IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CID5959 ESTTHROUGHPUT SAP Editorial Changes | | | | |
| Date: 2015-05-12 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Matthew Fischer | Broadcom | 190 Mathilda Place, Sunnyvale, CA 94086 | +1 408 543 3370 | [mfischer@broadcom.com](mailto:mfischer@broadcom.com) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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

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 11-15-1022r1 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\_D4.2.pdf

**CID 5959**

***TGmc editor: the baseline text for these changes is DraftP802.11REVmc\_D4.2-835.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.  The Request element is optionally present 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.) |

***TGmc editor: modify the Esitmated Service Parameters row of the table of elements, Table 8-74 Element IDs and the row that has the value 255 in the Element ID column as shown (the modification is to include ANA within the Element ID Extension column), noting that the modification to the element ID extension field value for the row containing Reserved for elements using the Element ID Extension field will be an ANA-dependent modification wherein one value of Element ID Extension will be allocated to the ESP IE and therefore removed from the reserved list:***

**8.4.2.1 General**

**Table 8-74—Element IDs**

|  |  |  |  |
| --- | --- | --- | --- |
| Element | Element ID | Element ID Extension | Extensible |
| Reserved for elements using the Element ID Extension field | 255 | 0-255 |  |
| Estimated service parameters (see 8.4.2.171 Estimated service parameters element) | 255 | <ANA> | Yes |

***TGmc editor: modify the ESP element format figure Figure 8-580 Estimated Service Parameters element format within subclause 8.4.2.171 Estimated service parameters element as shown:***

**8.4.2.171 Estimated service parameters element**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Element ID | Length | Element ID Extension | ESP Information |
| Octets: | 1 | 1 | 1 | N x 3 |

**Figure 8-580 Estimated Service Parameters 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 A\_MPDU to AMPDU***

***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 bytes”***

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

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

min(*x,y*) *=* the minimum of *x* and *y*

max(*x,y*) *=* the maximum of *x* and *y*

Note that some of the parameters of equation V-2 have values that are AC dependent

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:**