/1 congestion control all working in concert.
      16. Comment: delay based on visible nodes and hidden nodes. Hidden nodes may introduce problems. Many things to consider.
6. 802.11-19/0082r1
   1. Presentation
   2. Discussion
      1. Comment: The legacy receiver only uses energy detect for the new waveform portion.
      2. Question: for tech percentage, is near or far taken into account.
      3. Response: the population of stations is based on sum of received and decoded frames.
      4. Comment: increasing the MCS of the legacy rate shown on slide 8 does affect the range of the legacy devices
      5. Response: detail of how to indicate length of the new waveform frame portion wasn’t detailed in this presentation.
      6. Comment: What is the benefit of having the same information transmitted in both 11p and 11bd formats? Why not have different information in the legacy portion and the new waveform portion? What justifies shrinking the range of legacy part?
      7. Response: not in scope of the group to decide what information is in each portion. I’m not making the assumption that it’s the same PPDU or same information at the upper layer. There will be an extended period (decade) where both legacy and new stations are in deployment and we need a solution for this important problem.
      8. Comment: there are two things in this slide 9. One is to provide legacy compatibility, and the second is to keep the overall airtime similar. Better way to show this and make it more clear may be two split the table in slide 8 into two, one related to range, and another related to airtime.
      9. Comment: is it just energy detect, how does this impact throughput, might be different throughput for 11p vs 11bd station
      10. Response: slide 5, that “New LTF” may or may not indicate length and provide Packet Detect instead of just Energy Detect. This presentation doesn’t go into the New LTF design. Main point of this presentation is to show mechanism to keep ‘time on the air’ similar to that of today in a mixed eviromnent.
      11. Comment: design of new PPDU is orthogonal to the concept of limiting legacy airtime in this presentation
7. 802.11-19/0018r0
   1. Presenation
   2. Discussion
      1. Comment: like the interpretation of coexistence. Disagree with detection range/sensitivity is different than NGV as shown on slide 5. Currently at 3rd generation of 11p chipsets. Sensitivity of the two – both when receiving 11p, is not necessarily different.
      2. Response: NGV device may come out several years from now and have much better sensitivity
      3. Question for clarification. If you don’t detect an 11p device you continue to transmit NGV frames, but for how long?
      4. Response: exact timeout needs to be discussed
      5. Comment: when invoking the word legacy we need to talk about what is in the field, not what is in the standard. Actual chips in the field have better performance than the standard. Let’s base it on whats in the field, not whats on paper.
      6. Comment: one station sends 11p will have a domino effect for all adjacent vehicles to switch to 11p
      7. Comment: indication that its sending 11p, but capable of 11bd could help in this scenario
8. 802.11-19/0045r0
   1. Two parts to this presentation. Will present this first half in the final 13 minutes of current session and continue tomorrow.
9. Chair asked if group is ok with adding another session later in the week
10. Consensus is that it is ok to request an extra session.
11. Chair recessed at 10:02am.

**Thursday AM1**

1. Chair brought the meeting to order at 8:00am. Approx. 50 participants in the room.
2. Agenda displayed in 802.11-18/2105r4
3. Chair introduced the task group officers
4. Chair announced that there was a new session added for PM2 today. The acting secretary for the week is unavailable in the PM2 session, but a member has been identified who can take the minutes.
5. Chair reminded the group of the patent policy and called for potentially essential patents
6. Chair reminded members to record their attendance in the IMAT system
7. 802.11-19/0045r0
   1. Presentation
   2. Discussion
      1. Question about FCC rules for NGV
      2. Comment that FCC rules reference ASTM E2213
8. 802.11-19/0079r0
   1. Presentation
   2. Discussion
      1. Comment on slide 9 second bullet and question if this is in line with presenter’s pervious presentation (802.11-19/0082)
      2. Comment: we have well written definition on interoperability, co-existence, backwards compatibility and fairness. This is about coexistence and backwards compatibility and how to provide enhanced capabilities.
      3. Question about PHY frames and packets. Response that 802.11-19/0083 was entirely about PHY and didn’t describe how packets fit into PHY frames with legacy or new rates
      4. Comment that designers of higher layers could use better description of some of the procedures in 11p and 11bd to make things more precise and clarity.
9. 802.11-19/0017r4
   1. Presentation
   2. Discussion
      1. Question on simulation. Is this to simulate high doppler per tap? These simulation results don’t match real performance of devices in the field
      2. Response: Simulations use pure doppler captures the “worst case scenario”.
      3. Comment it might not be right to always use just the worst case, and not the realistic usage
      4. Comment: based on C2C channel models, but there is additional modelling needed that aren’t specified.
      5. Comment: ETSI ITS is working on a TS with channel models. Expect it to be published next month, and will bring it as a contribution here next time. Also aware of newer work in C2C-CC that is not yet published on this topic.
      6. Comment: Real system is complex, how complex or simple can the simulation model be made?
      7. Certain things do need to be included in the model, but it can’t contain everything.
      8. Comment: remember what the purpose of the simulations are. Is it to compare two proposals in certain scenario, or is it to model actual real world. The latter is hard. Suggest to choose a simple model to do comparisons.
      9. Comment: Some prvious presentations mentioned 256QAM. Is there any issue in the modelling scheme for higher orders?
10. 802.11-19/0034r1
    1. Presentation
    2. Discussion
       1. Comment, do you envision using GSCM for link level simulation. At 3GPP its popular for using system-level simulation. Do you think this complex model is needed for link level simulation
       2. Response: There are benefits
       3. Comment: simpler models may be more appropriate
       4. Comment: simulations should take into effect nature of higher layers. For example, for some applications its ok to miss a packet randomly from time to time, but its problematic if there is some correlation between lost packets. Supportive of methods that take into account nature of upper layers in the link layer simulations. This is only one part of it though.
       5. Question: How will this model affect our decision on particular PHY layer technologies
       6. Response: if we only take into account worst case to compare two different proposals we don’t have a good picture of real-world performance
       7. Comment: system level with certain goal KPIs is important. This system level simulation is not a city-wide macroscopic simulation, just a small number of vehicles and their interactions with each other and upper layers.
       8. Comment: We have not yet discussed the positioning topic from the PAR, but there will need to be considerations on channel models for this that might be different than traditional data links.
11. 802.11-19/0083r0
    1. Presentation of r0, will upload r1 with strawpoll results
    2. Discussion
       1. Comment: this is for broadcast addressed OCB frames. What about for unicast OCB frames
       2. Comment: may need a secondary way to indicate for unicast frames
       3. Comment: in 802.11p there are 8 MCS, but only 3 are mandatory. Is there any issue with legacy stations unable to receive one of the non-mandatory legacy rates?
       4. Comment: It might not be a requirement to indicate in every single frame, but enough for neighbours to receive it.
       5. Comment: there may be a way to indicate this for unicast in the duration without substantial change do the MAC.
       6. Comment: aware of 802.11 implementations that have incorrect implementations, but not aware of 802.11p OCB implementation that would have issues
       7. Comment: why do we need this indication.
       8. Comment: it is important for NGV capable stations to be able to indicate that they are NGV capable when they are transmitting frames at the 8 legacy rates. This requirement has been discussed in a number of previous interoperability and backwards compatibility presentations.
       9. Comment: is there any impact to legacy devices
       10. Response: see slide 8, this is safe for legacy devices
    3. Skipping the strawpoll in the interest of time
12. 802.11-19/0086r0
    1. Presentation
    2. Run out of time. Comments will have to be offline
13. Chair announces strawpoll from MF might be in next session
14. Chair announces meeting this afternoon will be in a different room “G”
15. Member announces he will move to amend the agenda in the next session to approve some NGV documents as positions of the 802.11bd TG.
16. Chair recesses at 10am.

**Thursday PM2**

1. Chair brought the meeting to order at 4:00pm. Approx. 24 participants in the room.
2. Stephen McCann is acting secretary for this meeting slot
3. Agenda displayed in 802.11-18/2105r5 with a small update since r4.
4. There’s also a draft liaison reponse to the Wi-Fi Alliance 802.11-18/2044r0 which the group can re-view if there is time today.
5. Chair reminded the group of the patent policy and called for potentially essential patents
6. Chair reminded members to record their attendance in the IMAT system
7. 802.11-19/0202r1
   1. Discussion
      1. This document will hopefully be referenced by IEEE 802.18 in one of their upcoming output documents, as part of an IEEE 802 filing into the US DoT.
      2. Hopefully this will allow the US DoT to recognise the 802.18 and 802.11 activities.
   2. **Motion**
      1. Move to approve 802.11-19/0202r1 TGbd agreed terminology and requirements to be referred to by IEEE 802.18.
      2. Moved: Peter Ecclesine
      3. Second: Michael Fischer
      4. Result: y: 15, n: 0, a: 1 (motion passes)
8. 802.11-19/0042r1
   1. Discussion
      1. Just to remember that these timelines are quite dynamic at this point in the project’s lifecycle.
      2. I think option 1 is the better option as it matches the PAR dates
   2. **Motion**
      1. Move to approve TGbd timeline plan as below:
         * PAR approved Dec 2018
         * First TG meeting Jan 2019
         * D0.1 Sept 2019
         * D1.0 Letter Ballot Nov 2019
         * D2.0 LB recirculation Mar 2020
         * Form Sponsor Ballot Pool May 2020
         * D3.0 LB recirculation May 2020
         * D3.0 unchanged recirculation July 2020
         * Initial Sponsor Ballot (D4.0) Sept 2020
         * Final 802.11 WG approval July 2021
         * 802 EC approval July 2021
         * RevCom and SASB approval Sept 2021
      2. Moved: Bahar Sadeghi
      3. Second: Hongynan Zhang
      4. No objection to approving by unanimous consent (motion passes)
9. 802.11-19/0030r1
   1. Discussion
      1. In TGaf, there was no functional requirements document, as it was updating another PHY. I don’t think this document is required for basically a doppler change to 11ac.
      2. Some aspects of the text (e.g. 75% gate) is not replicated in the figures. This was noted by the author.
      3. I think this document is quite flexible and should be just a guideline.
      4. Why do the ad-hocs exist, as decisions cannot be made within those ad-hocs?
      5. Creation of an ad-hoc is up to the chair, not the task group itself. Therefore, the text will be changed to remove these statements.
      6. Why call out 5.9 GHz and 60 GHz? The response was that these bands are called out in the PAR.
      7. Section 4 implies that the editor has a lot of power in requesting specification text. It’s not their role to do this.
      8. I think that this selection procedure document is not really required. It needs to be simplified and reviewed offline.
      9. The previous WG chair created this type of document, as it enables some of the larger projects to form consensus before an initial draft is produced. This project is not one of those large projects.
      10. I’m content to adopt this document today, as long as it’s understood that it can be reviewed again by the task group in the next face to face meeting.
      11. This document does not prevent someone from bringing a Draft 1.0 at the next face to face meeting and adopting that by 75%, thus potentially starting a letter ballot.
   2. **Motion**
      1. Move to approve the TGbd selection procedure in 11-19/0030r2 to assist the Chair to organize the work of the TG
      2. Moved: Bahar Sadeghi
      3. Second: Dongguk Lim
      4. Result: y: 6, n: 3, a: 6 (motion fails)
      5. This is a topic that could be discussed in a teleconference, then it could be approved at the start of the face-to-face.
      6. An alternative would be to update this document now, if it is going to stop the task group’s work moving forward.
10. Teleconferences
    1. Chair: I intend to have 1 teleconference between now and the March face to face
    2. I suggest that there should be more than that. Perhaps one every other week. Then there will be 3 teleconferences.
    3. Perhaps you can just use 10 days notice to organise teleconferences.
    4. I thought that the next item was technical presentations and not teleconferences.
    5. Chair: No, teleconferences are the current agenda item.
    6. Teleconferences are: Jan 29, Mar 5, 10:00 ET for 2 hours. Feb 19, Mar 19, 18:00 ET for 2 hours.
11. 802.11-19/0100r0
    1. Discussion
       1. Thank you for sharing your results. Will you being back a use-case at a future time?
       2. How many antennas did you use in your test? The author stated just 1 antenna operating at 60.48 GHz.
12. Selection Procedure Document
    1. Does anyone want to spend the remaining time today revisiting this document.
    2. No-one in the room wanted to.
    3. Chair: So, let’s proceed to the next agenda item
13. Closing Report 802.11-19/0197r0
14. Chair adjourns the meeting at 17:42 CST.

**Next Meetings of IEEE 802.11bd Task Group:**

Teleconferences:

Jan 29, 10:00 ET

Feb 19, 18:00 ET

Mar 5, 10:00 ET

Mar 19, 18:00 ET

Face to face:

Hyatt Regency Vancouver March 11, 2019

**Notes:**

Document numbers referenced (e.g. 802.11-19/0000r0) are available on IEEE Mentor: <https://mentor.ieee.org/802.11/documents>