

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Update to OFDMA AAS downlink IE for specifying AAS Direct Signaling mode of operation.	
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Re:	Working Group Letter Ballot #28, Technical Comments and Contributions regarding IEEE Project P802.16j; Draft Amendment P802.16/D1.	
Abstract	This contribution describes an update to the OFDMA AAS downlink IE necessary to set up the AAS Relay Zone for Direct Signaling mode of operation.	
Purpose	This document provides the necessary corrections to properly set up the AAS Relay Zone for Direct Signaling mode of operation.	
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Update to OFDMA AAS downlink IE for specifying AAS Direct Signaling mode of operation

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This document describes the update necessary to define a Direct Signaling mode of operation within the AAS Relay Zone.

Background

The IEEE 802.16j D1 draft provides the OFDMA AAS uplink IE modification necessary to set up the AAS Relay zone for Direct signaling mode of operation. However, it does not provide the updates to the AAS downlink IE that are required to properly set up the AAS Relay zone. The AAS downlink IE needs to specify additional permutations, a zone configuration duration, and the AAS Relay zone type required by the AAS Direct Signaling mode of operation.

Proposed Solution

The proposed solution is to modify the AAS_DL_IE to fully define the configuration required for Direct Signaling support within the AAS Relay Zone.

Detailed Solution

A number of AAS_DL_IE parameters must be updated to support the configuration of Direct Signaling capability within the AAS Relay Zone.

The permutation parameter must be updated to include encodes representing adjacent subcarrier permutations of 2 bins x 3 symbols and 1 bin x 6 symbols.

A configuration of the duration for which the zone configuration is valid must be supported. If the AAS Relay Zone Type = 1, specifying Direct Signaling, then the DL_PermBase parameter bits are overloaded to provide a 3 bit value of N. The AAS Relay Zone configuration specified in the AAS_DL_IE is valid for a duration $M = 2^N$ frames. The zone configuration duration, M, applies to both the DL and UL.

The type of AAS support must be configurable. The Diversity Map bit-flag will be changed from representing Diversity Map supported or not supported, to a bit-flag representing either Diversity Map or Direct Signaling AAS support. The parameter name will be changed to AAS Relay Zone Type to better represent the choice.

Proposed Text Changes

Change Table 278 (.16e)/Table 386 (Rev2) as indicated:

Syntax	Size	Notes
AAS_DL_IE() {		
Extended DIUC	4 bits	AAS = 0x02
Length	4 bits	Length = 0x03
OFDMA symbol offset	8 bits	Denotes the start of the zone (counting from the frame preamble and starting from 0)
Permutation	3 bits	0b000 = PUSC permutation 0b001 = FUSC permutation 0b010 = Optional FUSC permutation 0b011 = AMC 0b100 = TUSC1 0b101 = TUSC2 0b110-0b111 = Reserved 0b110 = adjacent-subcarrier permutation, 2 bins x 3 symbols 0b111 = adjacent-subcarrier permutation, 1 bin x 6 symbols
DL_PermBase	6 bits	if AAS Relay Zone Type = 1 Bit #0-2: Defines N, where the zone configuration is valid for $M = 2^N$ frames. Bit #3-5: <i>Reserved</i> Otherwise Bit #0-5: Permutation Base for the specified <u>DL AAS Zone</u>
Downlink_preamble_config	2 bits	0b00 = 0 symbols 0b01 = 1 symbol 0b10 = 2 symbols 0b11 = 3 symbols
Preamble type	1 bit	0 – Frequency shifted preamble is used in this DL AAS zone 1 – Time shifted preamble is used in this DL AAS zone
PRBS ID	2 bits	Values: 0..2. Refer to 8.4.9.4.1
Diversity Map <u>AAS Relay Zone Type</u>	1 bit	0: Not Supported in this AAS zone 1: Supported in this AAS zone 0: Diversity Map Relay Zone 1: Direct Signaling Relay Zone
Reserved	1 bit	Shall be set to zero
}		

Change the parameter descriptions following Table 278 (.16e)/Table 386 (Rev2) as indicated:

OFDMA Symbol offset

The offset of the OFDMA symbol in which the AAS Zone starts, measured in OFDMA symbols from beginning of the current downlink frame.

Permutation

Defines the permutation used within the DL AAS Zone.

DL_PermBase

If AAS Relay Zone Type = 0 (Diversity Map), then this defines the Permutation Base for the specified DL AAS Zone.

If AAS Relay Zone Type = 1 (Direct Signaling), then this represents exponent N of the zone configuration duration calculation, where the zone configuration is valid for a duration $M = 2^N$ frames.

The zone configuration duration applies to both the DL and the UL.

AAS Relay Zone Type

Defines which type of AAS is supported within the AAS Relay Zone.

Downlink_preamble_config

Defines the number of DL AAS preambles to be used before each DL burst in the AAS zone.