Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
Title	**Fix For General Problems With MBS Service Flow Parameter Encodings**
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Re:	LB26b, Working Group Letter Ballot on P802.16REV2/D3
Abstract	
Purpose	Modify the text to fix problems for General Problems With MBS Service Flow Parameter Encodings
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Fix For General Problems With MBS Service Flow Parameter Encodings

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Problem 1

MBS Zone ID can be changed to re-point the service flow to the new MBS Zone ID for the associated MBS flow during inter-MBS Zone transitions. The relevance of the message should be DSA/DSC-REQ/RSP to allow for change.

The length of the Value is 8 bits, or 1 byte, not 8 bytes.

The language in Value indicating that ‘MSB shall be zero’ is inadequately specific. Change the language to that used in the MBS zone identified list TLV in DCD, ‘An MBS zone identifier is 1 byte long. bits #6 throught #0 are the MBS Zone Identifier, bit #7 is set to 0 in each byte.’

The second paragraph is specific to DCD and this service flow parameter TLV has no relevance to the DCD instance. Note that DCD already contains a Type 61, ‘MBS zone identifier list’. Remove this text from this location, but it should be added as appropriate normative language into clause 6.3.23.2.4.

Reformat the paragraph in 6.3.23.2.4 into several paragraphs, organized by topic.

Remedy 1a

In P802.16REV2/D3, section 11.13.29 MBS Zone Identifier Assignment parameter, page 1180, line 53, modify as:

11.13.29 MBS Zone Identifier Assignment parameter

The DSA-REQ/RSP message may contain the value of this parameter to specify a MBS Zone identifier. This parameter indicates a MBS zone through which the connection or virtual connection for the associated service flow is valid.

~~A BS that supports MBS shall include the MBS zone identifier(s) as a list 'MBS zone identifier list' in DCD messages. The MBS zone identifier shall not be '0'. When the MBS zone identifier list appears in DCD settings TLV with only one value of '0', then the neighbor BS is not affiliated with any MBS zone.~~

Type	Length	Value	Scope
[145/146].33	~~8~~1	MBS zone identifier (~~MSB shall be zero~~ bits #6 throught #0 are the MBS Zone Identifier, bit #7 is set to 0)	DSA-REQ~~/RSP~~, DSA-RSP, DSC-REQ, DSC-RSP

Remedy 1b

In P802.16REV2/D3, section 6.3.23.2.4 Multicast and broadcast zone (MBS_Zone), page 456, line 32, modify

as:

6.3.23.2.4 Multicast and broadcast zone (MBS_Zone)

Different CIDs or different SAs may be used in different regions for the same multicast and broadcast service flow. A multicast and broadcast zone identifier (MBS_ZONE) is used to indicate a region through which a CID and SA for a broadcast and multicast service flow are valid.

A BS that supports Multi-BS Access MBS ~~shall advertise MBS_ZONE in DCD message.~~ shall include the MBS zone identifier(s) as a list 'MBS zone identifier list' in the DCD message (see Table 543). The MBS zone identifier shall not be '0'.

When the MBS zone identifier list appears in DCD settings TLV in MOB_NBR-ADV message with only one value of '0', then the neighbor BS is not affiliated with any MBS zone.

In case BS sends DSA for establishment of connection for MBS, MBS_ZONE shall be encoded in the DSA message (see 11.13.29).

If an MS in Idle mode moves into BSs in the same MBS zone, the MS does not have to re-enter the network and to re-establish a connection or a connection defined by MBS Contents Identifier to monitor the multicast and broadcast service flow. However, if an MS moves into a different MBS zone, the MS may need to re-establish a connection or a virtual connection for the multicast and broadcast service flow.

One BS may have multiple MBS zone IDs.

Problem 2

I don’t know if we are going to keep MBS content IDs. But if we do, they may need updating during the life of a service flow, as the MS transits across MBS Zones. Modify the scope of MBS content IDs to include DSC. Remove DSA-ACK relevance; while some service flow parameters have DSA-ACK relevance, there is no demonstrated reason that MBS content IDs should.

Also, it is not proper to have this normative behavior language for this feature in the TLV format definition. Relocate non-format language to a new subclause in 6.3.23. Much of this normative language is duplicated already in 6.3.23.

Some bad standards language in 11.13.37. Cleanup.

Bad reference to TLV ’11.13.36’, should be ’11.13.37’ in 6.3.23.2

There is language in 6.3.23.2:

> Logical Channel ID, which pairs with Multicast CID in the Extended MBS DATA IE, is allocated to each MBS Contents IDs in the order that it is included in TLV value. As a result, an MS can receive multiple MBS messages for an MBS connection with different MBS contents distinguished by Logical Channel ID belonging to a Multicast CID. BS shall allocate MBS PDUs in the order that the combination of Multicast CID and Logical Channel ID is defined in Extended MBS DATA IE.

This language is un-implementable as written since Protocol SDUs ingressing the 802.16 protocol stack via the CS_SAP, when undergoing classification are only rendered to specific Service Flows and CIDs, with a MAC SDU created with only CID in the GMH. There is no current mechanism to differentiate the ingressing Protocol SDUs based on LCID, nor tagging of such MAC SDUs with LCID relevance even if there were a method to differentiate the Procotole SDUs. If some approved method to support this omitted feature is not added, the entire LCID feature will have to be removed. I am not including instructions to make such removal as part of

these remedies.

Remedy 2a

In P802.16REV2/D3, section 11.13.37 MBS contents IDs, page 1183, line 44, modify as:

11.13.37 MBS contents IDs

~~If MS sends DSA-REQ message which requests a MBS service as described in 11.13.23, BS may respond to it with DSA-RSP message. The BS may include MBS Contents Identifier TLV in order to establish an MBS connection with multiple MBS contents.~~ [PEB1] ~~The MS shall not include MBS zone identifier and MBS content ID in DSA-REQ.~~

MBS contents IDs~~TLV~~ values shall be composed of 2 byte-long MBS Contents IDs to distinguish the logical MBS connection for each MBS contents. ~~Since~~ MBS Contents IDs is vendor-specific and dependent on application-level implementation~~, it~~ and is ~~unnecessary to~~not ~~specify~~ specified in this standard.

A 1 byte-long Logical Channel ID, which pairs with Multicast CID in MBS_DATA_IE, is allocated to each 2 byte-long MBS Contents IDs in order that it is included in ~~TLV~~ MBS content IDs value. For example, Logical Channel ID 0 is allocated to MBS Contents ID(0), Logical Channel ID 1 is allocated to MBS Contents ID(1) and so on. Logical Channel ID is used for MS to discriminate the MBS message in MBS data burst.

~~According to the Dynamic Service Addition (DSA) procedure described in 6.3.14.9.3, a BS may send MS a DSA-REQ message to establish connection. Therefore, BS may also send MS a DSA-REQ message including MBS Contents Identifier TLV in order to make an establishment of MBS connection with multiple MBS contents.~~ [PEB2]

Type	Length	Value	Scope
[145/146].43	*variable (2 × n)*	MBS Contents ID(0), MBS Contents ID(1), ... MBS Contents ID(n–1)	DSA-REQ, DSA-RSP, ~~DSA-ACK,~~ DSC-REQ, DSC-RSP

Remedy 2b

In P802.16REV2/D3, section 6.3.23.2 Multi-BS access, page 455, line 1, modify as:

6.3.23.2 Multi-BS access

Multi-BS-MBS is defined as a kind of service that all MSs successfully registered to the specific multi-BS-MBS connection (each MS needs register to MBS service at the network level simultaneously) can receive on the cell the encrypted MAC PDUs of the multicast and broadcast content that multiple BSs transmit anywhere under the given time period. It requires the multiple BS participating in same multi-BS-MBS service to be synchronized in the transmissions of common multicast/broadcast data. To ensure proper multicast operation on networks of BS employing synchronized transmissions of common multicast data, the CID used for a multi-BS-MBS connection shall be the same for all BS and MSs on the same channel that participate in the connection.

Multicast service synchronized across multiple BS enables an MS to receive the multicast or broadcast transmission from multiple BS, and thereby improve the reliability of reception. In contrast to single-BS access,

multi-BS access does not require that the MS be registered to the BS from which it receives the transmission, or to any other BS. In this case, transmitted MAC PDUs shall use the same CID, and transport the same data synchronized across the group of BS across the group of BS. A multicast and broadcast zone ID (MBS_Zone) is used to indicate the group of BS through which a CID and SA for a broadcast and multicast service flow are valid.

During a Dynamic Service Addition procedure, an MBS connection for multiple MBS contents can be established by using an MBS Contents Identifier TLV encoding in DSA-REQ or DSA-RSP message sent by the BS as described in 11.13.~~36~~37. In other words, when the MS sends DSA-REQ message with the MBS service request as described in 11.13.23, the BS may respond to it with DSA-RSP message including an MBS Contents Identifier TLV encoding. The BS may also send the MS a DSA-REQ message including an MBS Contents Identifier TLV encoding in order to make an establishment of an MBS connection with multiple MBS contents.

MS shall not include MBS zone identifier and MBS content ID in DSA-REQ.

Logical Channel ID, which pairs with Multicast CID in the Extended MBS DATA IE, is allocated to each MBS Contents IDs in the order that it is included in the MBS content IDs TLV value. As a result, an MS can receive multiple MBS messages for an MBS connection with different MBS contents distinguished by Logical Channel ID belonging to a Multicast CID. BS shall allocate MBS PDUs in the order that the combination of Multicast CID and Logical Channel ID is defined in Extended MBS DATA IE.