Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Text consolidation for 802.16h draft**
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Re:	IEEE 802.16-08/047r1 P802.16h/D7a Sponsor Ballot Comment Database (2008-10-27)
Abstract	Some consolidation proposals for the action items assigned in C80216h-08_038.
Purpose	To consolidate the 16h draft D7a.
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Text consolidation for 802.16h draft

Wu Xuyong
Huawei

Overview

In sponsor ballot for P802.16h_D7a, several comment do not have specific remedy, some action items is assigned in IEEE C802.16h-08/038, Action Item List after Session #57 (Mariana Goldhamer; 2008-09-18)

This contribution is part of the proposal to address those action items.

Reference:

[1] IEEE 802.16-08/047r1 P802.16h/D7a Sponsor Ballot Comment Database (2008-10-27)

[2] IEEE C802.16h-08/038, Action Item List after Session #57 (Mariana Goldhamer; 2008-09-18)

[3] IEEE P802.16h/D7a: 802.16h draft 7a (2008-06-25)

[4] IEEE 802.16-2004: IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for

Fixed Broadband Wireless Access Systems (2004-10-01)

[5] IEEE 802.16e-2005: IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Amendment 2: Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands and Corrigendum 1 (2006-02-28)

[6] P802.16Rev2/D4: (April 2008) DRAFT Standard for Local and metropolitan area networks Part 16: Air Interface for Broadband Wireless Access Systems

Proposed Text Changes:

Comments 127: by Harry Bims Page104 Line 24 Subclause 15.3.4.3

Comment:

According to the Style Manual;

"The use of the word will is deprecated and shall not be used when stating mandatory requirements".

Suggest Remedy:

Change "will" to "shall"

Reply comment by Wu Xuyong

The sub-frame ID of the requested BS ~~will switch~~ which its master sub-frame is reponsed to switch to.

Resolution:

It is not clear what to do because the full TLV is not explained in text

AI Xuyong: Explain each TLV used in NURBC message

Proposed text changes:

[Change section 15.3.4.3 as indication:]

15.3.4.3 BS Neighborhood Update Request BroadCasting (BS_NURBC)

The BS_NURBC message is a dedicated signaling message broadcast by the initializing BS or the operating BS using either CSI sub-channel or Sub-channel 3 in CXCC. This message is used for basic connectivity creation (15.3.4.2 15.3.5.3) and for coordination between neighbor systems (15.3.4.4 15.4.2.2 15.4.3) without basic connectivity in backhaul. ~~in order to update the neighbor list in the database.~~ This message is sent from the BS to the SS in the coexistence neighbor systems.

For basic connectivity creation, ~~T~~this message uses the PLD part of CSI sequence (*15.3.4.1.3*) or Freq keying (*15.3.5*) to carry the network address information of its network and the BSID from the BS to the SSs in neighbor systems. ~~The CSI bit sequence contain CRC as well, the~~ The network & BSID information shall be reported by the SS to its serving coexistence neighbor BS using CSI-MNTR-REP or REP_RSP ~~while the sequence received has passed CRC check~~. The serving coexistence neighbor BS shall communicate to the requesting BS ~~through the network network and~~ via the network, and proceed with further coexistence negotiation.

To prevent the BSID bits from being persistently masked by neighbor's BSID bits during collision detection (*15.3.4.4*), TLV with bitwise-inverted BSID is also defined for BS_NURBC. When BS_NURBC is broadcast in OCSI, the CSI sequence formed by BS_NURBC with normal BSID and its bitwise-inverted BSID are interleaved in the OCSI allocation.

An *RTK (Random Temporary Key)* shall be randomly generated in the BS and broadcast using BS_NURBC. The neighbor BS receiving such message which sends the CXP request message back via network or response using BS_NURBC needs to carry the RTK in the relevant message. This will prevent the BS from being easily attacked by someone far away without any WirelessMAN-CX airlink capability which have known the static contact information. *Table h13* lists the TLV encoding for the BS_NURBC message.

All these types can be used for interference identification since each BS_NURBC includes BSID information of its transmitter BS.

Types 0-3: 0) NURBC_V4; 1) NURBC_V6; 2) NURBC_V4_INVBSID; 3) NURBC_V6_INVBSID are used for basic connectivity creation (15.3.4.2 15.3.5.3) and interference identification:

Types 4: NURBC_Air is used for interference identification (15.3.6.1) and broadcast basic information for further coordination.

Types 5-6: 5) Channel Switch Request; 6) Channel Switch Response are used for coordination for optimization of channel distribution (15.4.2.2).

Types 7-8: 7) Master Subframe Switch Request; 8) Master Subframe Switch Response are used for Master Frame allocation optimization (15.4.3).

Types 9-10: 9) OCSI Backoff Request; 10) OCSI Backoff Response are used for OCSI collision detection and resolution (15.3.4.4).

[Change the according row in the table as indication:]

Channel Switch Response	6	21	Bits 15:0 - RTK Bits 63:16 - BSID of requested~~ing~~ BS Bits 111:64 - BSID of requesting~~ed~~ BS Bits 135:112 - Target Channel Center Frequency of the requested BS in 10kHz Bits 151:136 - Target Channel Width of the requested BS in 10kHz Bits 159:152 - The 8 least-significant bits of MAC Frame number the channel switching. Bit 160 - The acknowledge for the channel switch request. 0 - rejection for fail in switching; 1 - succeeded in switching Bits 167:161 - reserved
…	…	…	…
Master Subframe Switch Response	8	22	Bits 15:0 - RTK Bits 63:16 - BSID of requested~~ing~~ BS

			Bits 111:64 - BSID of requestinged BS Bits 135:112 - Target Channel Center Frequency of the requested BS in 10kHz Bits 151:136 - Target Channel Width of the requested BS in 10kHz Bits 153:152 - The sub-frame ID ~~of~~ chosen by the requested BS ~~will~~ to switch its master sub-frame ~~to~~. Bits 159:154 - reserved Bits 167:160 - The 8 least-significant bits of MAC Frame number the channel swithing. Bit 168 - The acknowledgement for the channel switch request. 0 - rejection for fail in switching; 1 - succeeded in switching Bits 175:169 reserved
…	…	…	…
OCSI Backoff Response	10	~~3~~15	Bits 15:0 - RTK Bits 63:16 - BSID of requested BS Bits 111:64 - BSID of requesting BS Bits ~~17~~113:~~16~~ 112 - OCSI backoff indication. 01 - refuse to backoff 00 - refuse to end the backoff 11 - notification of acceptance and backoff begin 10 - notification of acceptance and backoff end Bits ~~23:18~~119:114 - reserved

[Modify 15.3.4.4 as indicate:]

In case the BS occupying the according OCSI allocation is a known neighbor BS, the serving BS shall contact that neighbor BS using network or BS_NURBC to request it to enter into backoff mode in broadcasting activity, and the requested neighbor BS shall response according to its action.

[Modify 15.4.2.2 as indicate:]

In the initialization phase of an IBS, its neighbors ~~will~~ shall send its ~~their~~ current working channel allocation, neighbors' working channel allocations, OCSI allocation and sub-frame allocation, Alternative Channel Flag, Alternative Subframe Flag etc. using CXP messages or signaling (BS_NURBC), as well as ~~an~~ indications of alternative channels flag and alternative subframe flag. The IBS maintains the channel information of all 1-hop and 2-hop neighbors in the BS information table.

[Modify 15.4.3 as indicate:]

Using CXP messages or signaling (BS_NURBC) in communicating with the systems inside the neighborhood, the BS can learn whether its neighbor has ALTSF and set an indication flag for each neighbor. This information will help the BS to find a neighbor system it can negotiate with.

Comments 585: by Au, Kwok Shum Page5 Line 24 Subclause 3

Comment:

Please define "candidate (frequency) channel" in Clause 3.

Suggest Remedy:

Please define "candidate (frequency) channel" in Clause 3.

Resolution:

AI to Xuyong

Proposed Text:

[insert to proper place the section below in clause 3]

3.xxx Candidate (frequency) channel: A (frequency) channel within the frequency band which contain one or multiple (frequency) channel, in which the device can deploy, complying with the relevant regulatory framework.

Comments 20: by Harry Bims Page7 Line 9 Subclause 3.113

Comment:

The object of the definition sentence should be the term, not an interference signal. Further, the term Harmful Interference is not a range, as used in the standard.

Suggest Remedy:

Delete this definition and replace with a new definition that is consistent with Section 15.1, p. 69, lines 30-35:

3.113 Harmful Interference: An interference caused by an interference signal that degrades the selection of modulation and coding at a receiver to the most robust mode of operation.

Resolution:

AI Xuyong:

Define in all the places which are relevant:

- Acceptable interference threshold (the current modulation/coding scheme may not work)

- Harmful interference threshold (6dBabove the lowest sensitivity level, because 6dB is generally used as margin for intra-system interference); no names are needed for areas between thresholds, because only the thresholds are relevant for the standard
It is needed to use "Harmful interference" in the same way in which is used in the Radio Regulations:

1.169 harmful interference: Interference which seriously degrades, obstructs, or repeatedly

interrupts a radio communication service operating in accordance with Radio Regulations

Discussion:

It's a word all over 16h document, we need to be very careful to prevent too much back and forth.

I agree with you that if we have confliction with ITU or ETSI, we need to do some adjustment accordingly.

Adhoc or more careful examination maybe needed before we can get the final conclusion.

Propose to Defer.

Comments 794: by Murias, Ronald G Page12 Line 41 Subclause 6.3.2.3.33

Comment:

What is a "neighbor detection report"?

Suggest Remedy:

Define what a "neighbor detection report" is.

Resolution:

AI Xuyong: define "neighbor detection report"

Discussion:

Neighbor detection report is not a informal alias for neighborhood updating request report, these TLV is in 11.12, type 7.2.

Proposed text changes:

[Change the text in section 6.3.2.3.33 as indicated:]

If the BS, operating in bands below 11 GHz, requires RSSI and CINR channel measurement reports, or requires ~~neighbor detection~~ neighborhood update request reports, it shall send the Channel Measurement Report Request message.

Comments 795: by Murias, Ronald G Page12 Line 30 Subclause 6.3.2.3.33

Comment:

The sentence says that the SS may send an unsolicited REP-RSP message when interference is detected above a threshold value. This is changed to "CX interference criterion", which now limits the criterion to devices compliant with WirelessMAN-CX devices rather than any device that may detect and report based on interference.

Suggest Remedy:

Revert text back to "a threshold value".

Resolution:

Ad-Hoc leaded by Xuyong: Fix text for 6.3.2.3.33 Channel Measurement Report Request/Response (REP-REQ/RSP)

Discussion:

This comment should be considered together with comment 796.

It does not necessary mean those interference threshold definition 15.1 is only defined for WirelessMAN-CX system. 16h are trying to generally categorize the interference threshold based on the impact of interference. I believe you also agree that to handle the impact of interference is not only WirelessMAN-CX system's task, but also all WirelessMAN systems' job. We need to put normative definition instead of "a threshold value".

We can put "an interference threshold" here and the conditional definition for such threshold is in proposal for comment 796 below.

Proposed text changes:

The SS may also send a REP-RSP containing channel measurement reports, in an unsolicited fashion, or when other interference is detected above an interference threshold ~~value~~.

Comments 796: by Murias, Ronald G Page12 Line 41 Subclause 6.3.2.3.33

Comment:

Not clear what "acceptable" interference threshold is, as it's not defined here.

Suggest Remedy:

Change to "user defined interference threshold" or something similar.

Resolution:

Add to Xuyong AI for comment 20

Discussion:

It's defined in 15.1. We can add cross reference here.

Proposed text changes:

The following threshold levels will be used for the report:

For specific signals mandated by regulation: the *regulatory threshold (15.1)*

For non-SSU's: acceptable interference threshold (15.1).