

**IEEE P802.15**  
**Wireless Personal Area Networks**

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)	
Title	<b>LB43 suggested resolutions</b>	
Date Submitted	[9 September, 2008]	
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Re:	[]	
Abstract	[Suggested comment resolutions from LB43.]	
Purpose	[To assist in comment resolution.]	
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## 1. Various issues

### 1.1 Clarify data multiplexer description (CID 93, 94)

CID 93: Comment: “Clarification figure needed” Suggested remedy: “The text on the UEP coding data multiplexer is confusing and a clarification drawing would be useful.”

CID 94: Comment: “Clarification figure needed” Suggested remedy: “The text on the UEP mapping data multiplexer is confusing and a clarification drawing would be useful.”

Suggested resolution – Accept in principle: Add to figure 192 an arrow that goes from left to right and says “column-wise read out (top to bottom) in this direction”

### 1.2 More efficient HRP preamble (CID 375)

Comment: “The HRP preamble can be made more efficient by using continuous phase symbols 5-6 and 7-8.” Suggested remedy: “Change as indicated”

Suggested resolution – Accept in principle: In 12.4.3.1, last paragraph, change “are multiplied by a constant ... to form a 576 sample symbol.” to be “are multiplied by a constant whose value is 1 for symbols 5, 6 and 7 and -1 for symbol 8. The time domain samples are obtained by taking a 512-point IFFT of the corresponding frequency-domain values. The time domain-samples for symbols 5-6 and symbols 7-8 symbols are connected with continuous-phase, then repeating the last  $2 \times 64$  samples in the IFFT output before the first sample, to form  $2 \times 576$  sample symbol”

### 1.3 Dependent piconet operation (CID 314, 315, 316)

CID 314: Comment: “It is not defined if an OFDM PNC is allowed to form a dependent piconet when it discovers that a SC PNC is already active on this channel”, Suggested remedy “Define dependent Piconet rules for 2 PNC operating in different phy modes”

Suggested resolution – Accept in principle: The base standard clearly defines the procedure for a PNC-capable DEV to start a dependent piconet (subclauses 8.2.5 and 8.2.6). If the OFDM PNC is capable of common mode, then it is able to start a dependent piconet. If not, it is allowed to start an independent piconet. No change required.

CID 315: Comment “If the OFDM-PNC sends two beacons it is practically forming two piconets, each each beacon shall have a unique piconet ID (PNID) for a single PNC.” Suggested remedy “clarify piconet relations and define procedure for dual beacon TX/RX.”

Suggested resolution – Accept in principle: The requirement for a unique PNID for the dependent piconet is defined in the base standard in subclause 8.2.5 and 8.2.6, e.g., “The child PNC shall use a PNID that is distinct from the parent PNID.” and “The neighbor PNC shall use a PNID that is distinct from the parent PNID.” No change required.

CID 316: Comment “Sending two types of beacons implies operating a dependent piconet. clock sync is mandatory for dependent piconet. Mechanism for dependent piconets operating in different sample rate, is not defined.” Suggested remedy “Define synchronization mechanism for dependent piconets operating in different phy modes”

Suggested resolution: Accept in principle: The synchronization is already defined in the base standard. The dependent piconet uses a CTA in the parent piconet, in which the timing is based on 1 us resolution, inde-

pendent of the sampling rate of the PHY. This is the same synchronization that is required of all DEVs to participate in a piconet, so no special adjustments are required. No change required.

#### 1.4 Common mode definition (CID 544)

Comment: What is meant by "supported by all devices in an 802.15.3? piconet" Suggested remedy: "Supported by" may mean (1) all devices may transmit using this "common rate", (2) all devices may receive this "common rate", (3) or all devices may transmit and receive this "common rate". It seems (given the rest of the TG3c draft) that (2) is intended, but, honestly, this is one of the most confusing aspects of the draft.

Suggested resolution – Accept in principle: Remove definition. The full and precise definition of common mode is found in Clause 12.

#### 1.5 Low latency aggregation for other PHYs (CID 564)

Comment: "Can the low-latency aggregation mode be used with all PHY types?" Suggested remedy: "If not, please clarify."

Suggested resolution – Accept in principle: The low latency aggregation mode can be used with both SC and HSI PHY. The AV PHY is optimized for streaming video and the low-latency aggregation mode would not work with this PHY. Clarify this by adding to an appropriate subclause of 12.1 the paragraph: "The standard aggregation format, as defined in 7.2.8, and low-latency aggregation format, as defined in 7.2.9, shall only be used with the SC and HSI PHY modes. The AV aggregation format, as defined in 7.2.10, shall only be used with the AV PHY mode."

#### 1.6 TXDiversityThreshold in MLME (CID 559)

Comment: "What happens when a value (e.g., SINR) is outside the specified range?" Suggested remedy "Specify whether values are saturated or whether an invalid code is sent for out-of-range values."

Suggested resolution – Accept in principle: Add the following sentence to the end of the last paragraph in 6.3.19, "If a value is out of the range for TXDiversityThreshold, the value is set to the closest value that is in range."

#### 1.7 Definitions (CID 545, 547, 549)

CID 545 comment: What is meant by a "directional beacon"?

Suggested remedy: This term must be defined before it is used.

Suggested resolution – Accept in principle: Add a definition, "directional beacon: A beacon that is transmitted by a device in which the antenna provide coverage over a limited volume."

CID 547 comment: The definition of "omni" is unclear.

Suggested remedy: I suggest replacing the term "omni" with "omni pattern" and defining it as a "best-effort attempt to transmit with equal gain over all azimuth angles and at least 80 degrees of elevation".

Suggested resolution – Change the definition to read "omni pattern: An antenna whose pattern provides substantially equal gain over a significant portion of the azimuth and elevation angles."

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1 CID 549 comment: Figure 2a does not make clear what gap durations should be used before and after each  
2 type of beacon and whether the number of "extended beacons" may vary from superframe to superframe.  
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4 Suggested remedy: Please clarify.  
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6 Suggested resolution: Change the figure as indicated in document 15-08-0609-00.  
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## 8 **1.8 Channels in overview clause (CID 9)** 9

10 Comment: The text "In addition, a compliant device is not required to support more than one channel." is  
11 ambiguous and may lead to non-interoperable implementations. Here is the way I interpreted the text when I  
12 read it: Product A operates only on channel A, Product B operates only on channel B. Both products are  
13 compliant with the text, yet they cannot interoperate. Perhaps the ambiguity is resolved elsewhere in the doc-  
14 ument or I don't fully understand the context in which this clause is to be applied.  
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16 Suggested remedy: Resolve the ambiguity--as an example, I would change the text to read "In addition, a  
17 compliant device is not required to support more than one channel, specifically channel A." Where channel  
18 A is defined elsewhere in the document.  
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20 Suggested resolution: Delete the sentence "In addition, a compliant device is not required to support more  
21 than one channel." as the requirements for channel support is defined in Clause 12.  
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