IEEE P802.11
Wireless LANs

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| Minutes for REVmd - Jan 2019 - St Louis |
| Date: 2019-01-17 |
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Abstract

Minutes of the 802.11md (REVmd) task group during the January 2019 802 Wireless Interim in St. Louis, MO.

1. **802.11md (REVmd) Meetings – January 2019 802 Wireless Interim- St. Louis– Monday PM1: 13:30-15:30**
	1. **Called to order** at 1:32pm by the chair, Dorothy STANLEY (HPE)
	2. **Review patent policy**
		1. No issues noted.
	3. **Review Participation Policy**
	4. **Review Agenda:**
		1. [**https://mentor.ieee.org/802.11/dcn/18/11-18-2084-01-000m-2019-january-tgmd-agenda.pptx**](https://mentor.ieee.org/802.11/dcn/18/11-18-2084-01-000m-2019-january-tgmd-agenda.pptx)

**Monday PM1**

1. Chair’s Welcome, Policy & patent reminder
2. Approve agenda
3. Status, Review of Objectives, Editor Report
4. Emily Qi (Intel) – 11-19-0040 – MIB variable deprecation
5. Jerome HENRY (Cisco) 11-18-1919
6. Available presentations and comment resolution

**Tuesday PM1**

1. Thomas DERHAM (Broadcom)- 11-18/2028r0 and 11-19/0069r1

**Wednesday PM1**

1. Available presentations and comment resolutions
2. Yunsong YANG (Huawei)- 11-18-1989 followup
3. (?) Matthew FISCHER (Broadcom): 11-18-1438

**Thursday PM1**

1. Available presentations and comment resolutions
2. Motions
3. Plans for January – March 2019
4. Adjourn
	* 1. Discussion of Agenda
			1. Jerome was not present today move to Tuesday
			2. Jouni – 11-19/58r1 would like to present today.
			3. Mark RISON Resolution to CID 1388 in doc 11-18/1306 was missed.
			4. Sean COFFEY would like time on Wednesday. – Reduced Capability HT devices
			5. Menzo – doc 11-19/106 – Station Renaming - request time today or tomorrow
			6. Menzo – introduce two new comments that are in the new LB – MIB names
			7. Review the request from 11-18/1306
				1. Check if the references are still applicable
				2. Take proposed change and craft a motion
		2. **Motion #S1** to approve Agenda 11-18/2084r2
			+ 1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-02-000m-2019-january-tgmd-agenda.pptx>
			1. Moved: Michael MONTEMURRO 2nd: Jim PETRONIVICH
			2. Results Motion #S1: Unanimous approval
	1. **Review LB236 Results**
		1. The recirculation Working Group Letter Ballot on P802.11REVmd D2.0 has completed. The approval percentage was **92.56%**. Thus the ballot passed (75% required).
		2. 723 comments were received
		3. Plan to resolve over this week, March and May then next LB.
	2. **Editor Report 11-17/0920r14** Emily QI (Intel)
		1. <https://mentor.ieee.org/802.11/dcn/17/11-17-0920-14-000m-802-11revmd-editor-s-report.ppt>
		2. Reference Documents:
			1. **Draft: P802.11REVmd D 2.0 (members’ area)**

[Draft P802.11REVmd\_D2.0.pdf](http://www.ieee802.org/11/private/Draft_Standards/11md/Draft%20P802.11REVmd_D2.0.pdf)

[Draft P802.11REVmd\_D2.0 Redline Compared to D1.6.pdf](http://www.ieee802.org/11/private/Draft_Standards/11md/Draft%20P802.11REVmd_D2.0%20Redline%20Compared%20to%20D1.6.pdf)
[Draft P802.11REVmd\_D2.0 Redline Compared to D1.0.pdf](http://www.ieee802.org/11/private/Draft_Standards/11md/Draft%20P802.11REVmd_D2.0%20Redline%20Compared%20to%20D1.0.pdf)

* + - 1. **D2.0 word docs are also available (member’s area) for preparing submissions.**

[Draft P802.11REVmd\_D2.0rtfs.zip](http://www.ieee802.org/11/private/Draft_Standards/11md/Draft%20P802.11REVmd_D2.0rtfs.zip)

* + - 1. **LB236 Comments**

<https://mentor.ieee.org/802.11/dcn/18/11-18-0611-13-000m-revmd-wg-ballot-comments.xls>

* + - * 1. Review title page and file structure
		1. Comment allocation:



* + - 1. EDITOR: Editorial comments from clause 1 to clause 9, plus non-clause specified.
			2. EDIROT2: Editorial comments from clause 10 to the end.
			3. GEN: Technical comments from clause 1 to clause 8, plus, non-clause specified.
			4. MAC: Technical comments from clause 9 to clause 11
			5. PHY: Technical comments from clause 12 to the end.
		1. Review comments by Commenters
			1. Thanks to those that provided comments
	1. **Review Doc 11-19/40r1** – Emily QI (Intel)
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0040-01-000m-text-changes-on-deprecating-a-mib-varable.doc>
		2. Text changes on deprecating a MIB Variable
		3. Review procedures for Deprecating a MIB Variable
		4. Suggestion to add an example and revise.
	2. **Review doc 11-19/58r1** – Jouni MALINEN (Qualcomm)
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0058-01-000m-oct-issues.docx>
		2. Propose to resolve CID 2200, 2589 and 2706
		3. Review the Abstract:

IEEE P802.11-REVmd/D2.0 extended on-channel tunneling in a way that is both confusing and also overly generic to the point of allowing operations that could result in undesired operations and potentially even new security issues due to enabling new vectors for potential man-in-the-middle attacks.

The naming of the new Public Action frame is problematic since we now have two frames with the exact same name: On-channel Tunnel Request frame (see 9.6.7.47 and 9.6.20.7). It is unclear which one of those frames is being referenced. Furthermore, 9.6.7.47 seems to be using "robust On-channel Tunnel Request frame" and "non-robust On-channel Tunnel Request frame" to talk about these frames in a manner that is not fully consistent with the use of robust management frames. Furthermore, these "robust" and "non-robust" are not part of the frame names.

It looks the goal here was to provide an option of sending out an On-channel Tunnel Request frame in non-associated state (the original On-channel Tunnel Request frame is a Class 3 frame and would not allow that use case). Based on my understanding of this use case, this new frame is supposed to be allowed to be used only as an individually addressed frame targeting a specific AP on one band (mainly, 2.4 GHz or 5 GHz) when performing operations targeting another band of the same set of collocated APs (mainly, a radio on 6 GHz). The added text in REVmd/D2.0 did not clarify this or added the constraints to cover this need without opening possibility of group-addressed requests or tunneling to a completely unrelated AP. These constraints should be added to avoid misuse of this new extended functionality.

When tunneling a Probe Response frame, the description of the Timestamp field processing needs to be clearer. That field needs to be reserved since TR-MLME may not be able to synchronize with NT-MLME to get the correct TSF value and the update of that value when sending the Public Action frame would be unclear at best (the Timestamp field is in a different offset within the On-channel Tunnel Request frame and transmitted by a different radio). This was mentioned only in the MLME primitive description where it is easy to miss, so adding a clearer statement in the clause describe OCT procedure would be helpful.

This contribution proposed changes to address these issues.

* + 1. Discussion on if the changes will address all the issues noted or not (two frames with the same name).
		2. Review proposed changes
		3. Discussion on how to do Tunnelling and the use of the RA
		4. Change to add “The OCT procedure can be used both with the OCT MLME primitives and to transmits a response to a received ON-channel Tunnel request….”
		5. In 11.32.5 change “the OCT” to “OCT”
		6. Update the new paragraph being added on page 4.
		7. Discussion on the use of “may” or “shall”
		8. Change the paragraph sentence order and convert the first sentence to a “Note”
		9. New version of 11-19/58r2 is created to bring for motion to resolve the three CIDs.
		10. The assigned groups for the CIDs 2200 (MAC), 2589 (MAC), 2706 (GEN):
		11. Move CID 2706 to MAC AdHoc
		12. Proposed Resolution: Incorporate the changes in 11-19/58r2 <[https://mentor.ieee.org/802.11/dcn/19/11-19-0058-02-000m-oct-issues.docx](https://mentor.ieee.org/802.11/dcn/19/11-19-0058-02-000m-oct-issues.docx%20) > that addresses the OCT functionality.
		13. No objection - Mark Ready for Motion
	1. Review CID 1388 in 11-18/1306r14 Mark RISON (Samsung)
		1. <https://mentor.ieee.org/802.11/dcn/18/11-18-1306-06-000m-resolutions-for-some-comments-on-11md-d1-0-lb232.docx>
		2. Review the proposed change
		3. The Comment was motioned initially as a reject and moved to Editor then it was agreed to a new resolution on a telcon, but the database did not get updated correctly.
		4. This has been presented several times.
		5. This also resolves CID 2575.
		6. Motion 91:

Delete the NOTE at the end of 19.2.4:

NOTE—Support of 20 MHz non-HT format and 20 MHz HT format with one and two spatial streams is mandatory at APs. Support of 20 MHz non-HT format and 20 MHz HT format with one spatial stream is mandatory at non-AP STAs.

Change the second columns of the rows for dot11SupportedHTMCSTxValue and dot11SupportedHTMCSRxValue in Table 19-24 as follows:

MCS 0–76 for 20 MHz;

MCS 0–76 for 40 MHz

(MCS 0–7 for 20 MHz

mandatory at non-AP STA and at AP that is a VHT AP;

MCS 0–15 for 20 MHz

mandatory at AP that is not a VHT AP)

P3666 Change the fourth column for the rows for HTP2.3.2.1 to HTP2.3.2.8 in B.4.17.2 as follows:

(CFHT AND

CFAP AND

NOT CFVHT):M

(CFVHT AND

CFAP):O

(CFHT AND

NOT CFAP):O

* + 1. Moved: Mark RISON Seconded: Mike MONTEMURRO
		2. Result Motion #91: 13-0-0 motion passes
	1. **Review doc 11-19/106r0** – Menzo WENTINK (Qualcomm)
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0106-00-000m-sta-and-ap.docx>
		2. Abstract: This document proposes a modified nomenclature for STA and non-AP STA
		3. 18000 instances of STA.
		4. Discussion on the use of STA, non-AP STA and the variety of similar names.
		5. Review the proposed renaming
		6. When a paragraph starts with non-AP STA and then uses “the STA” later in the paragraph.
		7. Discussion on the value of “non” names.
		8. The “non-AP STA” name could apply to other type of STAs that is not an AP. i.e. Mesh STA, etc.
		9. Could an AU term be used for the old STA that is not an AP that is only infrastructure or not?
		10. Can we find a new term that covers all the cases that covers the non-AP (non-master) in the system?
		11. This may be a good thing to change, but the timing of this may be considered as this may be very significant effort to make the change and get it right.
		12. Introducing a new unit may be problematic, and it may be sufficient to use STA and AP.
		13. Recirculation ballot is not the best place/time to do this, but it maybe better to have the ARC SC review and provide an improved description.
		14. Discussion of the cost/value of making this change.
		15. Proposed Resolution CID 2661: Reject – The proposal would cause changes in over 18,000 locations and does not provide sufficient detail to address each location. The comment was discussed at length and some sympathy for changing the terminology to improve the understandability of the draft. Another point that was discussed was the probability of introducing errors is very high with a broad change as suggested. The terminology should be a work item in the ARC SC. If there are specific areas where the language is incorrect, these areas should be targeted for correction.
	2. Recess at 3:30pm
1. **802.11md (REVmd) Meetings – January 2019 802 Wireless Interim- St. Louis– Tuesday PM1: 13:30-15:30**
	1. **Called to order** at 1:35pm by the chair, Dorothy STANLEY (HPE)
	2. **Review patent policy**
		1. No issues noted.
	3. **Review agenda**
		1. Leaning toward cancelling the Thursday slot, and moving our planned motions from that slot to the Wed PM1 slot.
		2. Dorothy put the question to the group. No objections.
		3. So, that will be our approved updated agenda plan.
		4. **Tuesday PM1**
2. Thomas DERHAM (Broadcom)- 11-18/2028r0 and 11-19/0069r2
3. Menzo WENTINK (Qualcomm)– discussion – MIB names 2659, 2658, 2660,2662
4. Po-Kai HUANG (Intel) - 11-19-146
5. Mike MONTEMURRO (Blackberry) – Security CIDs
	* 1. No objection to agenda plan.
		2. See 11-18/2084r3: <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-03-000m-2019-january-tgmd-agenda.pptx>
	1. **Review Documents 11-18/2028 -** Thomas DERHAM (Broadcom):
		1. CID 2695 (11-18/2028r0):
			1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2028-00-000m-wfa-oce-reserved-bits.doc>
			2. Wi-Fi Alliance's Optimized Connectivity program (as referenced at the URL in the abstract in Thomas' document) is using bits in the FILS Discovery frame. This proposal is to help cover this usage with a Reserved usage pattern in 802.11.
			3. Concern that this sets a precedent that external organizations are free to just use bits in our control, and hope/assume that we will protect such use for them, after the fact. Would like to encourage such groups to come to IEEE 802.11 first and ask for the bits.
			4. But, accept the changes for now, this time, if we also take steps to try to prevent this happening in the future.
			5. Are these bits under ANA control? Should they be? Not sure.
			6. Emily will check.
			7. Suggest we direct a liaison (ask the TG Chair to draft) to the Wi-Fi Alliance with a "tutorial" on how to request bits. Can reference 11-11/270r44 as the instructions for how to make a request to ANA.
			8. Proposal: Make no changes to the REVmd draft but put the reservation of these bits for Wi-Fi Alliance use, in the ANA database.
			9. Note that ANA will take management of the FILS Discovery Frame Control subfield, to do that.
			10. So, the CID will be "Rejected", capturing the gist of the above as the action to put this field under ANA management.
			11. Thomas has the action to draft the liaison the Wi-Fi Alliance, and the Editor will craft a Reject reason and bring back.
	2. **Review doc 11-19/0069r2** - Thomas DERHAM (Broadcom):
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0069-02-000m-ocv-with-oct.docx>
		2. CID 2688 -
			1. Operation Channel Validation (OCV) was introduced during REVmd, to address some KRACK attack vectors. But, the use of OCV in the context of On-Channel Tunneling (OCT) is unclear/insufficient as written in the current draft.
			2. This adds fields to the OCI element/subelement to provide information about the channel used for OCT so it is also covered.
			3. Reviewed details of proposal.
			4. Second figure is the OCI subelement format.
			5. The second subtopic - covered at the bottom of page 2 (the added paragraphs should be underlined) - is a possibility of out-of-order reception of the Management frames sent over OCT and not over OCT.
			6. In the middle of page 2, "over the WM" should have the same clarification as elsewhere of "not using OCT"
			7. Should the 20 TUs for the over-the-WM-enabled by a MIB variable? Agreed, yes.
			8. Aren't the first and last sentence of the last paragraph on Page 2 mutually exclusive? A: No, the first sentence is only for the AP transmitting, the second would apply (at least) to a non-AP STA transmitting.
			9. "On-channel tunneling" should not have an upper-case "O". Or, just use OCT everywhere.
			10. Last paragraph at the bottom of page 3 should not be underlined (it is baseline text)
			11. Last paragraph of document needs to specify when the fields are optional or used.
			12. There is a combination of rules in the current draft that result in precluding this combination from ever happening. There is a comment on D2.0 asking for the critical sentence to be deleted, which would allow this. But, that has not been discussed yet. The speaker will be opposed to such a deletion, because there is no known justification of a use case for the change, and it opens many issues, this one included.
			13. Suggest Rejecting this CID, using the existing sentence as the rationale for why this can't happen. If, when we consider the other CID, we allow this to happen, we can come back to this.
			14. Thomas suggests a use case for the other CID's change is: a STA with an association to an AP on a 6 GHz channel might chose to offload some management frame exchanges to 5 GHz. It could be done with OCT.
			15. The other CIDs are 2073, 2217.
			16. Suggest we table this CID for now, until we discuss those other CIDs formally.
			17. Thomas will revise this document, removing the contentious part related to the other CIDs, and bring this back as an r3, for review tomorrow.
	3. **Discussion misc comments**: Menzo WENTINK (Qualcomm)-
		1. CID 2659 (EDITOR2)
			1. Example in first paragraph of 11.41.
			2. The problem with the hyphen idea is that it means the spec can't be searched and find these uses of the variable.
			3. There is no known way to fix the hyphen problem.
			4. We agree that searching is critical, and more important than the Standard looking nice(r).
			5. Editor will investigate if there is a way to make the MIB variables (and only the MIB variables, not other words) non-breakable.
		2. CID 2658 (EDITOR)
			1. We have to adhere to the IEEE Style Guide.
			2. Can we look at removing the acronyms of the sub terms.
			3. We'll look at this off-line, and brain-storm ideas for solution that still meets the Style Guide.
		3. CID 2662 (PHY):
			1. Discussion of what it is value of Annex G
			2. We've discussed this before, many times. Removing Annex G is not trivial.
			3. Request to reject with similar reject reason.
			4. Mike MONTEMURRO will craft a REJECTED with reason.
			5. Graham SMITH has done work on this and might bring it back.
		4. CID 2660 (editor)
			1. Need to check the Style Guide
			2. Suggestion is to add "between" to clause 1.4, similar to "x-y".
			3. Menzo to provide a “between” reason to the location that Mark R indicated, (1.4)
	4. **Review doc 11-19/146r0 -** Po Kai HUANG (Intel):
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0146-00-000m-multiple-bssid-probe-response-clarification.docx>
		2. This clarifies how Probe Response works with Multiple BSSID.
		3. Reviewed proposed changes to make only the transmitted BSSSID respond to a broadcast Probe Request, or a directed Probe Request to any of the BSSIDs.
		4. C: For the FILS case, we need to keep the paragraph near the end.
		5. Alternative approach suggestion: at the start of the list in 11.1.4.3.4, say to apply the rules to all the BSSIDs (if doing multiple BSSID) and if any BSSID would reply, then the transmitted BSSID shall reply, otherwise it shall not reply.
		6. The corner case of one BSSID matching the BSSID and another BSSID matching the SSID should result in a response, which includes the multiple BSSID element indicating both these BSSIDs.
		7. Disagreement on prior statement. There are lots of criteria that narrow down the responses wanted, for example HESSID, etc. So, we need to continue the idea that each qualifier in the Probe Request is "AND"d, and only BSSIDs matching all criteria will respond.
		8. C: If there is a use case for the individual criteria matching style, that should be added as a new facility.
		9. Why does the Transmitted BSSID have to respond when a desired BSSID was requested?
	5. Recessed 3:31 pm
6. **802.11md (REVmd) Meetings – January 2019 802 Wireless Interim- St. Louis– Wednesday PM1: 13:30-15:30**
	1. **Called to order** at 1:35pm by the chair, Dorothy STANLEY (HPE)
	2. **Review patent policy**
	3. **Review agenda** (r3)
		1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-03-000m-2019-january-tgmd-agenda.pptx>
		2. Discussion on keeping Thursday PM1; No need to release Thursday PM1.
			1. The need to have us release was not as urgent when RTA TIG released a slot on Thursday.
		3. **Wednesday PM1/Thursday PM1**
7. Motions
8. Yunsong YANG (Huawei)- 11-18-1989 follow-up
9. Sean COFFEY (Realtek)– Reduced capability HT devices
10. Stephen MCCANN (Blackberry)- 11-19-0134
11. Mike MONTEMURRO (Blackberry)– Security CIDs
12. (?) Matthew FISCHER (Broadcom): 11-18-1438
13. Motions
14. Plans for January – March 2019
15. Jerome HENRY (Cisco) 11-18-1919
16. Adjourn
	* 1. No objection to the updated Agenda plan See 11-18/2048r4
			1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-04-000m-2019-january-tgmd-agenda.pptx>.
	1. **Motions:**
		1. **Motion #92 Jan 2019 CID 2661**
		2. **Resolve CID 2661 as “Rejected” with a resolution of**

“The proposal would cause changes in over 18,000 locations and does not provide sufficient detail to address each location. The comment was discussed at length and while there was some sympathy for changing the terminology to improve the understandability of the draft, the probability of introducing errors is very high with the broad change as suggested. Also, if there are specific areas where the language is incorrect, these areas should be targeted for correction.”

* + - 1. Moved: Michael MONTEMURRO 2nd: Edward AU
		1. **Results Motion #92: 14-0-0 Motion Passes**
	1. **Review Editor CIDs prior to motion**
		1. Change Resolution of 2420 to Accept. The Proposed change for 2419 and 2420 are essentially the same comment with two different proposed changes. The Editor made the resolution the same as “Revised…”, but the resolution could be an Accept for CID 2420
		2. CID 2569 (EDITOR):
			1. Move 9.3.3.1 should be moved to 1.4
			2. No objection to move it.
			3. Mark ready for Motion
		3. **Motion #93**:
			1. **Approve the comment resolutions in the**

“Motion-EDITOR-H” tab in 11-19/0142r1: <<https://mentor.ieee.org/802.11/dcn/19/11-19-0142-01-000m-revmd-wg-lb236-comments-for-editor-ad-hoc.xls>> Except for CID 2420.

Approve the resolution of CID 2420 as “Accepted” with a note to editor: “Indicated changes are: 1175.1, 1182.7, and 2327.58, change "Event Type" to "event type".”

and incorporate the indicated changes into the TGmd draft.

* + 1. **Moved: Emily QI 2nd: Jouni MALINEN**
		2. **Result of Motion #93: 11-1-3 Motion Passes**
	1. **Review Doc 11-19/114r0** Yunsong YANG, (Huawei)
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0114-00-000m-text-proposal-for-protecting-twt-action-frames.doc>
		2. CID 2715 (MAC) and CID 2716 (MAC)
		3. Review submission
		4. Discussion on “integrity protection”. Is this a different way to send frames?
		5. The intention is not to create something new, but rather to show that it is always protected when used.
		6. Discussion on if the protected management frames could be sent unprotected.
		7. How does calling a frame “robust” provide for protection or not. The integrity bit being added would provide the protection.
		8. Discussion on how projection rules apply and how the different frames are protected or not.
		9. Proposal for 9.6.26.5.6 to be moved to clause 10.
		10. The intent is to use frames that are encrypted or protected.
		11. A new comment may be used to fix some of the issues discussed.
		12. Discussion on how to provide protection for S1G.
		13. The discussion on if the Capability Bit is needed or not.
		14. Discussion on when we have a way to indicate when the protected version of a frame is to be used.
		15. The discussion seemed to lean toward option 1 in the submission.
		16. The Author will take the feedback and bring back a new revision.
		17. There will need to be a new RSN Extension Element as all the bits are taken in the RSN capability.
		18. Change in 9.6.25.6 to drop the use of “protected”.
		19. Request to not use “through” but use “to”
		20. Delete “with which management frame protection is negotiated” from the 3rd bullet as it is stated prior to the bulleted list.
		21. Discussion on if there are other frames that need a protection version that has not defined, and if so could we make a list and have a single bit for them. This was not agreed as having too much under one-bit definition would not work.
		22. Adhoc Notes: MAC: 2019-01-16 20:27:45Z: Discussed 11-19/0114r0 in Jan F2F, gave feedback to Yunsong, and he'll bring it back.
		23. Expect new version on a telecon or at the March Session.
	2. **Review Doc 11-19/0134r1** – Stephen MCCAAN (Blackberry)
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0134-01-000m-mac-address-policy-anqp-element.docx>
		2. Title: MAC address policy ANQP-element
		3. Abstract: This document proposes a new MAC address policy ANQP-element. This enables a STA to advertise that it has a relationship with a BSS that assigns MAC addresses based on a locally administered scheme.
		4. CID 2685 (PHY)
			1. Review submission
			2. Question on if this is pre or post association.
			3. This is a hint about what to use when associated with a BSS.
			4. Discussion on “discover” usage.
			5. Discussion on the way the address policy is described as values rather than as masked capability bits.
			6. Why have this as a “hint” rather than just the information of the features of the BSS? This is a problem of not being able to fully trust the ANQP response or a response of other type that had this info prior to association.
			7. Need to indicate when the optional CID is present explicitly.
			8. Suggest including a bit map for mandatory and if the CID is present etc.
			9. MAC Address allowed field may be better than listing a set of values.
			10. Document to be updated based on comments received during presentation.
			11. Discussion on how this information is controlled. MIB variable and when it is activated was discussed.
			12. Discussion on the usage by an IBSS and any neighbour IBSS.
			13. A revision will be brought back later.
	3. **Review doc 11-19/181r0** - Reduced capability HT devices – Sean COFFEY (Realtek)
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0181-00-000m-reduced-capability-ht-devices.pptx>
		2. Abstract:

For very low power Wi-Fi IoT applications operating at 2.4 GHz, designers currently must choose between baseline 802.11 (DSSS), 11b (HR), 11g (ERP), and 11n (HT).

Each poses problems:

* ERP devices are required to support 1, 2, 5.5, 11 HR/DSSS and 6, 12, and 24 Mbps rates: the OFDM rates are burdensome and the data rates are often overkill
* HT adds STBC (good), but also 8 more OFDM rates, extending to 65 Mbps (very bad)
* But DSSS- and HR/DSSS-only devices don’t do any OFDM preamble detect, require single-tone protection modes, increasing time on air and lowering power consumption for all devices in the BSS, including themselves

IoT applications and requirements are very heterogeneous, and Wi-Fi is widely perceived to be “high power” in this market segment. It would be useful to widen the design space by allowing allow reduced functionality HT devices.

This presentation introduces a way of achieving this

* + 1. CID 2186 (PHY)
			1. Presentation of submission
			2. Discussion on the value of RC-HT STA.
			3. Reducing the requirements that device has to support should simplify the device.
			4. There may need to have a PICs description as well.
		2. Sean will bring back an updated submission.
	1. Recess at 3:31pm
1. **802.11md (REVmd) Meetings – January 2019 802 Wireless Interim- St. Louis– Thursday PM1: 13:30-15:30**
	1. **Called to order** at 1:35pm by the chair, Dorothy STANLEY (HPE)
	2. **Review patent policy**
	3. **Review agenda (11-18/2048r4)**
		1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-04-000m-2019-january-tgmd-agenda.pptx>
		2. **Thursday agenda:**
2. Po-Kai HUANG (Intel)– 11-19-146 - revisit
3. Mike MONTEMURRO (Blackberry) – Security CIDs
4. Thomas DERHAM (Broadcom) – Liaison in 11-19-185
5. Matthew FISCHER (Broadcom): 11-18-1438
6. Motions
7. Plans for January – March 2019
8. Jerome HENRY (Cisco) - 11-18-1919
9. Adjourn
	* 1. No changes from what was in R4 as agreed yesterday.
	1. **Review doc 11-19/146r2** Po-Kai HUANG (Intel)
		1. <https://mentor.ieee.org/802.11/dcn/19/11-19-0146-02-000m-multiple-bssid-probe-response-clarification.docx>
		2. CID 2010 (MAC)
			1. Review submission
			2. Review updates that were made to R2
			3. Discussion on the changes.
				1. Editorial changes were discussed getting some articles and change of any to a.
				2. Remove the first paragraph added and replace with “See 11.1.4.3.4 for the rules governing transmission of Probe Response frames in a multiple BSSID set. (#2010).”
				3. Then on the last paragraph being changed was reviewed and there were some editorial changes that may be needed still, but we can do that offline.
				4. Needed to add an “only” added to the STA corresponding to the transmitted BSSID.
				5. Discussion on removing the “only” and rewording the paragraph.
		3. An R3 will be uploaded. And then we can consider a motion later in meeting.
		4. Proposed Resolution: CID 2010 (MAC): REVISED (MAC: 2019-01-17 20:00:07Z): Incorporate the changes shown in 11-19/0146r3 (<https://mentor.ieee.org/802.11/dcn/19/11-19-0146-03-000m-multiple-bssid-probe-response-clarification.docx>). These changes clarify the behavior as requested.
		5. Mark ready for Motion
	2. **Review Security CIDs –** Michael MONTEMURRO (Blackberry)
		1. CID 2211 (PHY)
			1. Review the comment
			2. See context of 2600l58.
			3. Proposed Resolution: Accept
			4. Mark Ready for Motion
			5. Similar to Motion #85 (FILS-AKM) and 11-18/1924r1.
			6. There is a bug in the submission, but this will fix it.
		2. CID 2454 (PHY)
			1. Review the Comment
			2. Consider removing the “assumption”
			3. Review the context of each change.
			4. The last change of the “in this example” should not be changed.
			5. Proposed Resolution: REVISED (PHY: 2019-01-17 20:14:16Z)
			6. At 2607.1 and 2626.15 and 2636.6 and 4465.13 change "Here, the following assumptions apply:" to "The following apply:". At 2609.1 change "the following assumptions apply:" to "the following apply:"
			7. No objection – Mark ready for motion
		3. CID 2208 (PHY)
			1. Review the comment
			2. Proposed Resolution: Accepted
			3. No objection – Mark Ready for Motion
		4. CID 2209 (PHY)
			1. Review the comment
			2. Proposed Resolution: Accepted
			3. No objection – Mark Ready for Motion
		5. CID 2210 (PHY)
			1. Review the comment
			2. Proposed Resolution: Accepted
			3. No objection – Mark Ready for Motion
		6. CID 2504 (PHY)
			1. Review the comment
			2. Discussion of the proposed changes.
			3. More discussion needed on the name of the IEEE 802.11 Key Descriptor. There is different capitalization on the 3 instances in the draft.
			4. Proposed Resolution: Accepted
			5. No Objection – Mark Ready for Motion
	3. **Liaison letter to WFA** – 11-19/0185 – Thomas DERHAM (Broadcom)
		1. Proposed LS to WFA on Reserved Usage
		2. <https://mentor.ieee.org/802.11/dcn/19/11-19-0185-00-000m-proposed-ls-to-wfa-on-reserved-usage.docx>
		3. Review the Liaison letter
		4. Minor editorial changes discussed.
		5. There is no official “Liaison Agreement” between the WFA and 802.11.
		6. Reference to the IEEE 802.11 standard corrected.
		7. R1 was created and will be uploaded.
		8. The chair will post R1 and a motion will be made in the 802.11 Closing Plenary.
	4. **Motions**
		1. **Motion S2:** **Approve prior TGmd minutes**
			1. **Approve the minutes of**

November 2018 meeting: <https://mentor.ieee.org/802.11/dcn/18/11-18-1708-01-000m-minutes-for-revmd-nov-2018-bangkok.docx>

July 2018 minutes (revised): <https://mentor.ieee.org/802.11/dcn/18/11-18-1066-01-000m-minutes-for-revmd-july-2018-san-diego.docx>

* + - 1. Moved: Jon ROSDAHL 2nd: Emily QI
			2. **Results Motion S2: Unanimous – motion passes**
		1. **Motion #94:** **CID 2010**
			1. Resolve CID 2010 as “Revised” with a resolution of “Incorporate the text changes in <https://mentor.ieee.org/802.11/dcn/19/11-19-0146-01-000m-multiple-bssid-probe-response-clarification.docx> into the TGmd draft. The changes resolve the comment in the direction suggested by the commenter.
			2. **Moved: Jouni MALINEN** **2nd: Emily QI**
			3. **Results Motion #94: 10-0-0 Motion Passes**
	1. **Review Document 11-19/1438r2**- Matthew FISCHER (Broadcom)
		1. <https://mentor.ieee.org/802.11/dcn/18/11-18-1438-02-000m-htc-field-vs-ppdu-format.docx>
		2. CID 2657 (MAC)
			1. Review comment
			2. Review proposed change
			3. Question on if this change was presented to TGax?
				1. The capability field will be so any STA could use the field, but it is not necessarily just an TGax change.
			4. Small edit on new text that did not get underlined.
			5. Removing the restriction for when the +HTC subfield can be 1.
			6. Discussion on the value making the change.
			7. Discussion on how complicated the change is relative to implementations.
			8. If the world all switched, then we could gain the benefit described, but as is, we would have to support the legacy for a long time.
			9. The quoted 11ax is not correct and refers to TGax D3.0 “Strictly ordered”.
			10. The author would like the task group to consider this to move forward.
			11. Will revisit the topic in March.
	2. **Plans for January – March 2019**
		1. **Objectives: Comment resolution**
		2. **Conference calls**
			1. February 1, 8, 15, 22, 2019 10am Eastern, 3 hours
		3. **Next ad-hoc:**
			1. Discussed possible dates.
			2. **Possible April 1-2-3 in Ft. Lauderdale**
			3. Will ask the WG for authorization of AdHoc first week of April.
			4. Graham and Mark RISON to check on ability to host AdHoc.
		4. **Schedule review**
			1. Target May for recirculation ballot
		5. **Availability of 11md D1.0 in the IEEE store**
			1. Request in to IEEE staff to make D2.0 available for sale
			2. Draft 1.0 is available for purchase, see <http://www.techstreet.com/ieee/products/vendor_id/7028>
	3. **Thanks to all for the work done this week.**
	4. **Adjourn 3:32pm**

**References:**

**Monday PM1:**

1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-01-000m-2019-january-tgmd-agenda.pptx>
2. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-02-000m-2019-january-tgmd-agenda.pptx>
3. <https://mentor.ieee.org/802.11/dcn/17/11-17-0920-14-000m-802-11revmd-editor-s-report.ppt>
4. [Draft P802.11REVmd\_D2.0.pdf](http://www.ieee802.org/11/private/Draft_Standards/11md/Draft%20P802.11REVmd_D2.0.pdf)
5. [Draft P802.11REVmd\_D2.0 Redline Compared to D1.6.pdf](http://www.ieee802.org/11/private/Draft_Standards/11md/Draft%20P802.11REVmd_D2.0%20Redline%20Compared%20to%20D1.6.pdf)
[Draft P802.11REVmd\_D2.0 Redline Compared to D1.0.pdf](http://www.ieee802.org/11/private/Draft_Standards/11md/Draft%20P802.11REVmd_D2.0%20Redline%20Compared%20to%20D1.0.pdf)
6. <https://mentor.ieee.org/802.11/dcn/18/11-18-0611-13-000m-revmd-wg-ballot-comments.xls>
7. <https://mentor.ieee.org/802.11/dcn/19/11-19-0040-01-000m-text-changes-on-deprecating-a-mib-varable.doc>
8. <https://mentor.ieee.org/802.11/dcn/19/11-19-0058-01-000m-oct-issues.docx>
9. [https://mentor.ieee.org/802.11/dcn/19/11-19-0058-02-000m-oct-issues.docx](https://mentor.ieee.org/802.11/dcn/19/11-19-0058-02-000m-oct-issues.docx%20)
10. <https://mentor.ieee.org/802.11/dcn/18/11-18-1306-06-000m-resolutions-for-some-comments-on-11md-d1-0-lb232.docx>
11. <https://mentor.ieee.org/802.11/dcn/19/11-19-0106-00-000m-sta-and-ap.docx>

**Tuesday PM1:**

1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-03-000m-2019-january-tgmd-agenda.pptx>
2. <https://mentor.ieee.org/802.11/dcn/18/11-18-2028-00-000m-wfa-oce-reserved-bits.doc>
3. <https://mentor.ieee.org/802.11/dcn/19/11-19-0069-02-000m-ocv-with-oct.docx>
4. <https://mentor.ieee.org/802.11/dcn/19/11-19-0146-00-000m-multiple-bssid-probe-response-clarification.docx>

**Wednesday PM1:**

1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-03-000m-2019-january-tgmd-agenda.pptx>
2. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-04-000m-2019-january-tgmd-agenda.pptx>
3. <https://mentor.ieee.org/802.11/dcn/19/11-19-0142-01-000m-revmd-wg-lb236-comments-for-editor-ad-hoc.xls>
4. <https://mentor.ieee.org/802.11/dcn/19/11-19-0114-00-000m-text-proposal-for-protecting-twt-action-frames.doc>
5. <https://mentor.ieee.org/802.11/dcn/19/11-19-0134-01-000m-mac-address-policy-anqp-element.docx>
6. <https://mentor.ieee.org/802.11/dcn/19/11-19-0181-00-000m-reduced-capability-ht-devices.pptx>

**Thursday PM1:**

1. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-04-000m-2019-january-tgmd-agenda.pptx>
2. <https://mentor.ieee.org/802.11/dcn/19/11-19-0146-02-000m-multiple-bssid-probe-response-clarification.docx>
3. <https://mentor.ieee.org/802.11/dcn/19/11-19-0146-03-000m-multiple-bssid-probe-response-clarification.docx>
4. <https://mentor.ieee.org/802.11/dcn/19/11-19-0185-00-000m-proposed-ls-to-wfa-on-reserved-usage.docx>
5. <https://mentor.ieee.org/802.11/dcn/18/11-18-1708-01-000m-minutes-for-revmd-nov-2018-bangkok.docx>
6. [mentor.ieee.org/802.11/dcn/18/11-18-1066-01-000m-minutes-for-revmd-july-2018-san-diego.docx](https://mentor.ieee.org/802.11/dcn/18/11-18-1066-01-000m-minutes-for-revmd-july-2018-san-diego.docx)
7. [mentor.ieee.org/802.11/dcn/19/11-19-0146-01-000m-multiple-bssid-probe-response-clarification.docx](https://mentor.ieee.org/802.11/dcn/19/11-19-0146-01-000m-multiple-bssid-probe-response-clarification.docx)
8. <https://mentor.ieee.org/802.11/dcn/18/11-18-1438-02-000m-htc-field-vs-ppdu-format.docx>
9. [www.techstreet.com/ieee/products/vendor\_id/7028](http://www.techstreet.com/ieee/products/vendor_id/7028)
10. <https://mentor.ieee.org/802.11/dcn/18/11-18-2084-05-000m-2019-january-tgmd-agenda.pptx>