IEEE P802.11
Wireless LANs

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| [RSTA requires ISTA-to-RSTA LMR](relative to IEEE REVmd D2.0 and 802.11az D1.0) |
| Date: 2019-03-12 |
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Abstract

This submission proposes advertisement of RSTA policy requiring ISTA-to-RSTA LMR capability from ISTAs. This submission is a proposal to resolve CID 1624.

History:

R0: Initial Version

R1: Updated Author(s) list; and added reference to the CID that this submission proposes a resolution for.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1624 | Ganesh Venkatesan | 9.4.2.26 | 36 |  | Based on discussions/comments related to market adoption hurdles for Fine Timing Measurement protocol (in REVmc) from AP Vendors, it would be prudent to add a ISTA to RSTA LMR Required bit in the Extended Capabilities element. This bit would indicate if the RSTA requires the ISTA to support ISTA to RSTA LMR in order to successfully negotiate a FTM (limited to nTB and TB) session with an ISTA. | The commenter will bring a submission to resolve this comment. | REVISE: incorporate the editor instructions of submission 19-11-481 (this submission). |

# Discussion: For an overview of the motivation see submission 19-11-468.

Resolution : REVISE.

# 9.4.2.26 Extended Capabilities element

***TGaz Editor: Insert the following new row into Table 9-283 Extended Capabilities element as shown below:***

|  |  |  |
| --- | --- | --- |
| Bits | Information  | Notes |
| <ANA> | Protection of RangeNegotiation andMeasurement ManagementFrames Required | A STA sets the Protection of Range MeasurementManagement Frames Required field to 1 ifdot11RSTARequiresPMFActivated is true. Otherwisethe STA sets the Protection of Range MeasurementManagement Frames Required field to 0. See11.22.6.3.1 (Range Measurement Negotiation) |
| <ANA> | ISTA-to-RSTA LMR Required | A STA sets the ISTA-to-RSTA LMR Required field to 1 if dot11RSTARequiresLMRActivated is true and either dot11NonTriggedBasedRangingRespImplemented is true or dot11TriggedBasedRangingRespImplemented is true . Otherwise the STA sets the ISTA-to-RSTA LMR Required field to 0. See 11.22.6.3.1 (Range Measurement Negotiation) |
| <ANA> | Passive Location Ranging Responder Measurement Support | A STA sets the Passive Location Ranging Responder Measurement Support field to 1 whendot11PassiveLocationRangingResponderActivatedis true. Otherwise, the STA sets the Passive Location Ranging Responder Measurement Support field to 0. See 11.22.6.4.9 (Measurement Exchange in Passive Location Ranging mode). |

**11.22.6.2 FTM capabilities**

*TGaz Editor: Insert new items at the end of Cl. 11.22.6.2 as shown below:*

A STA in which either dot11NonTriggedBasedRangingRespImplemented is true or dot11TriggedBasedRangingRespImplemented is true; and dot11RSTARequiresLMRActivated is true shall set the ISTA-to-RSTA LMR Required field of the Extended Capabilities element to 1. Otherwise the ISTA-to-RSTA LMR Required field of the Extended Capabilities element shall be set to 0.

A STA in which dot11RSTARequiresPMFActivated is true shall set the Protection of Range Negotiation and Measurement Management Frames Required field of the Extended Capabilities element to 1. Otherwise the Protection of Range Negotiation and Measurement Management Frames Required field of the Extended Capabilities element shall be set to 0.

**11.22.6.3.3 Trigger-based and non-Trigger-based Ranging Measurement Negotiation**

***TGaz Editor: Insert new paragraphs to Cl. 11.22.6.3.3 as shown below:***

An RSTA shall reject a request if it has set the Protection of Range Negotiation and Measurement Management Frames Required field of the Extended Capabilities element to 1, and the ISTA has not successfully set up a security context to protect IFTMR, IFTM and LMR frames exchanged between the RSTA and the ISTA. Note that the security context can either be established as a result of a successful association between the RSTA and ISTA; or as a result of the ISTA successfully completing PASN as described in 12.13 Pre-Association Security Negotiation.

An RSTA in which dot11RSTARequiresLMRActivated is true, shall reject arequest from an ISTA if the ISTA2RSTA LMR Feedback subfield in the Ranging Parameters field of the Ranging Parameters element included in the corresponding initial Fine Timing Measurement Request is set to 0.

An RSTA shall reject a request for TB Ranging from an ISTA if the RSTA cannot assign the ISTA to an availability window that does not overlap with a 10 TU interval in which the ISTA is unavailable (as signaled by the ISTA Availability Window element in the IFTMR).

# ***A*nnex C**

# **(normative)**

# **ASN.1 encoding of the MAC and PHY MIB**

***TGaz Editor: Delete insertion in Clause C.1 (these are already in C.3)***

**C.3 MIB detail**

***Insert the following entry into*** *Dot11WirelessMgmtOptionsEntry* ***as shown below:***

Dot11WirelessMgmtOptionsEntry ::=
SEQUENCE {

*…*

|  |  |
| --- | --- |
| dot11FineTimingMsmtRespActivated dot11FineTimingMsmtInitActivated dot11LciCivicInNeighborReport dot11RMFineTimingMsmtRangeRepImplemented dot11RMFineTimingMsmtRangeRepActivated dot11RMLCIConfigured dot11RMCivicConfigured  | TruthValue,TruthValue,TruthValue,TruthValue,TruthValue,TruthValue,TruthValue, |
| dot11SecureLTFImplemented | TruthValue, |
| dot11TriggedBasedRangingRespImplemented | TruthValue, |
| dot11NonTriggerBasedRangingRespImplemented | TruthValue, |
| dot11RSTARequiresLMRActivated | TruthValue, |
| dot11RSTARequiresPMFActivated | TruthValue, |
| dot11PassiveLocationRangingResponderActivated | TruthValue, |
| dot11PassiveRangeImplemented | TruthValue, |
|  |  |

***TGaz Editor: Insert*** dot11RSTARequiresLMRActivated ***OBJECT-TYPE as shown below:***

dot11TriggerBasedRangingRespImplemented OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This is a capability variable.
Its value is determined by device capabilities.
This attribute, when true, indicates that support for negotiating and executing Trigger Based Ranging protocol as a Responding STA (see 11.22.6 (Fine Timing Measurement Procedure)) is
implemented. The capability is disabled otherwise."

DEFVAL { false }

::= { dot11WirelessMgmtOptionsEntry <tbd>}

dot11NonTriggerBasedRangingRespImplemented OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This is a capability variable.
Its value is determined by device capabilities.
This attribute, when true, indicates that support for negotiating and executing non-Trigger Based Ranging protocol as a Responding STA (see 11.22.6 (Fine Timing Measurement Procedure)) is
implemented. The capability is disabled otherwise."

DEFVAL { false }

::= { dot11WirelessMgmtOptionsEntry <tbd>}

dot11RSTARequiresLMRActivated OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"This is a control variable.
It is written by an external management entity or the SME.
Changes take effect at the next occurrence of an MLME-START.request or
MLME-JOIN.request primitive.

This attribute, when true, indicates that the station requires initiating stations to support the capability to generate and transmit ISTA-to-RSTA Location Measurement Reports, in order

to successfully negotiate a Range Measurement Session

(see 11.22.6.3.1 (Range Measurement Negotiation)).
False indicates that the station does not require initiating stations to support ISTA-to-RSTA Location Measurement Reporting capability in order to successfully negotiate a Range Measurement session. "

DEFVAL { false }

::= { dot11WirelessMgmtOptionsEntry <tbd>}

dot11RSTARequiresPMFActivated OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"This is a control variable.
It is written by an external management entity or the SME.
Changes take effect at the next occurrence of an MLME-START.request or
MLME-JOIN.request primitive.

This attribute, when true, indicates that the station requires Management Frame Protection for all management frames exchanged during the negotiation

(see 11.22.6.3.1 Range Measurement Negotiation) and range measurement procedure

(see 11.22.6.4.3 Measurement Exchange in TB Mode,

11.22.6.4.4 Measurement Exchange in non-TB Mode and

11.22.6.4.6 Secure non-TB and TB Measurement Exchange Protocol) to successfully negotiate a Range Measurement Session

(see 11.22.6.3.1 (Range Measurement Negotiation)).
False indicates that the station does not require

Management Frame Protection for all management frames exchanged during the negotiation

(see 11.22.6.3.1 Range Measurement Negotiation) and range measurement procedure to successfully negotiate a Range Measurement session. False indicates that the station does not require Management Frame Protection for all management frames exchanged during negotiation and range measurement Procedure to successfully negotiate a Range Measurement session. "

DEFVAL { false }

::= { dot11WirelessMgmtOptionsEntry <tbd>}