IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comment Resolution on WUR Discovery | | | | |
| Date: 2018-11-07 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Rojan Chitrakar | Panasonic |  |  | Rojan.chitrakar@sg.panasonic.com |
| Lei Huang |  |  |  |
| Yoshio Urabe |  |  |  |
|  |  |  |  |  |
|  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This submission proposes resolutions of comments received from TGba comment collection (TGba Draft 1.0).

* CIDs: 38, 39, 151, 339, 607, 608, 611, 612, 783, 793, 794, 795, 860, 861, 939, 1188 (16 CIDs)

Revisions:

* Rev 0: Initial version of the document.

1. **Introduction**

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGba Draft. The introduction and the explanation of the proposed changes are not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGba Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGba Editor: Editing instructions preceded by “TGba Editor” are instructions to the TGba editor to modify existing material in the TGba draft. As a result of adopting the changes, the TGba editor will execute the instructions rather than copy them to the TGba Draft.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Page.Line | Clause | Comment | Proposed Change | Resolution |
| 38 | 64.12 | 31.10 | WUR discovery channels are defined for 2.4 GHz and 5 GHz. The 5 GHz channels should be explicit to non-DFS channels. Channels should be identified for 4.9 GHz . |  | **Rejected.**  The listed channels are only recommendations. Any WUR channel may be used to transmit WUR Discovery frames so special exception for WUR discovery channels is not required. DFS channels are already prohibited for transmission of WUR PPDUs (32.1 - P65L64). |
| 39 | 64.19 | 31.10 | There is text for Neighborhood Discovery but no text on a Neighborhood report. It is logical to use a similar Neighborhood report structure to 802.11ax. |  | **Rejected.**  The WUR Discovery element serves two purposes:  1) Advertise the transmitting WUR AP’s own WUR Discovery channel  2) Advertise neighbour WUR APs’ WUR Discovery channels. During the design phase, it was agreed not to reuse Neighbor Report element but to design a new element optimized for WUR Discovery use. |
| 151 | 64.15 | 31.10 | Can the STA uses something other than the WURx to scan the WUR discovery channels? Essentially these two "may" are a bit ambiguous. Please fix.Also in the last paragraph it says that the STA may further optimize scanning by using the infor received in the WUR Discovery element. But then it says that details on how to further optimize scanning are out of scope of the standard. Since the first sentence indicated how to optimize scanning then it is not out of scope of the standard. Please clarify. | As in comment. | **Revised.**  Agree in principle with the commenter. WURx is mentioned to make it clear that this is not PCR scanning. The 2nd and 3rd paragraphs are reorganized to separate AP and non-AP behaviors. An example of how WUR Scanning may be optimized is added.  TGax editor to make the changes shown in 11-18/1882r0 under all headings that include CID 151. |
| 339 | 64.13 | 31.10 | Annex E is referred which actually is missing. | Include Annex E accordingly or modify the text on page 64 | **Rejected.**  Annex E is included in the baseline. |
| 607 | 64.19 | 31.10 | Similarly to what is listed here, a WUR AP with dot11WURDiscoveryImplmeneted of true shall also transmit a WUR Disocvery element in Beacons and Probe Responses. | Add a new second sentence to this paragraph, "A WUR AP with dot11WURDiscoveryImplemented equal to true shall transmit a WUR Discovery element in Beacon and Probe Response frames." | **Revised.**  Agree in principle with the commenter. Normative behaviour regarding advertising a WUR AP’s own WUR discovery channel is currently missing.  TGax editor to make the changes shown in 11-18/1882r0 under all headings that include CID 607. |
| 608 | 64.21 | 31.10 | Why is the WUR Disocvery element in a Probe Response optional (if the Probe Request had a WUR Capability element, and the AP has one of the discovery modes implemented)? | Change "may" to "shall" at the cited location. (Also consider changing "The WUR AP" to "Such a WUR AP" at the start of this sentence.)  Also, remove "optionally" from "optionally present" in 9.3.3.3 and 9.3.3.11 for the WUR Discovery element, when dot11WURNeighborDiscoveryImplemented is true. | **Rejected.**  Advertersing neighbour WUR APs’ WUR Discovery channels is optional for WUR APs even when dot11WURNeighborDiscoveryImplemented is true since it is not guaranteed that such neighbour information is always presnt. This is similar behaviour as baseline for Reduced Neighbor Report element. |
| 611 | 102.19 | C.3 | dot11WURDiscoveryImplemented should be a control attribute. | Change the name to "dot11WURDiscoveryActivated" and change the DESCRIPTION to match a standard control attribute. | **Rejected.**  The MIB indicates a WUR AP’s capability to transmit WUR Discovery frames. A WUR AP’s behaviour when the MIB is true is described in 31.10 (WUR Discovery). This is similar to dot11QBSSLoadImplemented in baseline. |
| 612 | 102.19 | C.3 | dot11WURNeighborDiscoveryImplemented should be a control attribute. | Change the name to "dot11WURNeighborDiscoveryActivated" and change the DESCRIPTION to match a standard control attribute. | **Rejected.**  The MIB indicates a WUR AP’s capability to advertise neighbour WUR APs’ WUR discovery channels. A WUR AP’s behaviour when the MIB is true is described in 31.10 (WUR Discovery). This is similar to dot11QBSSLoadImplemented in baseline. |
| 783 | 36.30 | 9.4.2.276 | It is not clear how a WUR AP STA knows the discovery channels of other WUR AP STA | Explain (perhaps in clause 31.10) how a WUR AP STA collects discovery channels information of other WUR AP stations. | **Revised.**  Agree in principle with the commenter. Since each WUR AP advertises its WUR Discovery channel in the WUR Discovery element, a WUR AP can compile the information of the WUR Discovery channels used by neighbour WUR APs by collecting the WUR Discovery elements transmitted by the neighbor WUR APs.  TGax editor to make the changes shown in 11-18/1882r0 under all headings that include CID 783. |
| 793 | 64.19 | 31.10. | "transmit a WUR Discovery element in Beacon and Probe Response frames to advertise the WUR discovery channel(s) used by neighboring WUR APs" Explain how an AP knows the Discovery Channel information of neighboring APs. | as in comment | **Revised.**  Agree in principle with the commenter. Since each WUR AP advertises its WUR Discovery channel in the WUR Discovery element, a WUR AP can compile the information of the WUR Discovery channels used by neighbour WUR APs by collecting the WUR Discovery elements transmitted by the neighbor WUR APs.  TGax editor to make the changes shown in 11-18/1882r0 under all headings that include CID 793. |
| 794 | 64.25 | 31.10. | The use of the word "faster". Faster compared to what? How much faster? Has there been any analysis to quantify the feature? | as in comment | **Rejected.**  Faster here is compared to WUR AP discovery using WUR Scanning when information of neighbour WUR APs is not available, in which case a WUR STA would need to scan all possible WUR discovery channels. In contrast, when information about neighbour WUR APs is available (via WUR Discoery element), the WUR STA may skip the scanning of some channels and hence cut down scan time. |
| 795 | 64.27 | 31.10. | The sentence "The WUR non-AP STA may further optimize the WUR scanning by using the information of the WUR APs listed in the WUR Discovery element. Details of how to further optimize the WUR scanning is out of scope of this standard" is very vague. I understand optimization is out of the scope but at least the sentence has to make sense. | delete the last two sentences of this clause. | **Revised.**  Agree in principle with the commenter. This comment is similar to 151 and an example of how WUR Scanning may be optimized is added.  TGax editor to make the changes shown in 11-18/1882r0 under all headings that include CID 795. |
| 860 | 64.06 | 31.10. | It should be optional for a WUR AP to indicate its discovery channel | Change "is" to "may be". | **Accepted.**  TGax editor to make the changes shown in 11-18/1882r0 under all headings that include CID 860. |
| 861 | 64.24 | 31.10. | "Channels" should have lower case. | As in comment. | **Revised.**  Agree in principle with the commenter.  TGax editor to make the changes shown in 11-18/1882r0 under all headings that include CID 861. |
| 939 | 64.05 | 31.10 | If the WUR AP is transmitting WUR Discovery frames on the WUR discovery channel, then is the WUR AP also transmitting data on the WUR primary channel indicated by the WUR Channel field (see clause 9.4.2.275)? In other words does the WUR AP have 2 Tx radios? Please note that this is just regarding the WUR AP, not the WUR and PCR. | In clause 4.3.15a, change the text "Transmit a WUR Discovery frame" to "Transmit a WUR Discovery frame on a WUR discovery channel as defined in clause 31.10". Then add some text either in clause 4.3.15a or 31.10 to explain whether the WUR AP uses 1 or 2 Tx radios to achieve this. | **Rejected.**  Transmitting WUR Discovery frames is no different from transmitting other WUR frames. As such special text only for WUR Discovery frames is not required. Clause 4.3.15a only lists the features and the normative behaviour related to transmission of WUR Discovery frames is already mentioned in 31.10. |
| 1188 | 64.24 | 31.10 | In "A WUR non-AP STA receiving the WUR Discovery element may use the information of the WUR discovery Channels to schedule WUR scanning for faster WUR AP Discovery.", the WUR discovery Channels should be the WUR discovery channels to be consist in this subclause | as in comment | **Revised.**  Agree in principle with the commenter. Same as CID 861.  TGax editor to make the changes shown in 11-18/1882r0 under all headings that include CID 1188. |

**Discussion:** None

**Propose:**

Revised for CIDs 151, 607, 783, 793, 795, 860, 861, 1188 as per discussion and editing instructions in 11-18/1882r0.

31.10 WUR Discovery (CIDs 151, 607, 783, 793, 795, 860, 861, 1188)

***TGba editor: Modify the section as the following (Track Changes ON):***

A WUR AP with dot11WURDiscoveryImplemented equal to true shall periodically transmit WUR Discovery frames on the WUR AP’s WUR discovery channel to assist WUR STAs in WUR AP discovery. The WUR AP’s WUR discovery channel may be *(#860)* indicated in the transmitted WUR Discovery elements by the WUR Discovery Operating Class and WUR Discovery Channel fields in the WUR AP Information subfield in which the Co-Located WUR AP subfield is set to 1.*(#80)* WUR Discovery frames shall be generated for transmission by the WUR AP once every WUR Discovery Period TUs. The WUR discovery channel(s) that are used to transmit the WUR Discovery frames should be selected from channel 1 in the 2.4 GHz frequency band and channel 40, 44, 149 and 153 in the 5 GHz frequency band as specified in Table E-4 in Annex E.

A WUR AP with dot11WURDiscoveryImplemented equal to true should transmit a WUR Discovery element in Beacon frames to indicate the WUR discovery channel used by the WUR AP to transmit WUR Discovery frames. The WUR AP should transmit the WUR Discovery element in a Probe Response frame that is transmitted in response to a Probe Request frame that contains a WUR Capability element.*(#607)* A WUR AP with dot11WURNeighborDiscoveryImplemented equal to true may transmit a WUR Discovery element in Beacon and Probe Response frames to advertise the WUR discovery channel(s) used by neighboring WUR APs. The WUR AP may include the WUR Discovery element in a Probe Response frame that is transmitted in response to a Probe Request frame that contains a WUR Capability element. A WUR AP may use the WUR Discovery elements transmitted by neighboring WUR APs to compile the WUR discovery channel(s) used by the neighboring WUR APs. A WUR AP shall only include a single WUR information subfield for a WUR discovery channel in a WUR Discovery element.*(#783,793)*

for WUR Discovery framesis known*(#151)*A WUR non-AP STA receiving the WUR Discovery element may use the information of the WUR discovery channels to schedule WUR scanning for faster WUR AP Discovery. *(#861,1188)* The WUR non-AP STA may limit the WUR scanning to the WUR discovery channels listed in the WUR Discovery element. The WUR non-AP STA may further optimize the WUR scanning by using the information of the WUR APs listed in the WUR Discovery element. For example, if a target SSID is known, the WUR non-AP STA may use the Short-SSID field in the WUR Discovery element to shortlist the WUR discovery channels to be scanned during WUR scanning.*(#151,795)* Details of how to further optimize the WUR scanning is out of scope of this standard.