IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CR for CIDs on Ranging Parameters | | | | |
| Date: 2019-11-04 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Dibakar Das | Intel Inc |  |  | [Dibakar.das@intel.com](mailto:Dibakar.das@intel.com) |
| Ganesh Venkatesan | Intel Inc |  |  | [Ganesh.venkatesan@intel.com](mailto:Ganesh.venkatesan@intel.com) |
| Jonathan Segev | Intel Inc |  |  | [Jonathan.segev@intel.com](mailto:Jonathan.segev@intel.com) |
| Ali Raissinia | Qualcomm Inc |  |  | alirezar@qti.qualcomm.com |

Abstract

This document addresses the following CIDs: 1467, 1475, 2073 and 1729.

R0: initial version.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1475 | 56.04 | 9.4.2.279 | How is th value of MaxToAAvailable Exp associated with TB specific session when in IFTM or IFTMR in TB specific element ? Clarify its value. | Clarify | **Revised.**  We renamed this field as “MaxSessionExp” to clarify that this indicates Maximum Session Expiry duration. We have modified the text to describe its usage as per document 11-19-1866r2. |
| 1467 | 56.04 | 9.4.2.279 | MaxToAAvailable  Exp should be a common parameter since its present in both TB and NTB Specific subelements but only used in one at a time. | Move them to a subfield in Ranging Parameters field if they have the same behavior. | **Reject.**  The term MaxToAAvaialble Exp no longer exists in draft 1.4 for NTB Ranging where it has been renamed as “Max Time Between Measurement”. Its size and value is different from that one for TB Ranging. |
| 2073 | 34.29 | 9.4.2.246 | [Re-raising this comment from the comment collection, as it is not possible to determine from 18/1544r8 whether/how it was addressed. References are to the CC draft and hence may be wrong against D1.0.]  ^ | Use superscript | **Revised.**  We have modified the text as per document 11-19-1866r2. |

Discussion: In the September ad-hoc meeting we agreed to rename this field to MaxSessionExp. In order to describe its usage, we add texts in Clause 9 describing how its value is interpreted. In Clause 11 negotiation part we clarify (a) how the value of this field relates to that of the assigned Periodicity of TB Ranging session, (b) that an ISTA should respond to a Poll and the RSTA should poll this ISTA before this time expires. In clause 11 termination section we add text clarifying that session may be terminated after the expiry of this field. For interpretation of the field value we used the same units as we initially had in draft 1.0.

***TGaz Editor: Modify Figure 9-1008 at P74L19 as:***

B0 B7 B8 B15

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Subelement ID (1) | Length | Availability Window | AID/RSID | Response | Trigger Frame Padding Duration | Passive Location Ranging |

Bits: 8 8 Variable 16 1 2 1

|  |  |
| --- | --- |
| Max Session Exp | BSS Color Information |

Bits: 4 8

**Figure 9-1008—TB Specific subelement format (#1475, 1710)**

***TGaz Editor: Modify text starting at P76L9 as:***

The Max Session Exp field the time before which a new measurement exchange between the ISTA and RSTA should be initiated and completed. This value is computed as 2(Max Session Exp + 8) milliseconds. The range of valid values for Max Session Exp  
is 0 to 15 with corresponding maximum time duration values ranging from 256 msec to 140  
minutes. The Max Session Exp field is reserved in an initial FTM Request frame (#1475, 2073).

***TGaz Editor: Add the following paragraph starting at P116L41 in Section 11.22.6.3.3 as:***

If the RSTA includes a TB-specific subelement in an IFTM and the Status Indication field in the IFTM is set to 1, the RSTA shall assign the value of the Max Session Exp field in the TB Ranging specific subelement in the Ranging Parameters element in the initial FTM frame. The value of this field is larger than the assigned periodicity signalled in the Periodicity subfield in the Availability Window Information field in the TB Ranging Specific subelement (#1475).

***TGaz Editor: Modify the text starting at P164L2 in Section 11.22.6.4.6.2 as:***

A Non-TB Ranging FTM session may be terminated if an ISTA does not initiate a Non-TB ranging measurement exchange with an RSTA before the duration signalled in the MaxTimeBetweenMeasurements field assigned to that ISTA by the RSTA has elapsed from either the end of the successful FTM session negotitation or the beginning of the last successful measurement exchange, whichever is later (#1475).

A TB Ranging FTM session may terminate if the ISTA fails to respond to a TF Ranging Poll and receive one TF Ranging Sounding or TF Ranging Secured Sounding containing its AID/RSID at least once within the Max Session Expiry interval. The Max Session Expiry interval starts from either the end of the successful FTM session negotitation or the beginning of the last successful TB Ranging measurement exchange, whichever is later. The length of this interval is equal to the duration signalled in the Max Session Expiry field, present in the TB Ranging Specific subelement in the Ranging addressed to it Parameters field in the initial FTM frame (#1475).

A TB Ranging or a Non-TB Ranging FTM session may be terminated through one of the following :

— At any time during the session when the responding STA is permitted to transmit an  
RSTA2ISTA LMR frame, the responding STA sends an A-MPDU containing an LMR frame and  
a Fine Timing Measurement frame with the Dialog Token field set to zero and of type Action no  
ACK. In the FTM frame the Follow Up Dialog Token field is set as 0. The FTM frame shall not  
include any Ranging Parameters field.  
 — At any time during the session the initiating STA sends a Fine Timing Measurement Request  
frame with the Trigger field set to zero. This frame shall not include the following:  
— Ranging Parameters field.  
— Measurement Request element.  
— At any time during the session the initiating STA terminates the current session and requests a  
new session with modified ranging parameters (see 11.22.6.5 Fine timing measurement parameter  
 modification).

If the ranging session is a Secure Fine Timing Measurement Session, the corresponding Fine Timing Measurement frames transmitted shall be protect dual of Public Action frames (See 9.6.10 Protected Dual of Public Action frames) (#**2523**, #**2524,** #1475).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1729 | 69.36 | 9.6.7.48 | The range of the Padding bits should be B(n+16) to B[ceiling((Count+16)/8) \*8-1] rather than B(n+16) to B(count-1) \*8. | As in comment | **Revised.**  Agreed in principle with the reviewer. However, for clarity modified the text by (1)  replacing ‘n’ with ‘count’ in Figure 9-1001 and (2) clarify the length of Padding field. See document 11-19-1866r2 |

***TGaz Editor: Modify the Figure 9-1001 in P67L6 of draft 1.5 and the following paragraph as:***



B0 B8 B9 B15 B16 B(count+15)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Count | Reserved | Availability bit  B0 | … | Availability bit  Bcount-1 | Padding |

Bits: 9 7 1 1 0 or B[ceiling((count+16)/8)\*8 -1]

-B(count+16)

**Figure 9-1001 – ISTA Availability Information field format (#1729).**

The Count subfield in the ISTA Availability Information field indicates the total number of  
Availability bits in this field. The value of this subfield is denoted as “count”.

Each Availability bit in the ISTA Availability Information field indicates the ISTA’s availability  
for TB Ranging with the recipient RSTA. The value indicated in the Availability bit is in units of  
10 TUs. Bit Bk (where 0≤*k≤* count-1) represents the ISTA’s periodic availability for TB Ranging  
with the RSTA in the interval [tstart,k , tend,k] repeated every N TUs where  
 tstart,*k* = tstart,0 + 10*k* TU,  
 tend,*k* = tstart,0 + 10(*k+1*) TU,  
 tstart,0 = time 0 per RSTA’s TSF  
 N = 10\*count.

**References:**