Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Comment Resolutions related to PHY]
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Abstract: [Comment Resolutions related to PHY]

Purpose: [This document provides a list of the editing staff that will be working on 802.15.3c.]

Summary

- This document proposes resolutions for comments related to CCA (CID: 417), Directional ACK (302), TSD Mask(281,464,479,378,490,80,91) and Channel Support (9).

Suggested Resolutions for Comments 417 and 578

CID	Subclause	Page	Line	Comment	SuggestedRemedy	Response
417	12.2.8.5	93	49	If CCA requires 5 microseconds, how do we accomodate frames that are shorter than 5 microseconds? It appears frames of this type will exist when the short preamble is used.	Provide a CCA mechanism for shorter frames or explain why this is not needed.	Accept: Reduce CCA to 2 us for SC PHY.
578	7.2.10.5	26	22-27	May a "directional ACK" only be used with the A/V OFDM PHY?	Please clarify. IMHO, the use of directional ACKs should be unrestricted by PHY type, even though the text in this subclause is specifically referring to A/V OFDM "LRP" and "HRP" modes. This subclause is yet another example of how this draft looks like three (more?) independent specs with little common thread holding them together. This draft cannot not be implemented as it is, since insufficient direction is provided to implementers.	Directional Ack is a PHY specific ACK, it uses a specific header format which is not available in SC or HSIOFDM PHYs. Therefore we will add more instructions on Directional ACKs specific situation.

Suggested Resolutions for SIFS Related Comments

CID	Subclause	Page	Line	Comment	SuggestedRemedy	Response
81	12.2.9	94		Table 124: Single SC PHY SSIFS/MIFS	Perhaps I can understand why the SC PHY, HIS PHY and AV PHY all have different IFS times. But I really don't understand why the SC PHY has so many IFS options as shown in Table 124. Are not the IFS times pertinent to CAP access? For the SC PHY only one IFS times should be respectively specifiied for SIFS & MIFS.	Accept in principle: Reduce options to 0.2 us 0.5 us 2us and 2.5 us
302	12.4.1.2	129	23	A SIFS time of 2us corresponds to over 5000 samples at the nominal sampling rate. Such a large SIFS adds a very high per-frame overhead and results in very low throughput for applications that require transmission of short frames (such as wireless equivalents of wired peripheral buses). Note that the SIFS duration for the 802.11 OFDM PHY is only 200-320 samples. Achieving such low turn-around times is technically challenging but will be necessary if the specification is to support applications other than simple streaming and file transfer.	Reduce pPHYSIFSTime to no more than 500 samples (approximately 200ns).	Reject: Keep 2 us as SIFS time for AV PHY, since The time required to switch from transmit to receive is not solely a function of the sample rate. Many other system design considerations have an impact on this time. As one example, turning the power on and off for RX and TX blocks has a time that is determined by the bypass networks on the supply lines. These current spikes often push the VCO frequency around as well, requiring time to settle. The draft provides a method for improving the efficiency of short packets by aggregation, including one specifically targeted at bi-directional low-latency applications

TSD MASK Related Comments

CID	Subclause	Page	Line	Comment	SuggestedRemedy	Response
281	12.2.7.4	91	23	There are 3 different TX PSD mask requirments (12.3.4.1, 12.4.4.1), this will creates confusion.	Converge into a single requirment for all PHYs	Accept in principle: SC PHY shall use current HSI PHY mask. AV PHY will keep its mask , which differs only in out-of-band emissions.
464	12.2.7.4	92	3-15	spectral Mask 0dBr is too wide	Unify Spectral mask with OFDM	Resolve as indicated in CID 281.
479	12.2.7.4	91	23	There are 3 different TX mask requirments	Need to have a unique Tx mask requirement	Resolve as indicated in CID 281.
378	12.2.7.4	91	23	3 different TX PSD mask requirments (12.3.4.1, 12.4.4.1)…needs convergence	Converge to a single requirment for all PHYs	Resolve as indicated in CID 281.
490	12			Do the 3 different Tx spectrum mask requirements assure coexistence?	Unify Tx spectrum mask	Resolve as indicated in CID 281.
80	12.2.7.4	91		Unified spectral mask for 15.3c devices	There should only be one spectral mask that applies to all 15.3c devices, else how do we specify adjacent channel performance. Currently there are three and the AV PHY indicates the most stringent MASK so use the AV PHY mask as specified in Figure 213.	Resolve as indicated in CID 281.
91	12.3.4.1	122		Unified spectral mask for 15.3c devices	Same as above	Resolve as indicated in CID 281.

Channel Support Related Comments

CID	Subclause	Page	Line	Comment	SuggestedRemedy	Response
9	5.5.1	4	21	The text "In addition, a compliant device is not required to support more than one channel." is ambiguous and may lead to non-interoperable implementations. Here is the way I interpreted the text when I read it: Product A operates only on channel A, Product B operates only on channle B. Both products are compliant with the text, yet thy cannot interoperate. Perhaps the ambiguity is resolved elsewhere in the document or I don't fully understand the context in which this clause is to be applied.	Resolve the ambiguity--as an example, I would change the text to read "In addition, a compliant device is not required to support more than one channel, specifically channel A." Where channel A is defined elsewhere in the document.	60 GHz band is an unlicensed band.Therefore we are suggesting a complaint device shall support all available channels in the geographic region where the device is deployed or sold.