IEEE P802.11
Wireless LANs

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| Proposed Draft Text for MLME – Part II |
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Abstract

This document includes proposed draft text part II that covers the broad MLME topic as defined in TGbf’s SFD by the following:

“The 11bf amendment shall define a new subclause under 6.3 (MLME SAP interface) that specifies request, confirm, indication, and response primitives for WLAN sensing.”

Baseline documents: Rev. me (D1.0) and 11be (D1.4)

r1: Remove the NDP that is not used in the sensing measurement in Figure 6-28b and Figure 6-28c.

r2: Use dashed lines to show optional report frames, add a sentence for clarification for figures, and add Ali as co-author.

**Discussion**

TGbf’s SFD defines that for non-TB sensing measurements:

1. “The sensing measurement setup procedure consists of:
* The transmission of a sensing measurement setup request frame by the sensing initiator to a sensing responder with which it intends to perform a sensing measurement setup, followed by the transmission of an Ack frame by the intended sensing responder; and
* The transmission of a sensing measurement setup response frame by the intended sensing responder to the sensing initiator which transmitted the sensing measurement setup request frame to accept or reject the sensing measurement setup, followed by the transmission of an Ack frame by the sensing initiator.” (Motion 41, 21/1735r3; Motion 51, 21/1828r4)
1. “A non-TB sensing measurement instance is defined as follows:
* One non-AP STA is the sensing initiator and one AP is the sensing responder.
* Once the non-AP STA obtains a TXOP, it initiates a non-TB sensing measurement instance by transmitting an NDPA frame to the AP followed by an Initiator-to-Responder (I2R) NDP after SIFS. SIFS after the I2R NDP, the AP shall transmit a Responder-to-Initiator (R2I) NDP to the non-AP STA.
* If the non-AP STA is only the sensing transmitter, then the NDPA frame should configure the R2I NDP to be transmitted with minimum possible length with one LTF symbol.
* If the non-AP STA is only the sensing receiver, then the NDPA frame should configure the I2R NDP to be transmitted with minimum possible length with one LTF symbol.
* The details of the NDPA frame are TBD.
* I2R/R2I NDP formats are TBD.” (Motion 25c, 21/0990r2; Motion 26c, 21/1015r2)

With all of this in mind, we propose the text below to be added into sub-clause 6.3. The diagrams in the following pages depict three non-TBsensing measurement instances, with uplink sounding, downlink sounding and bidirectional sounding, respectively.

**Contribution**

*Insert the following new subclause in 6.3.132:*

**6.3.132 WLAN sensing**

**6.3.132.1 General**

The following set of MLME primitives supports the WLAN sensing procedure described in 11.21.18 (WLAN sensing procedure). Figure 6-28b, Figure 6-28c and Figure 6-28d are examples of basic procedures and are not meant to be exhaustive of all possible uses of the protocol.

Figure 6-28b (WLAN sensing procedure, non-TB sensing measurement instance with uplink sounding) depicts a non-TB sensing measurement procedure that consists of uplink sounding (see 11.21.18 (WLAN sensing procedure)).



**Figure 6-28b: WLAN sensing procedure, non-TB measurement instance with uplink sounding**

Figure 6-28c (WLAN sensing procedure, non-TB sensing measurement instance with downlink sounding) depicts a non-TB sensing measurement procedure that consists of downlink sounding (see 11.21.18 (WLAN sensing procedure)).



**Figure 6-28c: WLAN sensing procedure, non-TB measurement instance with downlink sounding.**

Figure 6-28d (WLAN sensing procedure, non-TB sensing measurement instance with both uplink and downlink sounding) depicts a non-TB sensing measurement procedure that consists of both uplink and downlink sounding (see 11.21.18 (WLAN sensing procedure)).



**Figure 6-28d: WLAN sensing procedure, non-TB measurement instance with both uplink and downlink sounding.**

*Insert the following new text at the end of 6.3.132.13:*

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| Discussion: Primitives below are for non-TB sensing measurement instance request and report |

**6.3.132.14 MLME- SENSNTBMSMTRQ.request**

**6.3.132.14.1 Function**

This primitive is used by the SME of a non-AP STA to request a non-TB sensing measurement instance to be performed with an AP defined in 11.21.18 (WLAN sensing procedure).

**6.3.132.14.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SENSNTBMSMTRQ.request (

TBD

)

**6.3.132.14.3 When generated**

This primitive is generated by the SME of a non-AP STA to request a non-TB sensing measurement instance to be performed with an AP.

**6.3.132.14.4 Effect of receipt**

On receipt of this primitive, the MLME constructs an NDPA frame to be transmitted to the AP followed by an I2R NDP after SIFS.

**6.3.132.15 MLME-SENSNTBMSMTRQ.confirm**

**6.3.132.15.1 Function**

This primitive reports the results of a non-TB sensing measurement instance.

**6.3.132.15.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SENSNTBMSMTRQ.confirm (

TBD

)

**6.3.132.15.3 When generated**

This primitive is generated by the MLME when the non-AP STA receives a Sensing Measurement Report frame.

**6.3.132.15.4 Effect of receipt**

On receipt of this primitive, the SME uses the information contained within the notification.

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| Discussion: Primitives below are for sensing non-TB measurement/report |

**6.3.132.16 MLME-SENSNTBREPORT.indication**

**6.3.132.16.1 Function**

This primitive indicates that a WLAN sensing measurement has been obtained.

**6.3.132.16.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SENSNTBREPORT.indication (

TBD

)

**6.3.132.16.3 When generated**

This primitive is generated by the MLME when a WLAN sensing measurement is obtained.

**6.3.132.16.4 Effect of receipt**

On receipt of this primitive, the SME should operate according to the procedure in 11.21.18 (WLAN sensing procedure).

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| Discussion: Primitives below are for non-TB sensing measurement request/report |

**6.3.132.17 MLME-SENSNTBREPORTRQ.request**

**6.3.132.17.1 Function**

This primitive requests the transmission of a Sensing Measurement Report frame to a non-AP STA.

**6.3.132.17.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SENSNTBREPORTRQ.request (

TBD

)

**6.3.132.17.3 When generated**

This primitive is generated by the SME to request that a Sensing Measurement Report frame be sent to a non-AP STA to deliver a sensing measurement report.

**6.3.132.17.4 Effect of receipt**

On receipt of this primitive, the MLME constructs a Sensing Measurement Report frame and causes it to be transmitted to the non-AP STA in response to the received NDPA and I2R NDP.

**6.3.132.18 MLME-SENSNTBREPORTRQ.confirm**

**6.3.132.18.1 Function**

This primitive reports the results of a request to transmit a Sensing Mesurement Report frame.

**6.3.132.18.2 Semantics of the service primitive**

The primitive parameters are as follows:

MLME-SENSNTBREPORTRQ.confirm (

TBD

)

**6.3.132.18.3 When generated**

This primitive is generated by the MLME when the AP successfully transmits a Sensing Measurement Report frame.

**6.3.132.18.4 Effect of receipt**

On receipt of this primitive, the SME may release the resources associated with the sensing measurement report of the reported sensing measurement instance.