IEEE P802.11
Wireless LANs

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| LB276 CR for Threshold-based Reporting - Part 2 |
| Date: 2023.09.14 |
| Author(s): |
| Name | Company | Address | Phone | email |
| Mengshi Hu | Huawei Technologies | F3, Huawei Base, Bantian, Longgang, Shenzhen, Guangdong, China, 518129 |  | humengshi@huawei.com |
| Rui Du |  |  |  |
| Narengerile |  |  |  |
| Zhuqing Tang |  |  |  |
| Yiyan Zhang |  |  |  |

Abstract

This submission contains the proposed comment resolutions of CIDs in 23/1394 LB276 comments and approved resolutions.

The following CIDs related to the threshold-based reporting are resolved:

All the remaining CIDs related to the threshold-based reporting in Clause 11: 3059, 3060, 3061, 3064, 3067, 3134, 3180, 3181, 3182, 3183, 3184, 3256, and 3364.

Revision Notes

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| R0 | Initial revision |

## CIDs 3059, 3060, 3061, 3064, 3067, 3134, 3180, 3181, 3182, 3183, 3256, 3364

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| CID | Page.Line | Clause Number | Comment | Proposed Change | Resolution |
| 3059 | 152.51 | 11.55.1.5.2.6.2 | The juxtaposition of "is optional and shall" does not make sense. Is it truly optional or is it conditionally mandatory and optional otherwise? | If conditionally mandatory and otherwise optional, use a statement like "if <condition> shall, otherwise may" or "if <condition> shall. If <not condition> may." | REVISED.Agree with the commenter that the wording can be improved.***Instructions to the editor:*** **Please make the changes as shown under CID 3059 in 11-23/1640r2.** |
| 3060 | 152.54 | 11.55.1.5.2.6.2 | "may implement" is not appropriate. The statement seems to be describing the purpose of threshold-based reporting; if so use descriptive language. As a description, the clarity could be improved. | Change to "Threshold-based reporting allows the sensing initiator to determine if the CSI variation as measured by the sensing responder is within the threshold set by the initiator." | REVISED.Agree with the commenter that the wording can be improved.***Instructions to the editor:*** **Please make the changes as shown under CID 3060 in 11-23/1640r2.** |
| 3181 | 152.54 | 11.55.1.5.2.6.2 | Change "may implement" to "may include" | As per comment | REVISED.It is incorrect to say “A sensing initiator may include the threshold-based reporting …”. However, to make it clear, the corresponding sentence is updated.***Instructions to the editor:*** **Please make the changes as shown under CID 3181 in 11-23/1640r2.** |
| 3061 | 152.61 | 11.55.1.5.2.6.2 | The implementation that is the subject of the "shall" and "may" in this paragraph is not clear. Identify the responsible implemetation and what is needed for compliance (e.g., sending a certain frame). If this is desciptive, use alternate phrasing. | Replace with "The threshold-based reporting phase includes a CSI variation reporting subphase and might include a measurement reporting subphase." | REVISED.Agree with the commenter that the wording can be improved.***Instructions to the editor:*** **Please make the changes as shown under CID 3061 in 11-23/1640r2.** |
| 3064 | 152.49 | 11.55.1.5.2.6.2 | The subclause on threshold-based reporting is extremely vague. It could benefit from a description of the objective (seems to be reducing overhead by only reporting if the variation is greater than a certain threshold). It could benefit from some definition of the terms used: CSI variation threshold, CSI variation value. | Imrove the clarity of this subclause. Describe the purpose. | REVISED.Agree with the commenter that the objective could be further explained.***Instructions to the editor:*** **Please make the changes as shown under CID 3064 in 11-23/1640r2.** |
| 3067 | 153.14 | 11.55.1.5.2.6.2 | At 153.1 it states that the CSI variation value "indicates the quantified difference between" something and something. But at 153.14 is states that "the selection method of the CSI variation value" is implementation specific. Different and confusing terminology is being used for this value. | Unambiguously define "CSI variation value"; what it represents and how it is determined. | REVISED. "The selection method of the CSI variation value" is not the definition of the CSI variation. To avoid confusion, the corresponding sentences are updated.***Instructions to the editor:*** **Please make the changes as shown under CID 3067 in 11-23/1640r2.** |
| 3134 | 152.01 | 11.55.1.5.2.6.2 | It is not clear how Case A or Case B is selected. | It is not clear how the responder is in Case A or Case B. Is it decided and indicated by a sensing initiator or indicated by a sensing responder to a sensing initiator? Which frame does carry this information? | REVISED.This mechanism is similar to the immediate and delayed feedbacks in the basic reporting phase. The responder may either announce an immediate report or a delayed report by using the Measurement Exchange ID carried in the Sensing Measurement report frame. To make it clear, the corresponding paragraph is updated.***Instructions to the editor:*** **Please make the changes as shown under CID 3134 in 11-23/1640r2.** |
| 3180 | 152.53 | 11.55.1.5.2.6.2 | Change the text "...CSI Variation Threshold field in the TB Sensing Specific subelementset to a value in the range of 0 to 10" to | ...CSI Variation Threshold field in the TB Sensing Specific subelement set to a value in the range of 0 to 10 as part of the Sensing Measurement Request frame. | ACCEPTED. |
| 3182 | 152.63 | 11.55.1.5.2.6.2 | Change the text "Only the sensing responders that report their CSI variation value greater than or equal to the CSI variation threshold assigned to them participate in the measurementreporting sub-phase." to | Only the sensing responders that report their CSI variation value greater than or equal to their assigned CSI variation threshold may participate in the measurement reporting sub-phase. | ACCEPTED. |
| 3183 | 153.36 | 11.55.1.5.2.6.2 | Change the text "shall be determined by the sensing initiator" to "shall be determined by the application" since that is the entity that controls such parameters. | As per comment | REVISED.Agree with the commenter in principle. To be clearer, “at the sensing initiator” is also added to the sentence.***Instructions to the editor:*** **Please make the changes as shown under CID 3183 in 11-23/1640r2.** |
| 3256 | 153.31 | 11.55.1.5.2.6.2 | Depicts typically mean that something is illustrated by a figure, so this is not really what the CSI variation value does. | Replace "depict"s by "is a measure of" | ACCEPTED. |
| 3364 | 153.19 | 11.55.1.5.2.6.2 | Improve wording "A larger CSI variation value shall reflect a larger CSI variation.". This is entirely circular. | E.g. "Larger values reflect a larger difference between current measured CSI and the latest reported CSI" | REVISED.Agree with the commenter in principle.***Instructions to the editor:*** **Please make the changes as shown under CID 3364 in 11-23/1640r2.** |

***Instructions to the editor: please make the following changes to Page 152, Line 49 in the subclause 11.55.1.5.2.6.2 (Threshold-based reporting phase) in 802.11bf D2.0 as shown below:***

**11.55.1.5.2.6.2 Threshold-based reporting phase**

Implementation of threshold-based reporting is optional. If implemented, the threshold-based reporting shall be only present in TB sensing measurement exchanges for the measurement session established with the CSI Variation Threshold field in the TB Sensing Specific subelement set to a value in the range of 0 to 10 as part of the Sensing Measurement Request frame (#3059, #3180).

Threshold-based reporting allows the sensing initiator to find out the sensing responder(s) with their CSI variation values greater than or equal to the CSI variation threshold values assigned to them in the corresponding Sensing Measurement Request frame(s), and then allows the sensing initiator to transmit a Sensing Reporting Trigger frame to obtain the Sensing Measurement Report frame(s) containing the measurement result(s) from those sensing responder(s) (#3060, #3181). This procedure enables the sensing initiator to get the feedback(s) only corresponding to large CSI variation(s) to reduce the overhead of regular feedback(s) in a basic reporting phase. (#3064)Threshold-based reporting phase includes a CSI variation reporting sub-phase and might additionally include a measurement reporting sub-phase (#3061). Only the sensing responders that report their CSI variation value greater than or equal to their assigned CSI variation threshold may participate in the measurement reporting sub-phase. (#3182)

Only the sensing responders that report their CSI variation value greater than or equal to their assigned CSI variation threshold may participate in the measurement reporting sub-phase.

The CSI variation value determined by a sensing responder indicates the quantified difference between the current measured CSI and the latest reported CSI at the sensing responder if the Sensing Measurement Report frame of the sensing responder sent in the CSI Variation reporting sub-phase corresponds to the SI2SR NDP in the current sensing measurement exchange (Case A); and indicates the quantified difference between the measured CSI of the previous sensing measurement exchange and the latest reported CSI, if the Sensing Measurement Report frame of the sensing responder sent in the CSI Variation reporting sub-phase corresponds to the SI2SR NDP in the previous sensing measurement exchange (Case B). In the threshold-based reporting, a sensing responder shall be either in Case A or in Case B consistently throughout all the subsequent TB sensing measurement exchanges corresponding to the same sensing measurement session. The Measurement Exchange IDs indicated by a responder in its Sensing Measurement Report frames in both the CSI Variation reporting sub-phase and the measurement reporting sub-phase of the same sensing measurement exchange shall correspond to either the current sensing measurement exchange or the previous sensing measurement exchange, and shall be the same. (#3134)

The quantization method of the CSI variation at the sensing responder is implementation specific, but the following apply: (#3067)

— The CSI variation value shall be within the closed interval [0, 1].

— A larger CSI variation value shall reflect a larger difference between the measured CSI and the latest reported CSI. (#3364)

— A CSI variation value equal to 0 should indicate that the CSI variation is smaller than an implementation-dependent reference value.

— A CSI variation value equal to 1 should indicate that the CSI variation is larger than a second implementation-dependent reference value.

— The above reference values should be the same in all sensing measurement exchanges of a sensingmeasurement session for a given sensing responder

NOTE—The CSI variation value is a measure of the amplitude and phase variations of the channel between a sensing initiator and a sensing responder. (#3256)

The CSI variation threshold for each sensing responder to be compared with the CSI variation value shall be determined by the application at the sensing initiator (#3183), and shall be transmitted to each sensing responder within a Sensing Measurement Request frame. Different sensing responders may have different threshold values set by the sensing initiator.

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***Instructions to the editor: please make the following changes to Page 153, Line 48 in the subclause 11.55.1.5.2.6.2 (Threshold-based reporting phase) in 802.11bf D2.0 as shown below:***

Change “Sensing CSI Variation Feedback frame” into “Sensing Measurement Report frame”.

## CID 3184

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| CID | Page.Line | Clause Number | Comment | Proposed Change | Resolution |
| 3184 | 153.55 | 11.55.1.5.2.6.2 | Change "RUs" to "UL resources" which imply spatial resource as well | As per comment | ACCEPTED. |

Discussion:

In the measurement reporting sub-phase, for all sensing responders for which the reported CSI variation feedback value was greater than or equal to the CSI variation threshold, the sensing initiator should transmit a Sensing Reporting Trigger frame assigning RUs to the corresponding sensing responders a SIFS after the reception of the Sensing Measurement Report frame that included the CSI variation feedback; otherwise, the sensing initiator shall not send a Sensing Reporting Trigger frame to the corresponding sensing responders.