Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Action Item from Session #48: SBC-REQ/SBC-RSP MAC messages enhancements for WirelessHUMAN/WirelessMAN-CX**
Date Submitted	**2007-07-09**
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Re:	IEEE 802.16h-07/013 Task Group Review of P802.16h/D2b.
Abstract	This document contains proposed editorial and technical changes to address the Action Item assigned to the author at Session #48. The aim is to create SBC-REQ/SBC-RSP MAC messages for WirelessHUMAN/WirelessMAN-CX.
Purpose	
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Action Item from Session #48: Creating SBC-REQ/SBC-RSP MAC messages for WirelessHUMAN/WirelessMAN-CX

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Overview

This contribution addresses an action item assigned to the author at Session #48 to create SBC-REQ/SBC-RSP MAC messages for WirelessHUMAN/WirelessMAN-CX.

The action item states:

> *Identify the list of capabilities of SS/MS for SBC-REQ/RSP*

Introduction

From [2]:

The SS SBC-REQ is transmitted by the SS during initialization.

Basic Capability Requests contain those SS Capabilities Encodings (11.7.8) that are necessary for effective communication with the SS during the remainder of the initialization protocols.

The SS SBC-RSP is transmitted by the BS in response to a received SBC-REQ.

The BS response to the subset of SS capabilities present in the SBC-REQ message. The BS responds to the SS capabilities to indicate whether they may be used. If the BS does not recognize an SS capability, it may return this as 'off' in the SBC-RSP.

Only capabilities set to 'on' in the SBC-REQ may be set 'on' in the SBC-RSP, as this is the handshake indicating that they have been successfully negotiated.

The WirelessHUMAN/WirelessMAN-CX basic capability negotiation should also be addressed in the SBC-REQ/RSP MAC messages. At present in [1] this basic capability negotiation is located in REG-REQ/RSP MAC messages. It is also possible to delete references to *BaseChRef* and *ChSp* given that the definition of the *Extended Channel Number* has changed in [3].

Specific editorial changes

This section provides a list of changes to IEEE P802.16h/D2 document [1].

Blue underlined text represents specific editorial additions.

Red strikethrough text is to be deleted.

Black text is text already in the draft.

Bold italic text is editorial instructions to the editor.

Add the following text to the end of both subclauses 6.3.2.3.23 (SS Basic Capability Request (SBC-REQ) message) and 6.3.2.3.24 (SS Basic Capability Response (SBC-RSP) message):

The following TLV shall only be included by WirelessHUMAN capable devices:

WirelessHUMAN feature support (11.8.3.8.1)

The following TLV shall only be included by WirelessMAN-CX capable devices:

WirelessMAN-CX feature support (11.8.3.9.1)

Make the following changes to [1]:

6.4.1 General concepts

6.4.1.1 Capability Negotiation

A ~~Base Station~~ BS is made aware of the WirelessMAN-CX/WirelessHUMAN capabilities and functionality supported by the SS, and likewise a SS is made aware of the WirelessMAN-CX/WirelessHUMAN capabilities and functionality supported by the BS, using the ~~fields~~SBC-REQ/SBC-RSP MAC messages described in subclause 11.8.3.8 and 11.8.3.9~~section *11.7.8*~~.

Make the following changes to [1]:

11.7 ~~REG-REQ/RSP management message encodings~~

[Insert the following row into table 369a:]

Type	Parameter
45	WirelessMAN-CX capability
46	Base Channel Reference (BaseChRef)
47	Channel Spacing (ChSp)
48	WirelessHUMAN capability

11.7.8 SS capability encodings

[insert new subclause 11.7.8.14:]

11.7.8.14 WirelessMAN-CX capability

Name	Type (1 byte)	Length (1 byte)	Value	Scope
WirelessMAN-CX capability	45	1	Bit #0: No WirelessMAN-CX capability Bit #1: WirelessMAN-CX capability Bits #2 - #7: Reserved	REG-REQ
Base Channel Reference (BaseChRef)	46	1	Base Channel Reference in MHz providing base reference to frequency range or deployment band	REG-RSP
Channel Spacing (ChSp)	47	2	Channel Spacing in 10kHz increments.	REG-RSP

[insert new subclause 11.7.8.15:]

11.7.8.15 WirelessHUMAN capability

Name	Type (1 byte)	Length (1 byte)	Value	Scope
WirelessHUMAN capability	48	1	Bit #0: No WirelessHUMAN capability Bit #1: WirelessHUMAN capability Bits #2 - #7: *Reserved*	REG-REQ
Base Channel Reference (*BaseChRef*)	46	1	Base Channel Reference in MHz providing base reference to frequency range or deployment band	REG-RSP
Channel Spacing (*ChSp*)	47	1	Channel Spacing in 200kHz increments.	REG-RSP

Add the following sections to [1]:

11.8.3.8 WirelessHUMAN specific parameters

11.8.3.8.1 WirelessHUMAN feature support

This field indicates the different WirelessHUMAN capabilities supported by an SS. A bit value of 0 indicates "not supported" while a bit value of 1 indicates "supported".

Type	Length	Value	Scope
164	2	Bit #0: Claiming a master frame sequence (6.4.x.x) Bit #1: Coexistence with SSUs (6.4.2.2)	SBC-REQ (see 6.3.2.3.23) SBC-RSP (see 6.3.2.3.24)

| | | Bit #2: Coexistence with non-SSUs (6.4.2.3) | |
| | | Bit #3 - 15: *Reserved*, shall be set to 0. | |

11.8.3.9 WirelessMAN-CX specific parameters

11.8.3.9.1 WirelessMAN-CX feature support

This field indicates the different WirelessMAN-CX capabilities supported by an SS. A bit value of 0 indicates "not supported" while a bit value of 1 indicates "supported".

Type	Length	Value	Scope
165	2	Bit #0: Coexistence with SSUs (6.4.2.2)	SBC-REQ (see 6.3.2.3.23)
		Bit #1: Coexistence with non-SSUs (6.4.2.3)	SBC-RSP (see 6.3.2.3.24)
		Bit #2: Coexistence Control Channel (15.1.5.3)	
		Bit #3: Coexistence Signaling Mechanism (15.3.1)	
		Bit #4: Adaptive Channel Selection (15.4.1)	
		Bit #5: Credit Token Coexistence Protocol (15.4.2.4)	
		Bit #6 - 15: *Reserved*, shall be set to 0.	

References

[1] IEEE P802.16h/D2b: *Air Interface for Fixed Broadband Wireless Access Systems Improved Coexistence Mechanisms for License-Exempt Operation*, Draft Standard.

[2] IEEE Std 802.16-2004: *IEEE Standard for Local and metropolitan area networks, Part 16: Air Interface for Fixed Broadband Wireless Access Systems*.

[3] IEEE C802.16h-07/055: *Action Item from Session #48: Defining ExChNr*, Paul Piggin, IEEE 802.16 LE Task Group contribution, May 2007.