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Re:	This is a response to Sponsor Ballot recirculation
Abstract	This contribution includes the proposed change on MBS section in order to provide clear description and correction.
Purpose	This contribution is for discussion and adaptation at 802.16e Task Group
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MBS Correction

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Introduction

The Multi BS MBS feature in 802.16e/D6 is in order to provide the MBS service with better coverage by macro diversity. In order to achieve macro diversity gain, a MBS data in a MBS portion shall be transmitted at the same time with same encoding scheme from BSs with a MBS zone ID. Since every BS with a MBS zone ID shall transmit with same encoding scheme, encoding scheme for MBS data shall be kept consistently. With macro diversity gain, MSS can decode MBS data in MBS portion even though it cannot decode DL_MAP. Because every MBS data shall be decoded according to MBS MAP message, we should provide the way decoding MBS MAP message in MBS portion. But at most case, the DIUC needed to decoding MBS MAP message will not change and the MBS MAP message size will not change until new MBS channel associated with new MBS multicast CID appears. Therefore, we only need to add MBS MAP message size when it will be changed at next MBS frame.

For MBS data, even though there are several MBS connection IDs, they will be encoded with same DIUC. In that case, multiple MBS PDU can be encoded as a burst and this can provide the simple way to hardware decoding of MSS. Therefore, we need to provide the way to present one burst with multiple MBS connection IDs for efficiently short MBS MAP message.

In proposed remedy 1, we only propose editorial change moving TLV after nibble alignment for better byte alignment.

In proposed remedy 2, we propose "Next MBS MAP change indication" bit in order to notify there will be information for MBS MAP size for next MBS MAP message associated with MBS multicast CIDs included. And we propose the way to include multiple MBS multicast CIDs in a burst.

And in proposed remedy 3, we propose to delete multicast CID in MBS MAP_IE, since the original purpose of MBS_MAP_IE is to notify whether there is any MBS portion in the frame and position of MBS portion. In this case, MSS can check the right starting position of MBS data associated with itself by decoding MBS MAP message.

Proposed Change

Proposed Remedy 1 :
[Change Table 108r , section 6.3.23.5.6 at page 115 as proposed below]

Table 108r—MBS-MAP

Syntax	Size	Notes
MBS-MAP Message Format (){		
Management Message Type =	4 bits	
Frame number	4 bits	The frame number is identical to the frame number in the DL-MAP
MBS_DIUC_Change_Count	8 bits	
#MBS_DATA_IE	4 bits	Number of included MBS_DATA_IE
For (i = 0; i<n; i++){	~~12 bits~~	n~~N~~=#MBS_DATA_IE

MBS_DATA_IE	Variable	
}	~~8 bits~~	
#MBS_DATA_Time_Diversity_IE	4 bits	Number of included MBS_DATA_Time_Diversity_IE
For(i=0; i<m; i++){		m~~M~~ = #MBS_DATA_Time diversity_IE
MBS_DATA_Time_Diversity_IE	Variable	
}		
~~TLV encoding element~~		
If(!byte boundary){		
Padding Nibble		
}		
TLV encoding element		
}-		

Proposed Remedy 2 :
[Change Table 108t , section 6.3.23.5.6 at page 116 as proposed below]

Table 108t—MBS_DATA_IE

Syntax	Size	Notes
MBS_DATA_IE{		
MBS_MAP Type = 0	4 bits	
Next MBS MAP change indication	1 bits	This indicates whether the size of MBS MAP message of next MBS frame for these Multicast CIDs included this IE will be different from the size of this MBS MAP message.
No. of Multicast CID	3 bits	
For(i=0; i< No. of Multicast CID; i++){		
Multicast CID	12 bits	12 LSB of CID for multicast
}		
MBS DIUC	4 bits	
OFDMA Symbol Offset	8 bits	OFDMA symbol offset with respect to start of the MBS portion
Subchannel offset	6 bits	OFDMA subchannel offset with respect to start of the MBS portion
Boosting	3 bits	000: normal (not boosted); 001: +6dB; 010: -6dB; 011: +9dB; 100: +3dB; 101: -3dB; 110:-9dB; 111: -12dB;
No. OFDMA Symbols	7 bits	The size of MBS data.
No. Subchannels	6 bits	
Repetition Coding Indication	2 bits	0b00 - No repetition coding 0b01 - Repetition coding of 2 used 0b10 - Repetition coding of 4 used 0b11 - Repetition coding of 6 used
Next MBS frame offset	8 bits	The Next MBS frame offset value is lower 8 bits of the frame number in which the BS shall transmit the next MBS frame.

Next MBS OFDMA Symbol offset	8 bits	The offset of the OFDMA symbol in which the next MBS portion starts, measured in OFDMA symbols from the beginning of the downlink frame in which the MBS-MAP is transmitted.
If(Next MBS MAP change indication=1){		
Next MBS No. OFDMA symbols	2 bits	It is to indicate the size of MBS_MAP message in Next MBS portion where the BS shall transmit the next MBS frame for multicast CIDS in this IE
Next MBS No. OFDMA subchannels	6 bits	It is to indicate the size of MBS_MAP message in Next MBS portion where the BS shall transmit the next MBS frame for multicast CIDs in this IE
}		
}		

Proposed Remedy 3 :
[Change Table 285a , section 8.4.5.3.12 at page 245 as proposed below]

Table 285a—Multicast and Broadcast Service MAP IE

Syntax	Size	Notes
MBS_MAP_IE() {		
Extended DIUC	4 bits	MBS_MAP = 0x05
Length	4 bits	
~~Multicast CID~~	~~12 bits~~	~~12 LSB of CID for multicast~~
MBS Zone identifier	7 bits	MBS Zone identifier corresponds to the identifier provided by the BS at connection initiation
Macro diversity enhanced	1 bit	0 = Non Macro-Diversity enhanced zone; 1 = Macro-Diversity enhanced zone
If(Macro diversity enhanced = 1){		
Permutation	2 bits	0b00 = PUSC permutation 0b01 = FUSC permutation 0b10 = Optional FUSC permutation 0b11 = Adjacent subcarrier permutation
Idcell	6 bits	
OFDMA Symbol Offset	7 bits	OFDMA symbol offset with respect to start of the MBS region
DIUC change indication	1 bit	Used to indicate DIUC change is included
if (DIUC change indication = 1) {		
Reserved	3 bit	
Boosting	3 bits	000: normal (not boosted); 001: +6dB; 010: -6dB; 011: +9dB; 100: +3dB; 101: -3dB; 110:-9dB; 111: -12dB;
DIUC	4 bits	DIUC used for MBS_MAP message
No. Subchannels	6 bits	Size of MBS_MAP message
NO. OFDMA symbols	2 bits	
Repetition Coding Indication	2 bits	0b00 - No repetition coding 0b01 - Repetition coding of 2 used 0b10 - Repetition coding of 4 used 0b11 - Repetition coding of 6 used

}		
} else {		
CID	12 bits	12 LSB of CID for Single BS MBS service
DIUC	4 bits	
OFDMA Symbol Offset	8 bits	The offset of the OFDMA symbol in which the burst starts, measured in OFDMA symbols from beginning of the downlink frame in which the DL-MAP is transmitted.
Subchannel offset	6 bits	The lowest index OFDMA subchannel used for carrying the burst, starting from sub-channel 0.
Boosting	3 bits	000: normal (not boosted); 001: +6dB; 010: -6dB; 011: +9dB; 100: +3dB; 101: -3dB; 110:-9dB; 111: -12dB;
SLC_3_indication	1 bit	Used to notify sleep mode class 3 is used for single BS MBS service
NO. OFDMA Symbols	6 bits	
NO. Subchannels	6 bits	
Repetition Coding Indication	2 bits	0b00 - No repetition coding 0b01 - Repetition coding of 2 used 0b10 - Repetition coding of 4 used 0b11 - Repetition coding of 6 used
if (SLC 3_indication = 0) {		
Next MBS frame offset	8 bits	The Next MBS frame offset value is lower 8 bits of the frame number in which the BS shall transmit the next MBS frame.
Next MBS OFDMA Symbol offset	8 bits	The offset of the OFDMA symbol in which the next MBS zone starts, measured in OFDMA symbols from the beginning of the downlink frame in which the MBS-MAP is transmitted.
}		
}		
if !(byte boundary) {		
Padding Nibble	*variable*	Padding to reach byte boundary
}		
}		