IEEE P802.15
Wireless Personal Area Networks

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)
Title	Generalized Frame Format for the Coex-Beacon – Enhanced Beacon and Enhanced Beacon Request
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Re:	
Abstract	IEEE 802.15 Task Group TG4g Comment Resolution
Purpose	To align the Coex-beacon with the generic format of the enhanced beacon
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Release	The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.

Text – General Idea of this document

****Not Part of the Draft Modification****

General Idea:

The purpose of this document is to reorganize the coex-beacon (CB) to align with the enhanced beacon (EB) specified in TG4e. On-demand feature is also included with the addition of the enhanced beacon request (EBR).

Modifications to the draft including:

1. Reorganizing the CB format to align with the generic format of EB, with two additional 4g-specific IEs, namely the Coex Specification IE and Frequency Hopping Specification IE. (see in this document 7.2.2.4a, 7.2.2.4a.1, 7.2.2.4a.2 and 7.2.2.4a.4)

2. The Coex Specification IE is detailed in this document. (see in this document 7.2.2.4a.2)

3. Changing all names from CB to EB, including attributes containing the term "coex beacon"

4. Functional description for the on-demand feature (see in this document 7.5.8a)

The Frequency Hopping Specification IE (7.2.2.4a.3) is detailed in another document.

Note: EB is an optional frame in the TG4e. In the TG4g, when MPM is activated, EB/EBR will be used.

This document resolves the comments with CID as below:

77,93,142,143,297,334,499,500,504,505,596,598,599,673,675,678,680,919,926,1003, 1004,1007,1021,1073,1080,1168,1174

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Instructions to the editors are given in ***Editorial Notes*** in red font.

Editorial note: Change the title of sub-clause 7.2.2.4a to the following.

7.2.2.4a Enhanced beacon frame format for Multi-PHY Management

Editorial note: replace sub-clause 7.2.2.4a with the below text and figure.

The enhanced beacon frame for MPM shall be formatted as illustrated in Figure 92a.

Octets: 1/2	0/1	0/2	0/1/2/8	0/2	0/1/2/8	0/5/6/10/14	
Frame Control	Sequence Number	Destination PAN Identifier	Destination Address	Source PAN Identifier	Source Address	Auxiliary Security Header	...
		Addressing					
MHR							

	12	variable	
...	Coex Specification IE	Frequency Hopping Specification IE	FCS
	Information Response (IE List)		
	MAC Payload		MFR

Figure 92a Enhanced beacon frame format for MPM

Editorial note: Change the title of sub-clause 7.2.2.4a.1 to the following.

7.2.2.4a.1 Enhanced beacon MHR fields

Editorial note: replace the entire sub-clause 7.2.2.4a.1 with the below text.

The MHR for an enhanced beacon frame shall contain the Frame Control field and may contain the Sequence Number field, the Addressing fields and the Auxiliary Security Header field.

In the Frame Control field, the Frame Type subfield shall contain the value that indicates a beacon frame, as shown in Table 79, and the Source Addressing Mode subfield shall be set as appropriate for the address of the coordinator transmitting the enhanced beacon frame. When the enhanced beacon is generated in response to an EBR,

the Destination Addressing Mode will be set appropriate to the source address in the received EBR.

If protection is used for the beacon, the Security Enabled subfield shall be set to one. The Frame Version subfield shall be set to two (10b). If a broadcast data or command frame is pending, the Frame Pending subfield, if present, shall be set to one, otherwise the Frame Pending subfield is set to zero. All other subfields shall be set to zero and ignored on reception.

The Sequence Number field, when present, shall contain the current value of *macEBSN*.

The Source PAN Identifier field, when present, shall contain the PAN identifier. The Source Address field shall contain address of the device transmitting the enhanced beacon. When the enhanced beacon is generated in response to an EBR, the Destination Field shall contain the source address contained in the received EBR.

The Auxiliary Security Header field, if present, shall contain the information required for security processing of the enhanced beacon frame, as specified in 7.2.1.7.

When generated in response to an EBR (i.e. EBR containing attribute ID as in Table 120a), the content of the EB shall include the IEs corresponding requested attribute ID and information element as shown in Table 120a.

Table 120a – EBR-attribute ID and information element

Attribute ID	Attribute	Element ID to include	Information to include
0xa6	*macSUNMPMEnabled*	0x97-0x98	Coex Specification, Frequency Hopping Specification

Table 120b contains the information elements that can be included in an EB for the purpose of MPM.

Table 120b – EBR-attribute ID and information element

Element ID	Content Length (octets)	Name	Description
0x97	12	Coex Specification	(see 7.2.2.4a.2)

0x98	Variable	Frequency Hopping Specification	(see 7.2.2.4a.3)

Editorial note: Change the title of sub-clause 7.2.2.4a.2 to the following.

7.2.2.4a.2 Coex Specification IE

Editorial note: Modify sub-clause 7.2.2.4a.2 with the below instructions.

Editorial note: Replace Figure 92b with the below:

Bits: 0	1-8	9-15	16-19	20-23	24-27	28-31	
0	Element ID	IE Content Length	Beacon Order	Superframe Order	Final CAP Slot	Enhanced Beacon Order	…
IE Descriptor							

	32-35	36-39	40-55	56-87	88-95
…	Offset Time Slot	CAP Backoff Offset	NBPAN Enhanced Beacon Order	Channel Page	Reserved

Figure 92b – Format of the Coex Specification field

Editorial note: Add the following text before line 10 in pg. 120.

The IE Descriptor subfield contains the first bit set to 0, the Element ID subfield and IE Content Length subfield as specified in Table 120b.

Editorial note: replace the text from line 38 to 41 in pg. 120 with the following:

The Channel Page subfield shall be specified as in 6.1.2.7.

Editorial note: Delete Table 121a and 121b.

Editorial note: Change the term "Coex-beacon" to "Enhanced Beacon" or "EB" everywhere in this sub-clause 7.2.2.4a.2.

Editorial note: Change the title of sub-clause 7.2.2.4a.4 to the following.

7.2.2.4a.4 Payload field

Editorial note: Change the following terms everywhere in this sub-clause including:

"Coex-beacon" to "Enhanced Beacon" or "EB"

"macCoexBeaconPayloadLength" to "macEnhancedBeaconPayloadLength"

"macCoexBeaconPayload" to "macEnhancedBeaconPayload"

Editorial note: Change the following terms everywhere in Table 127:

"Coex-beacon" to "Enhanced Beacon" or "EB"

"macCBSN" to "macEBSN"

"macCoexBeaconOrder" to "macEnhancedBeaconOrder"

"macNBPANCoexBeaconOrder" to "macNBPANEnhancedBeaconOrder"

"macCoexBeaconPayloadLength" to "macEnhancedBeaconPayloadLength"

"macCoexBeaconPayload" to "macEnhancedBeaconPayload"

Editorial note: Change the title of sub-clause 7.5.1.2a to the following:

7.5.1.2a MPM enhanced beacon timing

Editorial note: Change the following terms everywhere in this sub-clause including Figure 105a:

"Coex-beacon" to "Enhanced Beacon" or "EB"

"Coex-beacon order (CBO)" to "Enhanced Beacon Order (EBO)"

"Coex-beacon interval (CBI)" to "Enhanced Beacon Interval (EBI)"

"macCoexBeaconOrder" to "macEnhancedBeaconOrder"

"macCoexBeaconInterval" to "macEnhancedBeaconInterval"

"macNBPANCoexBeaconOrder (CBO_{NBPAN})" to "macNBPANEnhancedBeaconOrder (EBO_{NBPAN})"

"macNBPANCoexBeaconInterval (CBI_{NBPAN})" to "macNBPANEnhancedBeaconInterval (EBI_{NBPAN})"

7.5.6.1 Transmission, reception, and acknowledgment

Editorial note: Change the following terms everywhere in this sub-clause:

"Coex-beacon" to "Enhanced Beacon" or "EB"

"CBSN" to "EBSN"
"macCBSN" to "macEBSN"

Editorial note: Change the title of sub-clause 7.5.8a to the following:
7.5.8a Inter-PHY coexistence with enhanced beacon frames for SUNs
Editorial note: Change the following terms everywhere in this sub-clause including Figure 112b and 112c:
"Coex-beacon" to "Enhanced Beacon" or "EB"
"CB" to "EB"
"CBI$_{NBPAN}$" to "EBI$_{NBPAN}$"

Editorial note: Add after the last paragraph in sub-clause 7.5.8a, the following paragraph:
Alternatively, the EB may be obtained in an on-demand manner. In this case, the EBR is sent by the incoming coordinator requesting the EB from the existing coordinator. Upon receiving the EBR, the existing coordinator (or any other coordinator-capable device receiving the EBR within the same POS) may respond by sending the EB to the incoming coordinator.