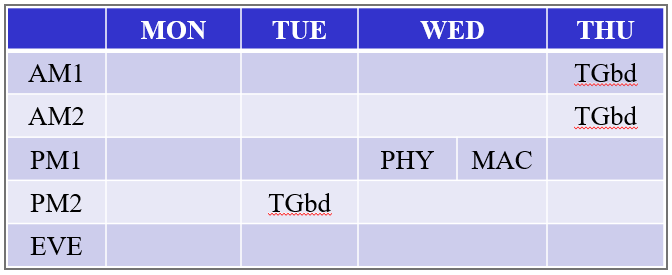
IEEE P802.11  
Wireless LANs

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| IEEE 802.11bd Task Group Meeting Minutes –  November 2019 | | | | |
| Date: 2019-11-14 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
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| Hongyuan Zhang | Marvell |  |  |  |
| Joseph Levy | Interdigital |  |  |  |

Abstract

This document includes minutes of all IEEE 802.11bd meetings at the IEEE 802.11 interim meeting in Waikoloa, HI, USA November 11-14, 2019.



Thanks to Hongyuan Zhang and Joseph Levy for recording the minutes during Ad-Hoc sessions.

Versions:

* R0: Uploaded 2019-12-03.

# TGbd Working Group PM2 – Tuesday, November 12, 2019

## Opening

* 1. Call to order 4:02pm in Waikoloa, Hawaii. 30 participants in the room.
  2. Displaying agenda 802.11-19/1740r3
  3. Chair introduced the task group leadership and welcomed the members to Waikoloa.
  4. Chair reminded members to record their attendance and announce their name and affiliation when speaking at the mic.
  5. Chair presented policy slides and called for potentially essential patents.
  6. No response from the members.
  7. Chair presented meeting protocol slides.
  8. Chair informed members that if they do not agree with the policy, they should not participate.

## Agenda

* 1. Chair presented the agenda as shown in 802.11-19/1740r3.
  2. Discussion about categorization and order of technical submissions
     1. Commenter requesting to move 11-19/1891 from PHY to TG.
     2. Commenter requesting to move 11-19/1974 from PHY to TG.
     3. Comment that documents 1285 and 1968 are the same presentation.
     4. Chair calls out full list of presentations for submitters to comment on their categorization.
     5. A number of document numbers were corrected in the agenda slides on the screen.
     6. Comment on running strawpolls for 1805 in the MAC ad-hoc as it was already presented on the teleconference
  3. Chair announces that there will be discussion in TGbc regarding Broadcast Services without association
  4. Agenda for this session has been adopted without objection

### Minutes

* 1. **Motion:** Approve the TGbd minutes for Sep meeting and TGbd TCs before Nov meeting as below: <https://mentor.ieee.org/802.11/dcn/19/11-19-0825-01-00bd-tgbd-sept-2019-meeting-minutes.docx>, <https://mentor.ieee.org/802.11/dcn/19/11-19-1806-00-00bd-tgbd-oct-2019-teleconference-minutes.docx>
  2. Moved: James Lepp
  3. Seconded: Hongyuan Zhang
  4. Result: Motion passed unanimously

### Approval of Task Group Documents

* 1. **Motion:** Approve the updated FRD document as in 11-19/0495r3:
  2. https://mentor.ieee.org/802.11/dcn/19/11-19-0495-03-00bd-802-11bd-functional-requirements-document.doc
  3. Moved: Bahar Sadeghi
  4. Seconded: Qinghua Li
  5. Result: Motion passes unanimously
  6. **Motion:** Approve the updated SFD document as in 11-19/0497r4:
  7. https://mentor.ieee.org/802.11/dcn/19/11-19-0497-04-00bd-802-11bd-specification-framework-document.docx
  8. Moved: Bahar Sadeghi
  9. Seconded: Qinghua Li
  10. Result: Motion passes unanimously

### Liaison Updates

* 1. Friedbert Berens: there has been some discussion with C2C CC and ETSI ITS about having a joint workshop in conjunction with the IEEE 802.11 meeting in Warsaw next year.
  2. Discussion would be on topics such as the interfaces between 802.11bd and upper layers – similar to discussions planned with IEEE 1609
  3. This is informal so far, but a formal liaison about this may come in the near future.
  4. John Kenney isn’t here, so Bo provides the update on 1609.
  5. Bo has informed 802.11 WG leadership about the request for a joint meeting in January. A formal request will be made at the 802.11 CAC on Thursday based on progress this week.

### Editors Report (IEEE 802.11-19/2045r0)

* 1. Editor presented the list of volunteers and the document numbers for their contributions toward draft specification text.
  2. Editor presents links to the IEEE 802.11 style guide and some selected recommended practices.
  3. Discussion about process
  4. Chair clarifies that these draft submissions are volunteer’s personal submissions posted on mentor to help the editor. The actual draft document will be prepared by the editor and available in the members area.
  5. Chair suggests members review the 14 submissions and provide any comments directly to the authors before the motions on Thursday.

### Technical Submission (IEEE 802.11-19/0783r0)

* 1. Presentation by Alessio Filippi
  2. Discussion
     1. Comment that a specific model is assumed. There is a possibility that new services will use 11bd while old services will use 11p. Because there are different models in how services use the different PHYs it isn’t a useful metric at the MAC layer. It needs to be determined at the upper layers. The general percentage doesn’t provide a useful metric to the upper layers. Because it isn’t based on specific service it could be misleading.
     2. Comment that one could calculate two different channel busy ratios (CBR). One for 11p and one for NGV.
     3. Response that currently CBR only uses energy detection.
     4. Comment that last meeting we agreed A-MPDU can be supported. Does that change anything.
     5. Response that at the PPDU, it doesn’t matter if it’s A-MPDU or not.
     6. Comment on the high motion and rapidly changing situation for a vehicle.
     7. Response that this is considered. In principle you only need the preamble to determine the PHY type and thus calculate this metric.
     8. Comment that the ratio isn’t that useful because what would the difference really be between 10% or 50% or 90% 11bd operation?
     9. Comment more than preamble is needed. Its preamble, STF, LTF and full PPDU.
     10. Comment that as long as there is at least one 11p device in range, then we need to transmit 11p format. Not sure what the metric would be used for.
     11. Comment on whether percentage is percent of traffic or percent of stations (uniquely identified stations)
     12. Comment on number of packets doesn’t reflect number of stations in EU protocol stacks as the periodicity of transmission is dynamic.
     13. Comment that this is a typical thing to provide to upper layers. Suggestion to ask upper layer standards groups if they think there is a use for this in their scenarios. That would be a better discussion on this topic. The real question is will it really be used, and that is for others to answer.

### Technical Submission (IEEE 802.11-19/1285r0)

* 1. Presentation by Friedbert Berens
  2. Discussion
     1. Comment: are you proposing to have a different model for every single OEM, or one model?
     2. Response: the manufacturer specific model is very precise, but based on this we can make a general model
     3. Comment that using a model like this in simulations allows better evaluation of different block sizes.
     4. Comment that the models aren’t yet available to use for simulations but will be announced to the group as soon as they are.
     5. Comment about why CAM size changes
     6. Response that there are optional fields, and variable length fields so size is different. For example, the path history elements. Main principle is to use least amount of time on the air, so information not needed frequently is omitted.
     7. Comment that BSM sizes/frequencies are simpler, but still not all identical.

### Technical Submission (IEEE 802.11-19/1596r2)

* 1. Presentation by Rui Yang
  2. Time ran out. Will continue AM1 on Thursday

### Closing

* 1. Tomorrow’s ad-hoc room assignments: PHY will be in Kohala 1, and MAC will be in Kohala 2.
  2. Chair recessed at 6:00pm

# MAC Ad-Hoc PM1 – Wednesday, November 13, 2019

### Opening

* 1. The Chair, James Lepp, convened the meeting at 13:34 HST. Approx. 23 participants in the room.
  2. Agenda displayed is 802.[11-19/1632r1](https://mentor.ieee.org/802.11/dcn/19/11-19-1632-01-00bd-tgbd-sept-2019-mac-ad-hoc-meeting-agenda.ppt), (TGbd agenda: 802.[11-19/1412r2](https://mentor.ieee.org/802.11/dcn/19/11-19-1412-02-00bd-tgbd-sep-2019-meeting-agenda.ppt)).
  3. The Chair welcomed the members and introduced the Ad Hoc leadership.
  4. The Chair reviewed the administrative slides (slides 3 and 5-9) and called for potentially essential patents.
  5. No response to the call for patents.

## Agenda

* 1. Chair presented the agenda 802.[11-19/2072r0](https://mentor.ieee.org/802.11/dcn/19/11-19-2072-00-00bd-tgbd-nov-2019-mac-ad-hoc-meeting-agenda.ppt)
  2. Discussion on the agenda
  3. The Chair called for additional contributions – none were forthcoming
  4. It was agreed that the contributions will be taken in the order shown below:
     1. [11-19-1805-01-00bd-mac-service-update-for-ngv.pptx](https://mentor.ieee.org/802.11/dcn/19/11-19-1805-01-00bd-mac-service-update-for-ngv.pptx)
     2. [11-19-1970-00-00bd-a-msdu-and-a-mpdu.pptx](https://mentor.ieee.org/802.11/dcn/19/11-19-1970-00-00bd-a-msdu-and-a-mpdu.pptx)
     3. [11-19-1968-00-00bd-clarification-on-NGV-indication.pptx](https://mentor.ieee.org/802.11/dcn/19/11-19-1968-00-00bd-clarification-on-NGV-indication.pptx)
     4. [11-19-1974-00-00bd-dmg-in-ocb-environment.pptx](https://mentor.ieee.org/802.11/dcn/19/11-19-1974-00-00bd-dmg-in-ocb-environment.pptx)
  5. Agenda is accepted by unanimous consent.

## Technical Presentation ([IEEE 802.11-19/1805r1](https://mentor.ieee.org/802.11/dcn/19/11-19-1805-01-00bd-mac-service-update-for-ngv.pptx))

* 1. Presented by Alessio Filippi
  2. Discussion:
     1. I support this – I think we should just get it into the 0.1 draft. In 11md I am proposing a primitive for changing the MAC address. This is being done for privacy – but we should use the same primitive.   
        I am concerned with the status vector (slide 9) as it may get large and difficult to deal with. I think we should define some profiles to simplify this interface.
     2. Ans – we should make sense on how/what to group to provide the correct balance.
     3. On slide 3 – can you elaborate on the parameters are included.
     4. Ans – that is what is explained in the later slides – the extensions of the fields to include the additional information discussed.
     5. Discussion about how 802.11bd station transmitting 802.11p formatted packets is conveyed in the Status Vector. Some of these elements are yet to be precisely defined.
     6. There are MLME primitives and MLME-X primitives – which primitives are we working with.
     7. The goal is to get rid of the MLME-X primitives and have a single list of MMLE primitives in 802.11
     8. Q: What is the use for MAC address change.
     9. A: In IEEE 1609.2 it is required for the MAC address to change so vehicle can’t be tracked.
     10. C: It would be nice to add adjacent channel activity
     11. A: there is room for extending to what is needed. But, this should be left to the higher layers.
  3. Straw poll: Do you agree to add the following text into Section 3.2 of SFD?  
     “The MAC service interface (MAC\_SAP and MLME-SAP) shall be extended to provide higher layers with the ability to control NGV transmissions and receive
  4. Y: 7, N:0, A:7

## Technical Presentation ([IEEE 802.11-19/1970r0](https://mentor.ieee.org/802.11/dcn/19/11-19-1970-00-00bd-a-msdu-and-a-mpdu.pptx))

* 1. Deferred, author not present.

## Technical Presentation ([IEEE 802.11-19/1968r0](https://mentor.ieee.org/802.11/dcn/19/11-19-1968-00-00bd-clarification-on-NGV-indication.pptx))

* 1. Presented by Ronny Yongho Kim
  2. Discussion:
     1. C: it was left to the upper layer to decide – to me it would be case 1 not case 2. There are other factors that come in to making this decision – so I think we should just leave it up to them. We should ask if there is additional information they need us to add.
     2. A: I am concerned if the 1609 people are aware of this situation. As once it happens there is no way to prevent it.
     3. C: we should not add anything and simply liaison with them to check with them. But we should leave it to them. Suggesting not to run the straw poll.
     4. A: agree to not run the straw poll. Questioned how to proceed.
     5. C: suggested an e-mail to the 1609 Liaison (John Kenny) to get clarification
     6. C: noted that that was the best way to proceed, but if it was not satisfactory in conclusion a formal LS could be sent to 1609.

## Technical Presentation ([IEEE 802.11-19/1974r0](https://mentor.ieee.org/802.11/dcn/19/11-19-1974-00-00bd-dmg-in-ocb-environment.pptx))

* 1. Presented by Hanseul Hong (Yonsei Univ.)
  2. Q: what kind of information and involvement of the MAC layer do you think we need?
  3. A: transmission target space may be managed by 5.9 band.
  4. Q: in 1609 they allow negotiation of the use of other channels – including 2.4 and 5 – sow what is missing.
  5. A: the existing bands can only be transmitted now. So, there would need to be some extensions.
  6. Q: but what is missing.
  7. A: in 11ad there is FST which uses the 2.4 or 5 GHz band with the 60 GHz band.
  8. C: I’m saying we could use the 1609 tool instead of FST.
  9. C: the timing needs to be transmitted, I think this may be a layer transmission.
  10. C: I think it needs to be looked at and we should look at 1609 – I don’t think anything is missing.
  11. C: we brought this contribution, because we have a similar thing in the cellular world. If the 60 GHz is collocated with the 5.9 GHz band. So, if it is in the MAC it can be fast.
  12. C: that is what I thought is in 1609.
  13. Straw Poll: Do you agree to use 5.9 GH signal to indicate 60 GHz transmission and relative parameters? - not held
  14. C: Feedback on needing to explore how this could work with 1609, in the EU environment and other environments.

## Technical Presentation ([IEEE 802.11-19/1970r0](https://mentor.ieee.org/802.11/dcn/19/11-19-1970-00-00bd-a-msdu-and-a-mpdu.pptx))

* 1. Presented by Liwen Chu (Marvell)
  2. Q: On slide 5 – what do you mean?
  3. A: since this is OCB – the MAC layer negation is not a good idea – so once you receive an A-MPDU you should send a block ACK.
  4. C: In the ADPA parameters there are more, so it is not enough.
  5. A: we don’t thing we need fragmentation, so all we need the Block ACK
  6. C: When the block ACK is expired.
  7. A: We say once you receive the A-MPDU – you send the block Ack and are done – no problem to implement it this way.
  8. C: In 11ac the maximum is 64 and 11ax the maximum is 256.
  9. A: this doesn’t mean these numbers are supported it is just the size of the bit map.
  10. C: We can assume this is always on – as shown on slide 6 – we should fix the set of values.
  11. C: if we go with fixed parameters – we should decide this later – this numbers should be TBD. I don’t know if the group can make a decision now at this time – fixing this limits performance. If thinks are fixed nothing can be optimized. This is a MAC layer decision, why can’t we rely on the upper layer. Why don’t you want to do the negotiation?
  12. C: We don’t want to negotiate – we think it should be fixed.
  13. C: once a car starts to transmit data – it may be beneficial to negotiate.
  14. A: negotiation will require timers and the configuration may time out.
  15. C: I think fixing it is a good way to avoid the negotiation. I support the approach but not the values. I think this supports the use cases we are concerned with – So I support option 1.
  16. C: Once we choose option 1 we are done.
  17. C: commenter prefers option 1. Do you think we need different parameters for 10 and 20 MHz?
  18. A: only one set of parameters.
  19. Straw Poll 1 (slide 8): option 1: 3, option 2: 0, abstain:8.

Chair recessed 15:18 HST

# PHY Ad-Hoc PM1 – Wednesday, November 13, 2019

## Opening

* 1. Call to order 1:30pm in Hawaii
  2. Displaying agenda 11/2074r0
  3. Chair: Qinghua Li
  4. Chair: Hongyuan Zhang

## Technical Presentation (802.11-19/1824r0)

* 1. Presentation by Rui Cao
  2. Discussion
  3. Strawpolls
  4. SP1: **Do you agree to add the following text into Section 3 of SFD?**

**“NGV PPDU modulated with BPSK and DCM shall power boost L-STF and L-LTF by 3dB.”**

Y16N0A7

* 1. SP2: **Do you** agree **to add the following text into Section 3 of SFD?**

“**NGV PPDU modulated with BPSK shall power boost L-STF and L-LTF by 3dB.”**

Y15N0A6

* 1. SP3: **Do you** agree **to add the following text into Section 3 of SFD?**

**“NGV PPDU shall use LDPC as the only coding scheme.”**

Y11N4A8

* 1. **SP4: Do you agree to add the following text into Section 3 of SFD?**
  + “11bd shall define the following MCS table.”

|  |  |  |
| --- | --- | --- |
| **MCS index** | **Modulation** | **Code rate** |
| 0 | BPSK | ½ |
| 1 | QPSK | ½ |
| 2 | QPSK | ¾ |
| 3 | 16QAM | ½ |
| 4 | 16QAM | ¾ |
| 5 | 64QAM | 2/3 |
| 6 | 64QAM | ¾ |
| 7 | 64QAM | 5/6 |
| 8 | 256QAM | ¾ |
| 9 | 256QAM | 5/6 |
| 10 | BPSK with DCM | 1/2 |

**Deferred SP**

* 1. SP5: **Do you agree to add the following text into Section 3 of SFD?**

**“NGV SIG field shall include the following bits with bit order TBD:**

**BW: 1 bit**

**MCS: 4 bits**

**Nss: 1 bit**

**Midamble periodicity: 2 bits**

**LDPC Extra symbol: 1bit**

**LTF format: 1 bit**

**Tail bit: 6 bits”**

Y18N0A4

* 1. **SP6: Do you agree to add the following text into Section 3 of SFD?**
  + **“NGV SIG field shall use 4-bit CRC.”**

Y16N0A8

* 1. **SP7: Do you agree to add the following text into Section 3 of SFD?**
  + **“NGV-LTF and Midamble field shall use repeated NGV-LTF-2x when NGV Data is modulated using BPSK-1/2 with DCM.”**

Y17N0A5

* 1. **SP8: Do you agree to add the following text into Section 3 of SFD?**
  + **“Repeated NGV-LTF-2x is constructed by repeating the IFFT output of NGV-LTF-2x twice and pre-append one cyclic prefix of duration 1.6us.”**
* Y18N0A5
  1. **Do you agree to add the following text into Section 3 of SFD?**
  + **“NGV-LTF-2x, NGV-LTF-1x and Data symbols shall define the same pilot location.”**
* Y16N0A7

## Technical Presentation (802.11-19/1826r1)

* 1. Presentation by Prashant Sharma
  2. Discussion:
  3. Strawpolls:
  4. SP1: **Do you agree to add the following text into Section 3 of SFD?**

“The one of the Midamble periods is 8.”

Y18N0A9

* 1. SP2: **How many midamble periodicities do you prefer?**

Option1: 2 5

Option2: 3 13

Option3: 4 4

* 1. 3.4 SP3: **Do you agree to add the following text into Section 3 of SFD?**

“The one of the Midamble periods is 16.”

Y12N2A10

* 1. **SP4: Do you agree to add the following text into Section 3 of SFD?**

“Only three Midamble periodicity options are defined in 11bd. The fourth option is Reserved.”

Y10N1A11

## Technical Presentation (802.11-19/1849r1)

* 1. Presentation by Dongguk Lim
  2. Discussion:
  3. Strawpolls:
  4. SP1: **Do you agree to add the following to section 3 in 11bd SFD?**

For the 10MHz transmission, the NGV-LTF-1x sequence on subcarriers[-28:28] is given by following sequence

NGV-LTF-1x(-28:2:28) = [1 1 -1 1 -1 -1 1 1 1 -1 1 1 1 1 -1 1 -1 -1 -1 -1 -1 1 -1 -1 -1 1 1 -1]

This sequence is Option1 in the slides

Y15N0A8

* 1. SP2: **Which approach do you prefer as an NGV-LTF-1x sequence in 20MHz?**

Approach1 ( Option1 described in slides 7)

NGV-LTF-1x(-58:2:58) = [1 -1 1 -1 -1 1 1 1 -1 1 1 1 1 1 -1 1 -1 -1 -1 -1 -1 1 -1 -1 -1 1 1 -1 1 1 -1 -1 1 -1 1 1 -1 -1 -1 1 -1 -1 -1 -1 -1 1 -1 1 1 1 1 1 -1 1 1 1 -1 -1]

Approach2 ( Option2-2 described in slides 7)

NGV-LTF-1x(-58:2:58) = [-1 1 -1 -1 1 1 -1 1 1 -1 1 -1 1 -1 1 1 1 1 1 1 -1 -1 -1 1 1 -1 -1 -1 -1 -1 1 -1 -1 1 1 -1 1 1 -1 1 -1 1 -1 1 1 1 1 1 1 -1 -1 -1 1 1 -1 -1 -1 -1]

Abs

OP1-15

OP2-1

Abs-2

* 1. SP3: add the Option-1 of SP2 to SFD

Y12N0A7

* 1. **Do you agree to add the following to section 3 in 11bd SFD?**
  + The same number of pilot tones are used in NGV-LTF-1x and NGV-Data.
    - In 10MHz, 4 pilot tones shall be inserted.
    - In 20MHz, 6 pilot tones shall be inserted.
  + The pilot tones use the even tone indies in data symbol.
    - In 10MHz, the tone indices are [±8, ±22 ].

In 20MHz, the tone indices are [±54, ±26, ±12]

Y13N0A4

## Technical Presentation 802.11-19/1863r0

* 1. Presentation by Yujin Noh
  2. Discussion
  3. Straw poll deferred

## Technical Presentation 802.11-19/1864r0

* 1. Presentation by Yujin Noh
  2. Discussion
  3. Straw poll deferred

# Task Group AM1 – Thursday, November 14, 2019

## Opening

* 1. Call to order 8:03am in Waikoloa, Hawaii. 40 participants are in the room.
  2. Displaying agenda 1740r3
  3. Chair introduces task group leadership
  4. Chair displayed meeting policies
  5. Chair called for potentially potential patents. No response
  6. Chair presents the agenda for the session.
  7. Brief discussion on order of the presentations. Results in grouping of presentations on 20MHz spectral mask together.
  8. No objection to adopting this agenda for the session.

## Technical Submission (IEEE 802.11-19/1596r2)

* 1. Presentation by Rui Yang continued from last task group meeting
  2. Discussion:
     1. Comment on the first design where tones are added to the preamble. Share the concern that this affects preamble detection.
     2. Question about whether PSD on slide 13 is at room temperature or at extreme temperatures.
     3. Question about curves on slide 11. Concern about highway NLOS showing about 5% false alarm.
     4. Comment that there are always false alarms in energy detection. This is to know how to set the threshold. It’s a tradeoff between better detection or higher false alarm.
     5. Comment on affect of a false alarm on the packet combining result. Response is to show diagram on slide 7 and explain how a false alarm affect the behavior of the red diamond.
     6. Question about whether with this design the NGV device will always transmit 11p PPDU format?
     7. Response that this would be optional.
     8. Comment that this would then be a 3rd PPDU format because its not 11p PPDU and not NGV PPDU. Some comparison to 11ax PPDUs
     9. Comment that repetition is for increased reliability, but if its an optional capability it won’t have this benefit
     10. Comment that moving the extra tones to the data field is helpful
     11. Comment that these extra tones are already used in the 11bd PPDU anyway, so there should be no impact on the PSD. So, no concerns with that.
     12. Commenter mentions there was already a different presentation on alternative modes to indicate frame repetition, so this is one of several methods to indicate this. So, this exact method isn’t necessary, but one of the methods should be chosen.
     13. Discussion about freedom of transmitter vs design complexity of receiver combiner
     14. Question about how many bits of information come from the extra tones. Is it one or more?
     15. Either is possible, but one bit is the simplest and has least effect on the performance of the rest of the frame.

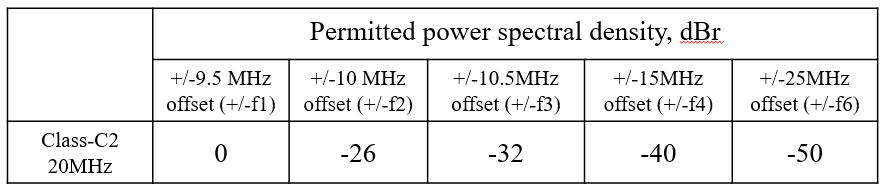
## Technical Presentation (802.11-19/1784r2)

* 1. Presentation by Onn Haran
  2. Discussion:
     1. Comment on this being a group – known to upper layers – as opposed to general broadcast to unknown recipients
     2. Discussion of platooning scenario
     3. Comment about upper layer sending its own ACK messages. Discussion about transmit timing of upper layer ACK vs BlockAck scheme in the presentation.
     4. Comment that the scenario on slide 6. There are 4 STAs and one is the originator. All 4 can potentially be the originator.
     5. Comment that this is similar to the GCR BlockAck in the base specification, but GCR BlockAck is based on a negotiation process. Concern that we can’t get away without doing the negotiation.
     6. Comment that this fits well with the baseline and is an important feature to provide for upper layers to expand the use cases that can use 802.11d
     7. Comment on application to platooning. Some platooning demonstrations use two channels and some use single channel.
  3. Strawpoll:
     1. Do you agree to add the following text into Section 3 of SFD?
     2. “NGV shall allow Broadcast and Multicast reception feedback using Ack or BlockAck scheme. Upper layer initiates BlockAckReq and selects the recipients.”
     3. Y12 /N0 /A12
     4. Strawpoll:
     5. Do you agree to add the following text into Section 3 of SFD?
     6. “NGV shall include BlockAckSeqReq requesting sequential Ack responses from multiple recipients. Channel access mechanism is TBD.”
     7. Y7 /N1 /A16

## Technical Presentation (802.11-19/1825r0)

* 1. Presentation by Rui Cao
  2. Discussion
     1. Comment that we can define less points, and just have the line linear between the two.
     2. Comment in support of option 1. Doesn’t see any additional value for option 2.
     3. Deferred strawpoll until next presentation

## Technical Presentation (802.11-19/1891r1)

* 1. Presentation by Ioannis Sarris
  2. Discussion
     1. Comment on how we update class C that already exists in the base spec vs defining a new mask.
     2. Comment on this mask vs FCC mask
     3. Straw Poll:
     4. Do you agree with the following definition of a 20MHz Class C2 mask?
     5. 
     6. Y14/ N0/ A8

## Technical Presentation (802.11-19/1847r0)

* 1. Presentation by Insun Jang
  2. Discussion
     1. Comments comparing this to the previous presentation 1596r2 earlier this session
     2. Comment on PHY level combining vs MAC level combining. Impact of changing Duration field in the MAC header
     3. Comment on reordering and use of SIFS.
     4. Comment on MAC fairness of using SIFS vs other gap value. Considers this just similar to sending a single long packet.
     5. Comment that MAC signaling isn’t useful for repetition. PHY is the way to go.
     6. Comment that even for PHY combining for 11bd station this isn’t trivial.

## Closing

* 1. Discussion about order of remaining presentations.
  2. Proposal to present the 3 pending 20MHz related presentations in a single teleconference, but preference of the group it do them in a f2f meeting.
  3. Chair informed that the next meeting is in Kohala 1 next door. And submit any motion text to the Editor before the meeting.
  4. Chair recessed at 10am.

# Task Group AM2 – Thursday, November 14, 2019

## Opening

* 1. Call to order 10:30am in Waikoloa, Hawaii. 40 members in the room.
  2. Displaying agenda 802.11-19-1640r4
  3. Chair calls for potentially essential patent claims. No response
  4. Chair displays 802.11 meeting policies. No questions from the group.
  5. No objection to adopting the agenda for the session.

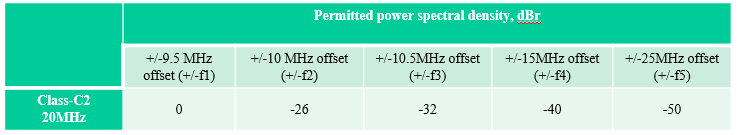
## Timeline Discussion (802.11-19/1740r4)

* 1. No changes to the task group timeline at this session

## Teleconference Plan (802.11-19/1740r4)

* 1. Proposal is Dec 3 at 10am EST and Dec 17 at 10am for 2 hours.
  2. Discussion about times. Preference of the group is to move to 9am. Chair will bring that proposal to the CAC and if there is no conflict schedule the calls for 9am EST. 10am will be the fallback option.
  3. Editor mentioned he has a conflict on Dec 17, no one else raised a conflict so a vice chair will be available to take minutes.

## Technical Motions (802.11-19/0514r11)

* 1. **Motion #55** (DCN:11-19/1805r1)
  2. Move to add the following text to section 3.2 of the 11bd SFD
  3. “The MAC service interface (MAC\_SAP and MLME\_SAP) shall be extended to provide higher layers with the ability to control NGV transmissions and receive status regarding NGV receptions and the radio environment when operating with dot11OCBActivated = TRUE.”
  4. Moved: Alessio Filippi
  5. Second: James Lepp
  6. No Discussion
  7. Result: Motion passes unanimously
  8. **Motion #56** (DCN:11-19/1849r3)
  9. Move to add the following text to the spec-framework document of 11bd
  10. “For the 10MHz transmission, the NGV-LTF-1x sequence on subcarriers[-28:28] is given by following sequence NGV-LTF-1x(-28:2:28) = [1     1      -1     1     -1    -1     1     1     1    -1     1     1     1     1  0   -1     1    -1     -1     -1    -1     -1      1     -1     -1     -1     1     1     -1]”
  11. Moved: Dongguk Lim
  12. Second: Insun Jang
  13. No Discussion
  14. Result: Motion passes unanimously
  15. **Motion #57** (DCN:11-19/1849r3)
  16. Move to add the following text to the spec-framework document of 11bd
  17. “For the 20MHz transmission, the NGV-LTF-1x sequence on subcarriers[-58:58] is given by following sequence NGV-LTF-1x(-58:2:58) = [1      -1     1   -1    -1     1      1      1     -1      1     1     1      1     1    -1     1    -1    -1    -1    -1    -1     1    -1    -1    -1     1     1    -1     1  0    1    -1    -1     1     -1    1     1     -1     -1     -1     1     -1    -1     -1    -1     -1     1     -1      1     1     1      1     1     -1     1     1     1    -1     -1]”
  18. Moved: Dongguk Lim
  19. Second: Insun Jang
  20. No Discussion
  21. Result: Motion passes unanimously
  22. **Motion #58** (DCN:11-19/1849r3)
  23. Discussion on wording change from “NGV data” to “data field”
  24. Move to add the following text to the spec-framework document of 11bd
  25. “The same number of pilot tones are used in NGV-LTF-1x, NGV-LTF-2x and data field.
  26. In 10MHz, 4 pilot tones shall be inserted.
  27. In 20MHz, 6 pilot tones shall be inserted.
  28. The pilot tones use the even tone indices defined for data field.
  29. In 10MHz, the tone indices are [±8, ±22].
  30. In 20MHz, the tone indices are [±54, ±26, ±12].”
  31. Moved: Dongguk Lim
  32. Second: Insun Jang
  33. No Discussion
  34. Result: Motion passes unanimously
  35. **Motion #59** (DCN:11-19/1826r2)
  36. Move to add the following text to the 11bd SFD
  37. “One of the Midamble Periodicity is 8.”
  38. Moved: Prashant Sharma
  39. Second: Dongguk Lim
  40. No Discussion
  41. Result: Motion passes unanimously
  42. **Motion #60** (DCN:11-19/1826r2)
  43. Move to add the following text to the 11bd SFD
  44. “One of the Midamble Periodicity is 16.”
  45. Moved: Prashant Sharma
  46. Second: Dongguk Lim
  47. No Discussion
  48. Result: Motion passes unanimously
  49. **Motion #61** (DCN:11-19/1826r2)
  50. Move to add the following text to the 11bd SFD
  51. “Only three Midamble periodicity options are defined in 11bd. The fourth option is Reserved.”
  52. Moved: Prashant Sharma
  53. Second: Dongguk Lim
  54. Discussion:
      1. Comment that there is value in having more options, including an option for no midamble.
      2. Comment that based on simulation results there isn’t much value in more variety. And the 16 value can be used for short packet to cause it to have no midamble if desired.
      3. Comment to change the wording from “reserved” to “TBD”. That means it would still be possible to be defined in 11bd.
      4. Comment: would also prefer to have a no midamble option.
      5. Comment: in a doppler environment with no midamble its not good. The option of 16 could be used in low doppler cases. From chip design point of view don’t think we need another option
      6. Comment: also believe that a no-midamble option would be good for non-motion use cases such as EV charging communication. No midable should be one of the 4 options.
      7. Comment: we should always support the midamble.
      8. Comment: if we decide to use more coding than just LDCP, such as BCC, we could use these bits.
  55. Result: Y13/N5/A10 Motion Fails
  56. **Motion #62** (DCN:11-19/1784r2)
  57. Move to add the following text to the 11bd SFD
  58. “NGV shall allow Broadcast and Mulitcast reception feedback using Ack or BlockAck scheme. Upper layer initiates BlockAckReq and selects the recipients.”
  59. Moved: Bahar Sadeghi
  60. Second: James Lepp
  61. Discussion: Comment on block ack scheme. MAC ad-hoc discussion was leaving it open to be ACK or BlockACK, can be decided later. Comment about interaction with aggregation in broadcast MSDU.
  62. **Motion to Amend the text as follows:**
  63. Move to add the following text to the 11bd SFD
  64. “NGV shall allow Broadcast and Mulitcast reception feedback using. Upper layer initiates Ack request and selects the recipients.”
  65. Moved: Bahar Sadeghi
  66. Second Joe Levy
  67. Result of motion to amend: Y11 /N0 /A9
  68. Comment on the word broadcast
  69. Comment on BSM use case vs platooning use case
  70. Friendly amendment to the text agreed by mover and seconder to remove the word Broadcast
  71. Friendly amended motion:
  72. Move to add the following text to the 11bd SFD
  73. “NGV shall allow Mulitcast reception feedback. Upper layer initiates Ack request and selects the recipients.”
  74. Result of the amended motion: Y13 /N5 /A7 Motion Fails
  75. Motion on next slide never moved (IEEE 802.11-19/0514r11 slide#70)
  76. **Motion #63** (DCN:11-19/1824r1)
  77. Move to add the following text to the 11bd SFD
  78. “NGV PPDU modulated with BPSK and DCM shall power boost L-STF and L-LTF by 3dB.”
  79. Moved: Rui Cao
  80. Second: Dongguk Lim
  81. No Discussion
  82. Result: Motion passes unanimously
  83. **Motion #64** (DCN:11-19/1824r1)
  84. Move to add the following text to the 11bd SFD
  85. “NGV PPDU modulated with BPSK shall power boost L-STF and L-LTF by 3dB.”
  86. Moved: Rui Cao
  87. Second: Dongguk Lim
  88. No Discussion
  89. Result: Motion passes unanimously
  90. **Motion #65** (DCN:11-19/1824r1)
  91. Move to add the following text to the 11bd SFD
  92. “NGV SIG field shall include the following bits with bit order TBD:
  93. • BW: 1 bit
  94. • MCS: 4 bits
  95. • Nss: 1 bit
  96. • Midamble periodicity: 2 bits
  97. • LDPC Extra symbol: 1bit
  98. • LTF format: 1 bit
  99. • Tail bit: 6 bits.”
  100. Moved: Rui Cao
  101. Second: Dongguk Lim
  102. No Discussion
  103. Result: Motion passes unanimously
  104. **Motion #66** (DCN:11-19/1824r1)
  105. Moved: Ioannis Sarris
  106. Second:
  107. Move to add the following text to the 11bd SFD
  108. NGV adds a new spectrum mask definition for 20 MHz Class C2
  109. 
  110. Moved: Ioannis Sarris
  111. Second: Joseph Levy
  112. No Discussion
  113. Result: Motion passes unanimously

## Motion on the draft (802.11-19/1740r4 slide 23)

* 1. Discussion about the motion to create a draft spec
  2. Comment that this is just to put it together to see what it looks like. Not approved by the TG.
  3. Discussion about editorial license to update references and concepts.
  4. Comment that the editor can put notes in where there are conflicts or issues.
  5. Question about motions we just passed today. Comment that they were all edits to SFD.
  6. Clarification that “latest revisions” means the version that is on the server at the time this motion is run. (Secretary note: 14-Nov-2019 16:44:57 ET timestamp on Mentor)
  7. **Motion for creating draft specification:**
  8. Instruct the editor to create 802.11bd draft 0.1 based on the latest revisions of the following member contributions on mentor:
  9. DCNs 11-19/2040, 2054, 1982, 2015, 1894, 2056, 1846, 1860, 2026, 1848, 1859, 2027, 2028, 1861, and 1862
  10. And place the draft in the members area for task group review and comment.
  11. Moved: Joseph Levy
  12. Seconded: Dongguk Lim
  13. No Discussion
  14. Result: Y24/N0/A0 Motion Passes
  15. Secretary’s Note: At the time of the motion the document revision numbers posted on Mentor were as follows: 2040r1, 2054r0, ~~1982~~, 2015r2, 1894r1, 2056r0, 1846r0, 1860r0, 2026r0, 1848r1, 1859r0, 2027r0, 2028r0, 1861r0, and 1862r0

## Technical Motions (802.11-19/1891r11)

* 1. **Motion #67** (DCN:11-19/1824r1)
  2. Move to add the following text into Section 3 of 11bd SFD? “NGV SIG field shall use 4-bit CRC.”
  3. Moved: Rui Cao
  4. Second: Dongguk Lim
  5. No Discussion
  6. Result: Motion passes unanimously
  7. **Motion #68** (DCN:11-19/1824r1)
  8. Move to add the following text into Section 3 of 11bd SFD? “NGV-LTF and Midamble field shall use repeated NGV-LTF-2x when NGV Data is modulated using BPSK-1/2 with DCM”
  9. Moved: Rui Cao
  10. Second: Dongguk Lim
  11. No Discussion
  12. Result: Motion passes unanimously
  13. **Motion #69** (DCN:11-19/1824r1)
  14. Move to add the following text into Section 3 of 11bd SFD? “Repeated NGV-LTF-2x is constructed by repeating the IFFT output of NGV-LTF-2x and pre-append one cyclic prefix of duration 1.6µs”
  15. Moved: Rui Cao
  16. Second: Alessio Filippi
  17. Friendly amendment removed the word “twice” to better clarify the English to what the mover meant.
  18. No Discussion
  19. Result: Y16 /N0 /A5 Motion Passes
  20. **Motion #70** (DCN:11-19/1824r1)
  21. Move to add the following text into section 3 of the 11bd SFD? “NGV-LTF-2x, NGV-LTF-1x and Data symbols shall define the same pilot location”
  22. Moved Rui Cao
  23. Second: Alessio Filippi
  24. Question about wording: is it called “pilot” or “continuous pilot”. Mover responds pilot
  25. Result: Y15 /N0 /A5 Motion Passes

## Technical Presentation (802.11-19/1892r0)

* 1. Presentation by Ioannis Sarris
  2. Discussion
     1. Which option do you like the best?
     2. Response: not sure yet. There are benefits and drawbacks to each. Also question about feasibility.
     3. Comment that there is also another submission on the non-triggered mode.
     4. Comment from the chair that there are a few other presentations on positioning/ranging but we don’t have time today.

## Closing Report (no document number yet)

* 1. Chair presented the closing report with latest information from this session
  2. Chair asks if there is any other business
  3. Chair adjourns the meeting at 12:23pm

# Next Meetings

Face to face:

Hotel Irvine, Irvine, California, USA, January 13, 2019

Teleconferences:

December 3, 2019, 9-11am EST

December 17, 9-11am EST