IEEE P802.22
Wireless RANs

|  |
| --- |
| TGb LB1 CID 219 Comment Resolution  |
| Date: 2013-12-26 |
| Author(s): |
| Name | Company | Address | Phone | email |
| Ranga Reddy | Self |  |  | ranga.reddy@me.com |
|  |  |  |  |  |

Abstract

Proposed resolution for Comment ID 219, as listed in the TGb Letter Ballot 1 comment database, DCN: 22-13/158r0 (or latest revision). The resolution to comment Comment ID 220 will be affected as well.

**Notice:** This document has been prepared to assist IEEE 802.22. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

**Release:** The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE’s name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE’s sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.22.

**Patent Policy and Procedures:** The contributor is familiar with the IEEE 802 Patent Policy and Procedures

<[**http://standards.ieee.org/guides/bylaws/sb-bylaws.pdf**](http://standards.ieee.org/guides/bylaws/sb-bylaws.pdf)>, including the statement "IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair Apurva Mody <apurva.mody@ieee.org> as early as possible, in written or electronic form, if patented technology (or technology under patent application) might be incorporated into a draft standard being developed within the IEEE 802.22 Working Group. **If you have questions, contact the IEEE Patent Committee Administrator at <****patcom@ieee.org****>**.

**Introduction**

This document proposes a resolution to CID 219 in the TGb LB1 ballot. The resolution to comment 220 will be affected as follows. The comment database is located in DCN: 22-13/158r0 (or latest revision) and is listed as follows:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 219 | Ranga Reddy | Self | 7 | 7.6.1.1 | 1 | 32 | 3 | TR | Table 4 is missing the GMSH that is present in the base standard. Also we have an extended subheader type that we do not not make use of in the base standard. We should be able to accommodate the channel aggregation and extended bandiwdth request header. This can be done without changing the size of the TYPE field in the GMH. |
| 220 | Ranga Reddy | Self | 7 | 7.6.1.2.1a | 1 | 33 | 1 | TR | There may be a couple of issues with regard to definition of the extended BR subheader: 1) Inclusion of each CPE's MAC address is not necessary and will introduce too much overhead. 2) A "Directions" field is not needed. The BR function is for the purpose of requesting US bandwidth. DS bandwidth, in the case of a centralized R-CPE, is granted in DS-MAP IEs in the DS relay/access zones. 3) Indication of the FID is not necessary, as we are granting bandwidth to the CPE/station ID itself |

**Proposed Resolution**

The resolution contained in this document will cover the following items:

* Re-introduce a ‘Type bit’ == 0 field into table 4 for the Grant Management Subheader (GMSH)
* Fully define a use of ‘Extendeded Type Subheader’, this wasn’t fully defined in the base standard so we propose to make use of it here
* Define sub-types, within extended type subheader to accommodate the new functionality
* Move contents of modified Table D1 definition of Extended Bandiwidth Request to new section as defined below.

**Proposed Text Modifcations to draft**

***Modify Table 4, 32 as follows***

|  |  |
| --- | --- |
| **Type Bit** | **Values** |
| ~~6~~ | ~~Channel Aggregation subheader~~~~Indicates whether the Channel Aggregation subheader is presented (see~~~~Table E1)~~~~1: present; 0: absent~~ |
| ~~5~~ | ~~Extended Bandwidth Request subheader~~~~Indicates whether this is an Extended bandwidth request frame, and~~~~hence contains a special payload related to bandwidth allocation (see~~~~Table D1)~~~~1: present; 0: absent~~ |
| 4 | Bandwidth Request subheaderIndicates whether this is a bandwidth request frame, and hence containsa special payload related to bandwidth allocation (see Table 5)1: present; 0: absent |
| 3 | ARQ feedback payload1: present; 0: absent |
| 2 | Extended Subheader typeIndicates whether the ~~present Packing or Fragmentation subheader is extended~~ Extended Type subheader class is present1: ~~Extended~~Present0: not Present~~Extended. Applicable to connections where ARQ is not enabl~~ |
| 1 | Fragmentation/Packing subheader1: present; 0: absent |
| 0 | In the upstream: Grant Management subheader1: present; 0: absent |

***Add new subsection 7.6.1.2.4 “Extended Subheader Types” after section 7.6.1.2.3, with the following text***

* + - * 1. Extended Subheader Types

Two types of Extended Subheaders are defined, in the draft to be used by Advanced CPEs. The Extended Bandwidth Request Extended Subheader is used by R-CPEs to request bandwidth to service CPEs in its’ relay zone. The Channel Aggregation Extended Subheader is used during channel aggregation operation. Each Extended Subheader is defined by a ‘Extended Subheader Type’ field that identifies the Extended Subheader and it’s functionality. Currrently only two types, (0x00 for Extended Bandwidth Request, and 0x01 for Channel Aggregation) are defined, all other types (0x02-0xFF) are reserved.

***Add a subsection 7.6.1.2.4.1 “Extended Bandwidth Request Extended Subheader” in 7.6.1.2.4***

***Move content of section 7.6.1.2.1a “Extended Bandwidth Request subheader” to 7.6.1.2.4.1, and modify text as follows***

**7.6.1.2.4.2~~7.6.1.2.1a~~ Extended Bandwidth Request Extended S~~s~~ubheader**

Extended Bandwidth Request subheaders are transmitted by the centralized scheduling R-CPE to the MRBS to request additional bandwidth for a CRZ connection. They shall be sent in a PDU by itself or in a PDU with other subheaders and/or data. (See Table D1).

***Move table Table D1 to the new subsection 7.6.1.2.4.2, and changed Table name to “Extended Bandwidth Request Extended Subheader format”***

***NOTE: As per comment resolution to CID 220, a new version of Table D1 will be assigned here. This new version of Table D1 should include an ‘Extended Subheader Type’ field set to 0x00 to indicate it’s an extended bandwidth request subheader.***

***Add a subsection 7.6.1.2.4.2 “Channel Aggregation Extended Subheader” in 7.6.1.2.4***

***Move content of section 7.6.1.2.5 “Channel aggregation subheader” to 7.6.1.2.4.2, and modify text as follows***

7.6.1.2.4.2~~7.6.1.2.5~~ Channel A~~a~~ggregation Extended S~~s~~ubheader

The format of channel aggregation subheader is shown in Table E1. This channel aggregation subheader is used to manage the aggregation data sequence and aggregation type during the multi-channel operation. The channel aggregation header with fixed-length size of ~~3~~4 bytes shall be added to each PDU after the generic MAC header.

**Table E1 – Channel Aggregation Extended S~~s~~ubheader format**

|  |  |  |
| --- | --- | --- |
| **Syntax** | **Size** | **Notes** |
| Extended\_Type\_Subheader~~Aggregation\_Header\_~~Format() { |  |  |
| Extendended Subheader Type | 8 bits | 0x01 = Channel Aggregation Extended Subheader |
| Aggregation ID | 16 bits | Indicates the sequence management ID of the transmitted data during multi-channel operation. The value of Aggregation ID is from 0 to 8191. The Aggregation ID shall be incremented by one after each transmission and shall be reset to 0 after the maximum value (8191). |
| Aggregation Type | 8 bits | Aggregation Type 8 bits This field specifies the aggregation type of the transmission.0x00: No aggregation.0x01: Diversity mode.0x02: Bulk transmission mode.0x03-0xFF: Reserved. |
| } |  |  |

**References:**

[1] IEEE P802.22b WRAN Amendment: Enhancement for broadband services and monitoring applications Draft 1.0 WG Letter Ballot Template, DCN 22-13/158r2, https://mentor.ieee.org/802.22/dcn/13/22-13-0158-02-000b-802-22b-letter-ballot-1-comment-database.xls