Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Generic H-ARQ support**
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Re:	Sponsor ballot on IEEE P802.16e/D5
Abstract	Generic H-ARQ support
Purpose	Adopt text into the standard
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*Add the following text in page 176, line 29 (*8.4.5.3.18*):*

8.4.5.3.19 Generic H-ARQ_burst_IE

The H-ARQ_burst_IE format is presented in Table aaa. This IE defines the access information for a downlink burst applicable to H-ARQ enabled MSS. Subsequent retransmissions of the H-ARQ payload carried by this IE may have a different modulation and coding rate, but shall contain the same information, and shall be initialized by the same randomizer seed as per section 8.4.9.1.

Table aaa—OFDMA DL Generic H-ARQ_burst_IE format

Syntax	Size	Notes
Generic_H-ARQ_Burst_IE() {		
Extended DIUC	4 bits	Generic_H-ARQ_Burst_IE = 0x0B
Length	4 bits	Length = 0x07
DIUC	4 bits	
Reserved	1 bit	
AI_SN	1 bit	H-ARQ ID Seq. No
SPID	2 bits	Subpacket ID
ACID	4 bits	H-ARQ CH ID
Short Basic CID	12 bits	12 least significant bits of the Basic CID
OFDMA Symbol offset	8 bits	
Subchannel offset	6 bits	
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	
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
}		

DIUC
DIUC used for the burst.

AI_SN
Defines ARQ Identifier Sequence Number. This is toggled between ‘0’ and ‘1’ on successfully transmitting each encoder packet with the same ARQ channel.

SPID
Defines SubPacket ID, which is used to identify the four subpackets generated from an encoder packet.

ACID
Defines H-ARQ Channel ID, which is used to identify H-ARQ channels. Each connection can have multiple HARQ channels, each of which may have an encoder packet transaction pending.

Short Basic CID
12 least significant bits of the Basic CID

OFDMA Symbol offset
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
The lowest index OFDMA subchannel used for carrying the burst, starting from subchannel 0.

No. OFDMA Symbols
The number of OFDMA symbols that are used (fully or partially) to carry the downlink PHY Burst.

No. of subchannels
The number of subchannels with subsequent indexes, used to carry the burst.

Repetition coding Indication
Indicates the repetition code used inside the allocated burst.

*Add the following text in 197, line 53 (*8.4.5.4.22*):*

8.4.5.4.23 Generic H-ARQ_burst_IE

The H-ARQ_burst_IE format is presented in Table bbb. This IE defines the access information for a uplink burst applicable to H-ARQ enabled MSS. Subsequent retransmissions of the H-ARQ payload carried by this IE may have a different modulation and coding rate, but shall contain the same information, and shall be initialized by the same randomizer seed as per section 8.4.9.1.

Table bbb—OFDMA UL Generic H-ARQ_burst_IE format

Syntax	Size	Notes
`Generic_H-ARQ_Burst_IE() {`		
`Extended UIUC`	4 bits	Generic_H-ARQ_Burst_IE = 0x08
`Length`	4 bits	Length = 0x07
`UIUC`	4 bits	
`Reserved`	5 bit	
`AI_SN`	1 bit	H-ARQ ID Seq. No
`SPID`	2 bits	Subpacket ID
`ACID`	4 bits	H-ARQ CH ID
`Short Basic CID`	12 bits	12 least significant bits of the Basic CID
`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
`}`		

UIUC
UIUC used for the burst.

AI_SN
Defines ARQ Identifier Sequence Number. This is toggled between ‘0’ and ‘1’ on successfully transmitting each encoder packet with the same ARQ channel.

SPID
Defines SubPacket ID, which is used to identify the four subpackets generated from an encoder packet.

ACID
Defines H-ARQ Channel ID, which is used to identify H-ARQ channels. Each connection can have multiple HARQ channels, each of which may have an encoder packet transaction pending.

Short Basic CID
12 least significant bits of the Basic CI

Duration
Indicates the duration, in units of OFDMA slots, of the allocation.

Repetition coding Indication
Indicates the repetition code used inside the allocated burst.