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Re:	IEEE P802.16-REVd/D5		
Abstract	This contribution introduces corrections to the UL IE for support of AAS in the OFDMA PHY		
Purpose	Adopt into P802.16d/D5 corrigenda		
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Corrections for UL IE to support AAS in OFDMA PHY

Dave Pechner, Todd Chauvin, Doug Dahlby

1 Problems with the current UL IE definition

AAS operation will rely on private UL and DL-MAPs (Section 6.3.7.6). The current definition of the UL-MAP IE specifies only duration, and so AAS subscribers who cannot detect the broadcast UL-MAP will not know the absolute location of any UL BW allocation given in a private UL-MAP.

2 Outline of proposed solution

The following changes are proposed. Specific text changes are presented in the next section.

- Introduce block allocation in the UL map IE for only the AAS UL zone.

3 Proposed Text Changes

[Modify text in page 533(lines 61-65) & 534 (lines 1-10):]

8.4.5.4 UL-MAP IE format

The OFDMA UL-MAP IE defines uplink bandwidth allocations. Uplink bandwidth allocations are specified either as block allocations (subchannel by symbol) with an absolute offset, or as an allocation with duration in slots, the starting position for which is determined considering the prior allocations appearing in the UL-MAP. Block allocations are used for ranging and BW request allocations, PAPR/Safety zone allocations and all allocations in an AAS UL Zone. If an OFDMA UL-MAP IE with UIUC=12 or UIUC=13 exists, they must be always allocated first.

For the first OFDMA UL-MAP IE with UIUC other than 12 or 13, the allocation shall start at the lowest numbered non-allocated subchannel on the first non-allocated OFDMA symbol defined by the allocation start time field of the UL-MAP message which are not allocated with UIUC=12 or UIUC=13 (See Table 217 for an example). These IEs shall represent the number of slots provided for the allocation. Each allocation IE shall start immediately following the previous allocation and shall advance in the time domain. If the end of the UL frame has been reached, the allocation shall continue at the next subchannel at first OFDMA symbol (define by the allocation start time field) which is not allocated with UIUC=12 or UIUC=13. The exception to this allocation scheme is for allocations in an AAS UL Zone, which will be specified with a block subchannel-by-symbol definition.

The CID represents the assignment of the IE to either a unicast, multicast, or broadcast address. A UIUC shall be used to define the type of uplink access and the burst type associated with that access. A Burst Descriptor shall be specified in the UCD for each UIUC to be used in the UL-MAP. The format of the UL-MAP IE is defined in Table 285.

[Modify Table 285 in Page 534 as follows:]

Table 285—OFDMA UL-MAP IE format

Syntax	Size	Notes
UL-MAP_IE() {		
CID	16 bits	
UIUC	4 bits	
if (UIUC == 12) {		
OFDMA Symbol offset	8 bits	
Subchannel offset	7 bits	
No. OFDMA Symbols	7 bits	
No. Subchannels	7 bits	
Ranging Method	2 bits	0b00 - Initial Ranging over two symbols 0b01 - Initial Ranging over four symbols 0b10 - BW Request/Periodic Ranging over one symbol 0b11 - BW Request/Periodic Ranging over three symbols
reserved	1 bit	Shall be set to zero
} else if (UIUC == 13) {		
PAPR_Reduction_and_Safety_Zone_Allocation_IE() {	32 bits	
else if (UIUC == 14) {		
CDMA_Allocation_IE()	32 bits	

else if (UIUC == 15) {		
Extended UIUC dependent IE	Variable	See clauses following 8.4.5.4.3
} else {		
if (not AAS UL Zone){		Allocations that appear following the AAS_UL_IE, or appear in UL-MAPs received in the AAS DL Zone reference BW allocations in the AAS UL Zone. All other allocations are not in the AAS zone and receive a duration-only specification for their BW allocation.
Duration	10 bits	In OFDMA slots (see 8.4.3.1)
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{		BW allocations for the AAS UL Zone receive a block subchannel-by-symbol specification.
OFDMA symbol offset	8 bits	The offset to the starting location of the uplink allocation is referenced to the DL preamble of the subsequent frame, and consists of an integer symbol offset specified here, as well as the addition of the TTG known from DCD messages. If TTG is not present in the DCD (for FDD) it is assumed to be zero.
Subchannel offset	7 bits	
No of OFDMA symbols	7 bits	
No of subchannels	7 bits	
Repetition coding	2 bits	0b00 - No repetition coding 0b01 - Repetition coding of 2 used 0b10 - Repetition coding of 4 used 0b11 - Repetition coding of 6 used
Reserved	1 bits	Must be set to zero
}		
Padding nibble, if needed	4 bits	Completing to nearest byte, shall be set to 0.
}		