IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comment Resolution Subclause 5 | | | | |
| Date: 2020-08-12 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Liwen Chu | NXP |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This submission resolve the following comments for subclause 5 of 802.11bd D0.3:

* 27, 37, 38, 39, 40, 41, 42, 58, 59, 60,
* 61, 62, 63, 64, 218, 219, 220.

Revisions:

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 TGax Draft. This introduction is not part of the adopted material.

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

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 27 | 15 | 25 | Some of the PHY parameters in table 32-1 should be exposed in the API for application developers to choose which features to use when transmitting frames (e.g. Power Boost). | Commentor will prepare a submission | Revised  TGbd editor to make change in 11-20/1228r3 under CID 27. |
| 37 | 15 |  | Radio environment request vector and Radio environment status vector are defined in submission 11-19/1982r0. Those definitions are not included in D0.3. They should be added. | Add sub-sections to specify the two vectors: radio environment request vector and radio environment status vector, using the text in 11-19/1982r0 | Revised  TGbd editor to make change in 11-20/1228r3 under CID 37. |
| 38 | 16 | 17 | It is not clear why the radio environment status vector, which is information related to a reception event, is included in the MA-UNITDATA-STATUS.indication, which is a primitive associated with a transmission. I assume it is actually intended for this primitive to include the request vector. | Change "radio environment status vector" to "radio environment request vector" | Revised  TGbd editor to make change in 11-20/1228r3 under CID 38. |
| 39 | 16 |  | This comment assumes that the definition of the radio environment request vector is added to the draft amendment, as per another comment. With that assumption, I comment on the definition in 11-19/1982r0. Is it necessary or advisable to include parameters for both MPDU coding (LDPC, etc.) and MPDU format (legacy/NGV)? Is the coding parameter redundant given that the format is provided? If it is redundant, consider omitting MPDU coding. Another comment is that the term "base channel" is not clear and should be defined or clarified. Does this relate to the concept of primary and secondary channels in a 20 MHz NGV channel? Is the width of the "base channel" the width of the primary channel (i.e. 10 MHz) or the width of the total channel (20 MHz in some cases)? | When adding a subsection to define the radio environment request vector, based on 11-19/1982r0, omit "MDPU coding" and define or clarify "base channel" and "channel width" | Revised  ~~The MPDU coding and MPDU format are different things, e.g. when the MPDU is carried in NGV PPDU: either BCC or LDPC may be used. However~~ The names of them could be changed as follows: MPDU Format 🡪 PPDU Format, MPDU Coding🡪FEC Coding.  The channel information is already set through generic management interface.  TGbd editor to make changes in 11-20/1228r3 under CID 39 |
| 40 | 16 |  | This coment assumes that the definition of the radio environment status vector is added to the draft amendment, as per another comment. With that assumption, I comment on the definition in 11-19/1982r0. The status vector includes "transmit power level". The amendment should provide some information about how that information would be available at the receiver. | When adding a subsection to define the radio environment status vector, include text to explain how the receiver sending this parameter in a primitive would know the transmit power level of the received MPDU | Revised  The recipient can know the RSSI. However it is difficult for the recipient to figure out the Tx power of the transmitter.  TGbd editor to make changes in 11-20/1228r3 under CID 40 |
| 41 | 17 | 6 | The specification of ChannelBusyPercentage in the table indicates "(<TBD>: insert indication from IEEE 1609)". During the April IEEE 1609 WG meeting it was determined that IEEE 1609 does not define CBP, and it was recommended that TGbd utilize a definition of "RawCBP" from SAE J2945/1. This suggestion should also be considered from the perspective of other standards organizations, especially ETSI. | Change "(<TBD>: insert indication from IEEE 1609)" to "(<TBD>: insert definition of RawCBP from SAE J2945/1)". Liaise with the SAE DSRC TC and SAE Staff to get the definition and obtain permission to quote this definition in the 802.11bd amendment, with appropriate citation. | Accetped |
| 42 | 17 | 21 | To promote interoperability and reduce complexity of design, values for the default, minimum, and maximum of dot11RadioEnvironmetnMeasurementPeriod should be specified. Alternatively to minimum and maximum values, a set of discrete permitted values might be preferable. Also, since CapabilityPercentage is a ratio with StationCount in the denominator, it is necessary to specify what CapabilityPercentage is when StationCount is zero. | Specify 100 msec as the default value for dot11RadioEnvironmetnMeasurementPeriod. Also, specify that the minimum and maximum values for this MIB value are 100 msec and 1000 msec. Also, specify that when StationCount = 0, the CapabilityPercentage shall be set to 0. | Revised  TGbd editor to make changes in 11-20/1228r3 under CID 42 |
| 58 | 15 | 30 | The radio environment request vector is not only for NGV transmissions, it also allows higher layer entities to control the format, encoding and MPDU handling for any OCB mode not just NGV as it can be used by an NGV STA to set the parameters for legacy transmissions, So it should apply to both dot11NGVActivated or dot11OCBActivated, hence requiring dot11NGVActivated is not necessary. This new feature will apply to all OCB devices that support this amendment. Also the use of the word handling seems odd. | Replace: "when dot11NGVActivated is TRUE" With: "when dot11OCBActivated is TRUE" and Replace: "handling for NGV transmission" With: "transmission for OCB transmissions" | Rejected  Given that non-NGV STAs are already deployed, it is difficult to make such changes for non-NGV STAs. When a NGV STA transmits a non-NGV PPDU, dot11NGVActivated is still true and the primitive with radio environment request vector is used. |
| 59 | 15 | 29 | The detailed content of the radio environment request vector has to be provided somewhere in the amendment. It should be listed in the description or a pointer should be provided as to where the elements of the vector are provided | A list of the contents of the vector, the format of the items, and their meanings need to be defined or the location where they are defined needs to be specified. | Revised  TGbd editor to make changes in 11-20/1228r3 under CID 59 |
| 60 | 15 | 60 | The MA-UNITDATA.indication primitive contains the current MAC service parameters. The higher layers can query the SME requesting the current status of the MA-UNITDATA.indication to learn the current status of the STA. Hence, it is the outward facing version of the MA-UNITDATA.request primitive and should therefore be similarly described. | Aline the text/definition to the text describing the vector in the MA-UNITDATA.request clause. | Rejected  The MA-UNITDATA.indication and MA-UNITDATA.request are similar with one difference: the indication is to carry the reception information (RSSI) and the request is to carry the transmitting control information (Tx power) |
| 61 | 15 | 60 | The detailed content of the radio environment status vector has to be provided somewhere in the amendment. It should be listed in the description or a pointer should be provided as to where the elements of the vector are provided | A list of the contents of the vector, the format of the items, and their meanings need to be defined or the location where they are defined needs to be specified. | Revised  TGbd editor to make changes in 11-20/1228r3 under CID 61 |
| 62 | 15 | 23 | The radio environment status vector and the radio environment request vector, seem to be related and I believe could be identical in format and content. Hence, I don't think there is a need for two vectors. It may be simpler to define one radio environment vector and use it the MA-UNITDATA.request, the MA-UNITDATA.indication and the MA-UNITDATA-STAUS.indication.. | As in comment | Rejected.  They are different in the sense that one is for the transmitting parameters (e.g. Tx power) and another one is the reception parameters (e.g. RSSI). |
| 63 | 15 | 60 | The MA-UNITDATA-STAUS.indication primitive contains the current MAC service parameters. The higher layers can query the SME requesting the current status of the MA-UNITDATA.indication to learn the current status of the STA. Hence, it is the outward facing version of the MA-UNITDATA.request primitive and should therefore be similarly described. | Aline the text/definition to the text describing the vector in the MA-UNITDATA.indication clause. | Rejected  The MA-UNITDATA-STAUS.indication includes the parameters specific to the status indication: transmission status. There is no need to carry data in the status indication. |
| 64 | 16 | 30 | Why is the Radio Environment Report in the clause 5? I believe only the primitive should be defined in clause 5 and the use and generation of the report should be described in clause 10. T | Remove Clause 5.4 and add the MA-RADIOENVIIRONMENT.indication primitive description to clause 5.2, by creating a new clause 5.2.6 MA-RADIOENVIRONMent.indication. Then provide a description of the use of the primitive in clause 10. | Rejected  Subclause 5.2 is about primatives for data service. Radio Environment Report doesn’t belong to data service. |
| 218 | 15 | 31 | dot11NGVActivated should be defined in 32.3 (PHY MIB) with NGV PHY MIB attributes | make a table called NGV PHY MIB attributes and define it | Revised  TGbd editor to make changes in 11-20/1228r3 under CID 218 |
| 219 | 17 | 6 | fill TBD | as in comment | Revised  See CID 41 |
| 220 | 17 | 11 | fill TBD | as in comment | Revised  TGbd editor to make changes in 11-20/1228r3 under CID 220 |

**5.2 MAC data service specification**

***TGbd editor: add the following subclauses in 5.2 (#37):***

**5.2.2a** **NGV MAC data service specification**

Besides the normal parameters of MAC data service, e.g. source address, destination address, routing information, data, priority, service class, in a NGV STA the radio environment vectors allow higher layer entities to provide control information to and receive status information from the MAC sublayer entity appropriate for communication within a rapidly changing radio environment.

**5.2.2a.1 Radio Environment Request Vector**

(#39, 59)The radio environment request vector contains the following elements pertaining to the transmission of the MPDU associated with the MSDU associated with the request containing the vector:

* ~~MPDU~~ PPDU format (legacy/NGV),
* data rate/MCS for transmission, (#27)
* number of spatial streams,
* permitted aggregation,
* number of repetitions,
* expiry time (milliseconds until the MSDU is discarded if still not transmited),
* ~~frequency band,~~
* ~~base channel and~~ channel width,
* transmit power level.
* ~~DCM, (#27)~~
* ~~Power boost (#27)~~

A value representing “selection within MAC sublayer” shall exist for each element.

**5.2.2a.2 Radio Environment Status Vector**

(#39, 40, 61)The radio environment status vector contains the following elements pertaining to the reception of the MPDU that contained the MSDU associated with the indication containing the vector:

* ~~MPDU~~ PPDU format (legacy/NGV),
* data rate/MCS of reception,
* ~~MPDU FEC coding (LDPC, etc.),~~
* was MSDU part of an A-MPDU,
* ~~frequency band,~~
* ~~base channel and~~ channel width,
* ~~transmit power level~~ RSSI,
* ~~DCM, (#27)~~
* ~~Power boost (#27).~~

**5.2.5 MA-UNITDATA-STATUS.indication**

**5.2.5.2 Semantics of the service primitive**

***TGbd editor: Change the first paragraph as follows:***

The parameters of the primitive are as follows:

MA-UNITDATA-STATUS.indication(

source address,

destination address,

transmission status,

provided priority,

provided service class,

radio environment request vector (#38)

)

***TGbd editor: Insert the following after the last paragraph:(#38)***

The radio environment request vector that allows higher layer entities contains information that allows higher layer entities to control the format, encoding, and MPDU handling for NGV transmission . This parameter shall be present when dot11NGVActivated is TRUE and absent otherwise.

**5.4.1.1 MA-RADIOENVIRONMENT.indication**

**5.4.1.1.2 Semantics of the service primitive**

The primitive parameters are as follows:

MA-RADIOENVIRONMENT.indication(

channel busy percentage,

capability percentage,

station count

)

Change "(<TBD>: insert indication from IEEE 1609)" to "(<TBD>: insert definition of RawCBP from SAE J2945/1)". Liaise with the SAE DSRC TC and SAE Staff to get the definition and obtain permission to quote this definition in the 802.11bd amendment, with appropriate citation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** |
| ChannelBusyPercentage | Integer | 0-100 | Indicates the observed channel busy percentage (<TBD>:insert indication from IEEE 1609) |
| CapabilityPercentage | Integer | 0-100 | Indicates the percentage of the stations  indicated in StationCount, whose transmissions  contain indication of NGV capability |
| StationCount | Integer | >=0 (#220) | Indicates the number of unique individual  station MAC addresses detected during most  recent measurement period of  ChannelBusyPercentage and  CapabilityPercentage. when StationCount = 0, the CapabilityPercentage shall be set to 0. (#42) |

**5.4.1.1.3 When generated**

The primitive is generated periodically by the MAC entity every dot11RadioEnvironmentMeasurementPeriod while dot11NGVActivated is True.

**Annex C**

***TGbd editor: Add the following MIB variable at the end of Dot11StationConfigEntry (the entries not shown are not changed): (#42)***

Dot11StationConfigEntry ::= SEQUENCE

{

……

dot11NGVActivated TruthValue, (#218)

dot11RadioEnvironmentMeasurementPeriod Unsigned32, (#42)

}

***TGbd editor: Add the following MIB variable definition at the end of MIB variable definitions for Dot11StationConfigEntry:***

(#218)dot11NGVActivated OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

A STA uses the NGV features when this attribute is true. Such STA also has dot11OCBActivated equal to true. "

DEFVAL { false }

::= { dot11StationConfigEntry xxx }

(#42)dot11RadioEnvironmentMeasurementPeriod OBJECT-TYPE

SYNTAX Unsigned32 (100..1000)

UNITS "milliseconds"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

This attribute indicates the amount of time in TU the NGV STA does the measurement before reporting its radio environment."

DEFVAL { 100 }

::= { dot11StationConfigEntry xxx }.