IEEE P802.11
Wireless LANs

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| CID5959 ESTTHROUGHPUT SAP Editorial Changes |
| Date: 2015-11-12 |
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Abstract

This document proposes an update to the resolution of LB1000 (first sponsor ballot) CID 5959 document 11-15-0653r2 which provided modifications to the ESTTHROUGHPUT SAPs introduced by the resolution of CID 3309 of LB202 (i.e. the 11-15-0653r2 resolution of CID 5959 added uplink throughput estimate and added an example algorithm for determining the estimated throughput values). Following the adoption of 11-15-0653r2 as the resolution for CID5959, editorial review suggested that some refinement to the updated draft was needed. This document provides those refinements.

**REVISION NOTES:**

R0: initial

R1: change draft reference from 4.2-835 to 4.2

R2: modify Probe request change slightly

 Revert to the already adopted old IE format for the ESP IE (i.e. remove the proposed change to the new element ID extension format)

 Add an instruction to the editor to remove the reserved octet of the ESP IE

 Remove the definitions of the min() and max() functions as these are already defined somewhere for all of 802.11

Change draft reference (and cited and changed text) to D4.3

Remove the change to add an equation reference number in annex V text because the editor already made the change in D4.3

R3: a few minor changes that were implemented based on discussion during TGmc session 2015-11-11 PM2

R4: changes highlighted in yellow, these were based on discussion during presentation during TGmc session 2015-11-11 PM2, but were a bit more complex and therefore, took more time than was available during the PM2 session to be able to complete during that session therefore necessitating r4

R5: a couple more changes, added in yellow highlighting

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

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

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

**CID LIST:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 5959 | Matthew Fischer | 512.45 | 6.3.103.3.2 | The MLME-ESTIMATED-THROUGHPUT.confirm needs to have an uplink estimate in addition to the downlink estimate. The existing estimate could be improved. Some management pieces are missing to allow the estimated throughput to be computed. A MIB variable is needed to correspond to the functionality. | A presentation will be provided to address these and other issues related to the estimated throughput MLME SAP. | Revise - TGmc editor to execute proposed changes from 11-15-0653r2 found under all headings which include CID5959 and all changes from 11-15-1022r2 found under all headings which include CID5959 |

**Discussion:**

During the July 2015 session, document 11-15-0653r2 was adopted as the resolution for CID 5959. During the editorial execution of the draft changes outlined in that document and during the editorial review that followed the completion of those changes, some areas for improvement were noted within the subclasues affected by the changes. This document attempts to improve upon the changes introduced by 11-15-0653r2.

A summary of the modifications follows:

1. 653r2 included an inadvertent modification of a MIB variable reference within management frame body contents listings - dot11RadioMeasurementActivated was changed to dot11MultiDomainCapabilityActivated
2. 653r2 proposed that the ESP IE be formatted in the traditional IE manner, this document changes the format to use the new Element ID Extension field
3. 653r2 added a MIB variable but did not include a group to which it should be assigned – this document assigns the MIB variable to dot11StationConfigTable and to dot11SMTbase13
4. 653r2 included an annex subclause containing a set of equations for calculating an estimated throughput value – this document proposes various improvements to the formatting of those equations

**Proposed changes**

NOTE – the draft of reference is Draft P802.11REVmc\_D4.3.pdf

**CID 5959**

***TGmc editor: the baseline text for these changes is DraftP802.11REVmc\_D4.3.pdf***

**8.3.3.9 Probe Request frame format**

***TGmc editor: modify the row with value 3 in the order column in the table of Probe Request frame body components, Table 8-33 Probe Request frame body, as shown:***

|  |  |  |
| --- | --- | --- |
| Order | Information | Notes |
| 3 | Request | The Request element is optionally present if dot11RadioMeasurementActivated is true or if dot11EstimatedServiceParametersOptionImplemented is true. |

**8.3.3.10 Probe Response frame format**

***TGmc editor: replace the row with value “Last” in the order column in the table of Probe Response frame body components, Table 8-34 Probe Response frame body, as shown:***

|  |  |  |
| --- | --- | --- |
| Order | Information | Notes |
| Last | Requested elements | Elements requested by the Request element of the Probe Request frame are present if dot11RadioMeasurementActivated or dot11EstimatedServiceParametersOptionImplemented is true. See 10.1.4.3.2 (Active scanning procedure for a non-DMG STA and 10.46 (Estimated throughput.) |

**8.4.2.171 Estimated service parameters element**

***TGmc editor: remove the one-octet reserved field in Figure 8-580 Estimated Services Element format***

***TGmc editor: modify the bullet item from subclause 10.46 Estimated throughput as shown:***

**10.46 Estimated throughput**

RSSI measured during receptions of Beacon and Probe Response frames transmitted by the STA that corresponds to the MAC entity with the MAC address equal to the PeerMACAddress in the MLME-ESTIMATED-THROUGHPUT.request primitive to this STA

**C.3 MIB Detail**

***TGmc editor: add the dot11EstimatedServiceParametersOptionImplemented MIB variable to the groups dot11SMTbase13 and dot11StationConfigTable***

***TGmc editor: modify various items within V.7 Calculating EstimatedThroughput as shown:***

**V.7 Calculating EstimatedThroughput**

***TGmc editor: move the paragraph beginning with EST\_AIRTIME\_FRACTION from its current location to appear as the second item following the first instance of “where” within subclause V.7 Calculating EstimatedThroughput and change the term “EST\_AIRTIME\_FRACTION” to “ESTAirtimeFraction to match the term used in equation V-1.***

***TGmc editor: within subclause V.7 Calculating EstimatedThroughput, change all occurrences of MPDU\_SS to MPDUSS***

***TGmc editor: within subclause V.7 Calculating EstimatedThroughput, change all occurrences of MPDU\_pA\_MPDU to MPDUpAMPDU***

***TGmc editor: within subclause V.7 Calculating EstimatedThroughput, change all occurrences of MPDU\_pPPDU to MPDUpPPDU***

***TGmc editor: within subclause V.7 Calculating EstimatedThroughput, change all occurrences of A\_MSDU\_B to AMSDUB***

***TGmc editor: within subclause V.7 Calculating EstimatedThroughput, change all occurrences of A\_MSDU to AMSDU***

***TGmc editor: within subclause V.7 Calculating EstimatedThroughput, change all occurrences of “measured in B” to “measured in octets”***

***TGmc editor: within subclause V.7 Calculating EstimatedThroughput, change all occurrences of DSYM\_Dur to DSYMDur***

***TGmc editor: change all of the absolute value symbols in the equation for MPDU\_pA\_MPDU to floor symbols as they appeared in the adopted resolution document***

***TGmc editor: change the denominator of the second term in the equation for MPDU\_pA\_MPDU from “PPDUR” to “PPDUR x DataRate”, note to editor: DataRate is already defined in this subclause***

***TGmc editor: change the text from D4.3 page 3693 line 42 as shown:***

*DataRate* is calculated using equation Equation (V-2) and has units of b/s

***TGmc editor: change the text from D4.3 page 3693 lines 13 and 14 as shown:***

*MPDUpAMPDU* is dimensionless

*MPDUSS* is dimensionless

***TGmc editor: at page 3692 line 64, remove the min and max function defintions as shown:***

RSSI is the RSSI (in dBm) of Beacon or Probe Response frames received from the STA with the MAC address that matches the PeerMACAddress in the MLME-ESTIMATED-THROUGHPUT.request primitive

P\_adjust is the implementation specific power adjustment parameter (in dBm) used to convert RSSI into SNR, as well as take into account potential TX power differences between Beacon/Probe Response frames to data frames. The nominal value is 88 if the Beacon or Probe Response frames were received using DSSS or CCK rate, and 86 otherwise.

**References:**