IEEE P802.11
Wireless LANs

|  |
| --- |
| LB272 Clause 11 Reporting CID Resolution Part 1. |
| Date: 2023-04-20 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Chris Beg | Cognitive Systems |  |  | chris.beg@cognitivesystems.com |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This submission addresses the following 10 LB272 CIDs: 2126, , 1158, 1159, and 1160.

Revision history:

R0 – initial version

R1 – Removed note relating to CID 2045/2046 resolution.

R2 – Removed CIDs 2045, 2046, 1003, 1489 and 1491.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 2126 | 36.1.1 | 660.08 | The paragraph is to illustrate mandatory features. However, 20MHz only nonAP STA is included, which would cause ambiguity. | Suggest to use separate paragraph to illustrate 20MHz only nonAP STA. |  RejectComment is not relevant to P802.11bf D1.0. |

**Proposed Resolution**: Reject

Discussion:

* Comment appears to be submitted to incorrect ballot, as clause 36.1.1 and page 660 are not valid references to P802.11bf D1.0.
* Comment text is not relevant to P802.11bf D1.0.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 1158 | 11.55.1.5.4 | 188.36 | Remove the SBP responder case from this paragraph (since it is out of scope for 11.55.1). Create an equivalent paragraph specific for the SBP case in 11.55.2. | As noted. | Revised.Agree with commenter. Created paragraph in section 11.55.2.3 as requested.TGbf editor to make changes shown in 11-23/0660r2. |

**Proposed Resolution**: Revised

***TGbf Editor: Modify the text in D1.0 188.36-40 as follows:***

A sensing responder which is a sensing receiver shall include the Reference Timestamp field in the Sensing Measurement Report Control field and indicate its presence by setting the Timestamp Present field in the Presence & Control Bitmap field to 1 when the sensing initiator set the Report Timestamp subfield to 1 in the Measurement Setup Request frame (#1158).

***TGbf editor: Please append D1.0 sub clause 11.55.2.3 as follows:***

In the SBP reporting procedure, the SBP responder may transmit sequentially (i.e., a SIFS separated) one or

more A-MPDUs, each carrying multiple SBP report frames.

An SBP responder which is a sensing receiver shall include the Reference Timestamp field in the Sensing Measurement Report Control field and indicate its presence by setting the Timestamp Present field in the Presence & Control Bitmap field to 1 when the SBP initiator set the Report Timestamp field to 1 in the SBP Request frame (#1158).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 1159 | 11.55.1.5.5 | 188.51 | The sentence "Once set, the sensing receiver... a sensing measurement setup" is not needed as all parameters negotiated during sensing measurement setup cannot be changed. | Delete the sentence. | RevisedAgree with commenter that clarity can be added to indicated sentence. However, this Rx\_OP\_Gain\_Type is not negotiated and left up to implementation to determine what quantities to report.TGbf editor to make changes shown in 11-23/0660r2. |

**Notes:**

* The purpose of the Rx\_OP\_Gain\_Type field is to indicate to the SME what is encoded into the RX\_OP\_Gain\_Index values.
* The selection of the Rx\_OP\_Gain\_Type is not negotiated but determination is left up to implementation.



* The purpose of the sentence is to add normative behavioural description which prevents the receiver implementation from changing the Rx\_OP\_Gain\_Type and providing inconsistent values across different measurement instances belonging to the same measurement session.
* Modify sentence to provide clarity in expected behaviour.

**Proposed Resolution**: Revised

***TGbf Editor: Modify the text in D1.0 188.45-52 as follows:***

The sensing receiver operating condition affects the accuracy of its CSI estimates. A sensing receiver which reports sensing measurement results should also report its operating condition in the form of either an OP index or gain index in the Rx\_OP\_Gain\_Index field within the Sensing Measurement Report field (see Table 9-127j (Sensing Measurement Report information)), and set the value in the Rx\_OP\_Gain\_Type field within the Sensing Measurement Report Control field (see Table 9-127h (Sensing Measurement Report Control field definition)) accordingly. The Rx\_OP\_Gain\_Type field value first selected by a sensing receiver and reported during a reporting phase shall remain consistent throughout all subsequent measurement reports associated with the same measurement session(#1159).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 1160 | 11.55.1.5.5 | 189.01 | Sentence must be made normative: "sensing receiver shall follow", "sensing receiver should follow"... | As noted. | RevisedAgree with commenter that sentence and description must be made normative.TGbf editor to make changes shown in 11-23/0660r2. |

**Notes:**

* Alignment with text proposed in 23-0478r3 relating to description of Rx\_OP\_Gain\_Index field.
* Referring to the result of different operating points as a “nonlinear effect” is not completely accurate. Some potential effects like gain compression are nonlinear, however a different impulse response of the receiver due to a modified filter shape is not necessarily a “nonlinear effect”.
* Propose removing “nonlinear effect” and describing as “impact of the sensing receiver operating point on the corresponding CSI estimate”.
* Discussion as part of 23-0478r3 pointed to using decimal notation for Rx\_OP\_Gain\_Type field. Changes made as part of this CID in clause 11 and clause 9.

**Proposed Resolution**: Revised

***TGbf Editor: Modify the text in D1.0 188.44-189.15 as follows:***

The sensing receiver shall set the Rx\_OP\_Gain\_Type field to a value in the range of 0 to 2 to indicate the format and contents of each Rx\_OP\_Gain\_Index field (see 9.4.1.75.3 (Sensing Measurement Report Control field) and 9.4.1.75.4 (Sensing Measurement Report field)). The value of 3 is reserved.

When a sensing receiver maps an Rx OP index to a RX\_OP\_Gain\_Index field value, the following statements apply(#1160):

* Each Rx\_OP\_Gain\_Index field shall be set to a value in the range of 0 to 255. A larger value shall indicate that the impact of the sensing receiver operating point on the corresponding CSI estimates is greater. In the case where the impact of the sensing receiver operating point is negligible on the corresponding CSI estimate, the Rx\_OP\_Gain\_Index field value shall be set to 0.
* The value set in the Rx\_OP\_Gain\_Index field may vary between sensing measurement instances belonging to the same sensing measurement session. A change in value indicates a change in the sensing receiver operating point, and thus a change in the impact on the corresponding CSI estimate.
* The same Rx\_OP\_Index field value may be reported for two sensing measurement instances with the same sensing measurement session. This indicates that the sensing receiver operating point is the same when CSI is estimated for each of these two sensing measurement instances. It further indicates that the impact of the sensing receiver operating point on the CSI for each of the two sensing measurement instances is the same.

***TGbf Editor: Modify the text in D1.0 Table 9-127h (93.52-64) as follows:***

|  |  |  |  |
| --- | --- | --- | --- |
| Rx\_OP\_Gain\_Type  | 2 | Indicates the type of report in Rx\_OP\_Gain\_Index | Set to 0 to indicate neither Rx OP index nor Rx gain index is reported.Set to 1 to indicate the Rx OP index is reported and the value set in the Rx\_OP\_Gain\_Index field(s) represent an RX OP index mapping.Set to 2 to indicate the Rx gain index is reported and the value set in the Rx\_OP\_Gain\_Index field(s) represent an RF/Analog Gain Index field and a Digital Gain Index field (Figure 9-144n (Rx\_OP\_Gain\_Index field format when the Rx\_OP\_Gain\_Type field is 2)). The value of 3 is reserved (#1160). |
| Reserved | 2 |  |  |
| Reference Timestamp | 0 or 32 | Optionally present, inclusion signaled by the Timestamp Present subfield within the Presence & Control Bitmap field.  | Optionally present, inclusion signaled by the Timestamp Present subfield within the Presence & Control Bitmap field.  |

***TGbf Editor: Modify the text in D1.0 Table 9-127j (96.18-30) as follows:***

|  |  |  |
| --- | --- | --- |
|  | 8 | RSSI at receive antenna  |
| Rx\_OP\_Gain\_Index(1) | 8 | If the Rx\_OP\_Gain\_Type field is 1, the Rx\_OP\_Gain\_Index(1) field contains the Rx OP index for receive antenna 1.If the Rx\_OP\_Gain\_Type field is 2, the Rx\_OP\_Gain\_Index(1) field contains the Rx gain index for receive antenna 1.If the Rx\_OP\_Gain\_Type field is 0 or 3, the Rx\_OP\_Gain\_Index(1) field is reserved(#1160). |
| Rx\_OP\_Gain\_Index(2) | 8 | If the Rx\_OP\_Gain\_Type field is 1, the Rx\_OP\_Gain\_Index(2) field contains the Rx OP index for receive antenna 2.If the Rx\_OP\_Gain\_Type field is 2, the Rx\_OP\_Gain\_Index(2) field contains the Rx gain index for receive antenna 2.If the Rx\_OP\_Gain\_Type field is 0 or 3, the Rx\_OP\_Gain\_Index(2) field is reserved(#1160). |
| … | … | … |
| Rx\_OP\_Gain\_Index | 8 | If the Rx\_OP\_Gain\_Type field is 1, the Rx\_OP\_Gain\_Index() field contains the Rx OP index for receive antenna .If the Rx\_OP\_Gain\_Type field is 2, the Rx\_OP\_Gain\_Index() field contains the Rx gain index for receive antenna .If the Rx\_OP\_Gain\_Type field is 0 or 3, the Rx\_OP\_Gain\_Index() field is reserved(#1160). |

***Modify the text in D1.0 104.56-105.15 as follows:***

If the Rx\_OP\_Gain\_Type field is set to 1, each Rx\_OP\_Gain\_Index field represents an Rx OP index mapped to a value in the range of 0 to 255. The Rx OP index indicates the level of impact the sensing receiver operating point has on corresponding CSI estimation.

If Rx\_OP\_Gain\_Type field is set to 2, each Rx\_OP\_Gain\_Index field represents an Rx gain index.

The Rx gain index indicates the sensing receiver RF/analog and digital gain indexes. The format of the

Rx\_OP\_Gain\_Index field when the Rx\_OP\_Gain\_Type field is 2 is defined in Figure 9-144n (Rx\_OP\_Gain\_Index field format when Rx\_OP\_Gain\_Type field is 2). The RF/analog Gain Index field and the Digital Gain Index field within the Rx\_OP\_Gain\_Index field indicate a mapping to the sensing receiver RF/analog and digital gains respectively.

|  |  |  |
| --- | --- | --- |
|  | B0               B5 | B6               B7 |
|  | RF/Analog Gain Index |  Digital Gain Index |
| Bits: | 6 | 2 |

**Figure 9-144n— Rx\_OP\_Gain\_Index field format when the Rx\_OP\_Gain\_Type field is 2**

If the Rx\_OP\_Gain\_Type field is set to 0 or 3, then each Rx\_OP\_Gain\_Index field is reserved.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**SP:**

Do you support the resolution to CIDs 2126, , 1158, 1159, 1160, , as proposed in 11-23/0660r2 and incorporating the changes into the latest TGbf draft?

Y/N/A