IEEE P802.11
Wireless LANs

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| Comment Resolution on WUR Discovery element |
| Date: 2018-11-07 |
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Abstract

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

* CIDs: 17, 27, 28, 61, 78, 80, 286, 287, 357, 372, 844, 1233 (12 CIDs)

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Changed resolution of CID 61 to Revised.
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.***

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| --- | --- | --- | --- | --- | --- |
| CID | Page.Line  | Clause | Comment | Proposed Change | Resolution |
| 17 | 35.10 | 9.4.2.276 | WUR AP List contains one or more WUR AP subfields, each WUR AP subfield contains identifies one WUR AP. What is the maximum number of APs? |  | **Rejected.**No change has been proposed.The number of WUR APs in the WUR AP list is specified by the “WUR AP Count” field which being one octet in size can specify up to 256 WUR APs. |
| 27 | 35.49 | 9.4.2.274 | in Figure 9-751j the encoding for the WUR Discovery Channel subfield is this same as field in 9.4.1.22. This subfield is a channel number |  | **Rejected.**No change has been proposed.This is same as in 9.4.1.22 where the field name is “Channel” and indicates a channel number. |
| 28 | 35.64 | 9.4.2.274 | Channel number missing from WUR Discovery Channel field |  | **Rejected.**No change has been proposed.This is same as in 9.4.1.22 where the field name is “Channel” and indicates a channel number. Similar language is also used for “WUR Channel” field in the WUR Operation element. |
| 61 | 23.57 | 9.3.3.3 | dot11WUROptionImplemented needs to be true also for the WUR discovery case. Please apply throughout these tables for each WUR Discovery entry | As in comment. | **Revised.**Agree in principle with the commenter.TGax editor to make the changes shown in 11-18/1881r1 under all headings that include CID 61. |
| 78 | 35.50 | 9.4.2.276 | What is the difference between the WUR Discovery operating class, channel and the WUR operating class, channel indicated in the WUR Operation element? Also why is the element providing a list of other APs? Couldn't we use the Neighbor Report element for this purpose? | As in comment. | **Rejected.**WUR Discovery operating class, channel identify the channel used to transmit WUR Discovery frame, while WUR operating class, channel indicated in the WUR Operation element identify the channel used to transmit WUR Beacon frames. List of other APs are provided to help narrow down the number of WUR Discovery channels to be scanned during WUR scanning. During the design phase, it was agreed not to reuse Neighbor Report element but to design a new element optimized for WUR Discovery use. |
| 80 | 36.31 | 9.4.2.276 | Terminology is already defined. This is a co-located AP. So instead of saying Transmitting WUR AP simply say Co-Located WUR AP. | As in comment. | **Accepted.**TGax editor to make the changes shown in 11-18/1881r1 under all headings that include CID 80. |
| 286 | 36.04 | 9.4.2.276 | Why is the definition of the count field convoluted? A count of 0 indicates that one AP information field is present? | Modify the definition of the count field to reflect the number of WUR AP subfields included in the list. | **Rejected.**The WUR AP Count field specifies the number of WUR AP subfields that are included in the WUR AP List field, **minus one**. Therefor count of 0 indicates one AP information is present. Similar encoding is used in various fields in the baseline (FSS, TBTT Information Count etc.). |
| 287 | 36.64 | 9.4.2.276 | "WUR AP subfield" should be "Transmitting WUR AP subfield". | as in the comment. Also in lines 55 and 58. | **Rejected.**"Transmitting WUR AP subfield" does not exist. "WUR AP subfield" is correct since the subfield identifies one AP. |
| 357 | 26.23 | 9.3.3.11 | There is no need for WUR Discovery element in the Probe Response frame body. Remove it. | Remove third row in the table | **Rejected.**A WUR AP may include the WUR Discovery element in Probe Response frames that is transmitted in response to a Probe Request frame that contains a WUR Capability element to advertise the WUR discovery channel(s) used by neighboring WUR APs. |
| 372 | 35.25 | 9.4.2.276 | "The WUR Discovery element is used to advertise the WUR discovery channels on which WUR APs transmit WUR Discovery frames." Is there any point in advertising this on PCR to STAs that have already found and are decoding packets on this PCR? Maybe I just don't understand all cases for when WUR Discovery is used, but based on the "WUR scanning" concept in 31.10 I don't see the need for ever advertising this information on the PCR. | Specify this as a neighbor information or remove it. | **Rejected.**The WUR Discovery element carries information about the WUR Discovery channels of the transmitting AP itself as well as neighbour APs. Knowledge of the WUR Discovery channels helps WUR STAs to track APs (Associated as well as non-associated) even when its PCR is turned off by periodically scanning for WUR Discovery frames on the advertised WUR Discovery channels. |
| 844 | 36.08 | 9.4.2.276 | The WUR AP List field should be renamed as List of WUR AP subfields. | As in comment. | **Rejected.**Since each WUR AP subfield identifies one WUR AP, WUR AP List is an appropriate name for the field. |
| 1233 | 36.04 | 9.4.2.276 | The term "WUR AP" has specific meaning in this draft and therefore shouldn't be reused as the name of a subfield. | Change "WUR AP subfield" to "WUR AP Information subfield" throughout the draft. | **Revised.**Agree in principle with the commenter.TGax editor to make the changes shown in 11-18/1881r1 under all headings that include CID 1233. |

**Discussion:** None

**Propose:**

Revised for CIDs 61, 80, 1233 as per discussion and editing instructions in 11-18/1881r1.

* Format of individual frame types (CID 61)
* Management frames
* Beacon frame format

***Modify the following rows of Table 9-33 (Beacon frame body) as follows (Track Changes ON):***

|  |
| --- |
| * Beacon frame body
 |
| Order | Information | Notes |
| <Last-1> | WUR Discovery | The WUR Discovery element is optionally present if dot11WUROptionImplemented is true and either dot11WURDiscoveryImplemented or dot11WURNeighborDiscoveryImplemented is true; otherwise it is not present.*(#61)* |

* Probe Response frame format

***Modify the following rows of Table 9-40 (Probe Response frame body) as follows (Track Changes ON):***

|  |
| --- |
| * Probe Response frame body
 |
| Order | Information | Notes |
| <Last-1> | WUR Discovery | The WUR Discovery element is optionally present if dot11WUROptionImplemented is true and either dot11WURDiscoveryImplemented or dot11WURNeighborDiscoveryImplemented is true; otherwise it is not present. *(#61)* |

9.4.2.276 WUR Discovery element (CIDs 80, 1233)

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

The WUR Discovery element is used to advertise the WUR discovery channels on which WUR APs transmit WUR Discovery frames. The format of the WUR Discovery element is shown in Figure 9-751i (WUR Discovery element format).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Element ID | Length | Element ID Extension | WUR AP Information Set |
| Octets: | 1 | 1 | 1 | variable |
| * **WUR Discovery element format**
 |

The Element ID, Length, and Element ID Extension fields are defined in 9.4.2.1 (General).

The WUR AP Information Set field contains one or more WUR AP Information subfields. Each WUR AP Information subfield identifies the WUR APs that transmit WUR Discovery frames on a particular WUR Discovery channel. The format of the WUR AP Information subfield is shown in Figure 9-751j (WUR AP Information subfield format).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | WUR Discovery Operating Class | WUR Discovery Channel | WUR AP Count | WUR AP List |
| Octets: | 1 | 1 | 1 | variable |
| * **WUR AP Information subfield format**
 |

The WUR Discovery Operating Class field indicates the operating class in use for transmission of WUR Discovery frames by WUR APs listed in this subfield. The encoding is the same as the definition of Operating Class field in 9.4.1.22 (Operating Class and Channel field).

The WUR Discovery Channel field indicates the channel in use for transmission of WUR Discovery frames by WUR APs listed in this subfield. The encoding is the same as the definition of Channel field in 9.4.1.22 (Operating Class and Channel field).

The WUR AP Count field specifies the number of WUR AP Parameters subfields that are included in the WUR AP List field, minus one. A value of 0 indicates that one WUR AP Parameters subfield is present. *(#1233)*

The WUR AP List field contains one or more WUR AP Parameters subfields. Each WUR AP Parameters subfield identifies one WUR AP, which may be the WUR AP transmitting this WUR Discovery element itself or may be a neigboring WUR AP. The format of the WUR AP Parameters subfield is shown in Figure 9-751k (WUR AP Parameters subfield format).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Bitmap Control | Short-SSID | BSSID | WUR Discovery Period |
| Octets: | 1 | 0 or 4 | 0 or 6 | 0 or 2 |
| * **WUR AP Parameters subfield format**
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The Bitmap Control field indicates the presence of the BSSID field. The format of the Bitmap Control field is shown in Figure 9-751l (Bitmap Control field format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 | B3 | B4                     B7 |
|  | Co-Located WUR AP*(#80)* | Short-SSID Present | BSSID Present | WUR Discovery Period Present | Reserved |
| Bits: | 1 | 1 | 1 | 1 | 4 |
| * **Bitmap Control field format**
 |

The Co-Located WUR AP subfield is set to 1 if the WUR AP Information subfield identifies the WUR AP’s own WUR discovery channel and is set to 0, otherwise.(#Ed)

The Short-SSID Present subfield is set to 1 if the Short-SSID field is present in the WUR AP Parameters subfield and is set to 0, otherwise.

The BSSID Present subfield is set to 1 if the BSSID field is present in the WUR AP Parameters subfield and is set to 0, otherwise.

The WUR Discovery Period Present subfield is set to 1 if the WUR Discovery Period is present in the WUR AP Parameters subfield. Otherwise, the WUR Discovery Period Present subfield is set to 0.

The Short-SSID field contains the Short-SSID of the WUR AP identified by the WUR AP Parameters subfield (#Ed) as defined in 9.4.2.170.3 (Calculating the Short-SSID).

The BSSID field contains the BSSID of the WUR AP identified by the WUR AP Parameters subfield (#Ed) as defined in 9.2.4.3.4 (BSSID field).

The WUR Discovery Period field contains the number of time units (TUs) between consecutive WUR Discovery frames transmitted by the WUR AP identified by the WUR AP Parameters subfield (#Ed). The value of zero is reserved.