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Re:	IEEE P802.16e/D6
Abstract	Nibble alignment of H-ARQ IE and Sub-DL-UL-MAP message
Purpose	Adoption of proposed changes into P802.16e /D6-2004
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Nibble alignment in H-ARQ MAP IE and Sub-DL-UL-MAP message

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1 Motivation

For the fast processing of MAP message, we need a nibble alignment in H-ARQ extended IE and Sub-DL-UL-MAP message.

2 Text Change

[Change text in section 8.4.5.3.22 HARQ DL MAP IE]

Table 285m—HARQ DL MAP IE format

Syntax	Size	Note
H-ARQ DL MAP IE {		
Extended DIUC 2	4	Set to 0x1
Length	8	Length of the IE in bytes
RCID_Type	2 bits	00 = Normal CID 01 = RCID11 10 = RCID7 11 = RCID3
Reserved	2bits	
While (data remains) {		Number of allocations is deducted from the length field.
OFDMA Symbol offset	8 bits	Offset from the start symbol of DL sub-frame
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	
Reserved	2 bits	
Mode	4 bits	Indicates the mode of this IE 0 = Chase H-ARQ 1 = Inremental redundancy H-ARQ for CTC 2 = Inremental redundancy H-ARQ for convolutional code 3 – 15 *Reserved*
If (Mode== 0) {		
DL H-ARQ Chase Sub-Burst IE ()	Variable	
} else if (Mode== 1) {		
DL H-ARQ IR CTC Sub-Burst IE ()	Variable	

} else if (Mode== 2) {		
DL H-ARQ IR CC Sub-Burst IE ()	Variable	
}		
}		
Padding	Variable	Padding to byte; shall be set to 0
}		

Table 285n—DL HARQ Chase sub-burst IE format

DL H-ARQ Chase Sub-Burst IE {		
DIUC	4 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
N sub burst	5 bits	Number of sub-bursts in 2D region
Reserved	1 bits	
For (j=0; j< N sub burst; j++){		
RCID_IE()	Variable	
Duration	10 bits	Duration in slots
ACID	4 bits	
AI_SN	1 bit	
Reserved	3 bits	
CQICH Control Indicator	1 bits	
If(CQICH Control Indicator == 1){		
Allocation Index	6 bits	Index to the channel in a frame the CQI report should be transmitted by the SS
Period (p)	3 bits	A CQI feedback is transmitted on the CQI channels indexed by the (CQI Channel Index) by the SS in every 2^p frames.
Frame offset	3 bits	The MSS starts reporting at the frame of which the number has the same 3 LSB as the specified frame offset. If the current frame is specified, the MSS should start reporting in 8 frames.
Duration (d)	4 bits	A CQI feedback is transmitted on the CQI channels indexed by the (CQI Channel Index) by the SS for $2^{(d-1)}$ frames. If d is 0b0000, the CQICH is de-allocated. If d is 0b1111, the MSS should report until the BS command for the MSS to stop
}		
Dedicated DL Control Indicator	1 bit	
If (Dedicated DL Control Indicator ==1) {		
Dedicated DL Control IE ()	Variable	
}		
}		
}		

Table 285o—DL HARQ IR CTC sub-burst IE format

DL H-ARQ IR Sub-Burst IE {		
N sub burst	5 bits	
Reserved	3 bits	
For (j=0; j< N sub burst; j++){		
RCID_IE()	Variable	
Nep	4 bits	
Nsch	4 bits	
SPID	2 bits	
ACID	4 bits	
AI_SN	1 bit	
ACK disable	1 bit	When this bit is "1" no ACK channel is allocated and the SS shall not reply with an ACK.
Reserved	2 bits	
CQICH Control Indicator	1 bits	
If(CQICH Control Indicator == 1){		
Allocation Index	6 bits	Index to the channel in a frame the CQI report should be transmitted by the SS
Period (p)	3 bits	A CQI feedback is transmitted on the CQI channels indexed by the (CQI Channel Index) by the SS in every 2^p frames.
Frame offset	3 bits	The MSS starts reporting at the frame of which the number has the same 3 LSB as the specified frame offset. If the current frame is specified, the MSS should start reporting in 8 frames.
Duration (d)	4 bits	A CQI feedback is transmitted on the CQI channels indexed by the (CQI Channel Index) by the SS for $2^{(d-1)}$ frames. If d is 0b0000, the CQICH is de-allocated. If d is 0b1111, the MSS should report until the BS command for the MSS to stop
}		
Dedicated DL Control Indicator	1 bit	
If (Dedicated DL Control Indicator ==1) {		
Dedicated DL Control IE ()	Variable	
}		
}		
}		

Table 285p—DL HARQ IR CC sub-burst IE format

DL H-ARQ IR CC Sub-Burst IE {		
DIUC	4 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
N sub burst	5 bits	
Reserved	1 bits	
For (j=0; j< N sub burst; j++){		

RCID_IE()	Variable	
Duration	10 bits	Duration in slots
ACID	4 bits	
AI_SN	1 bit	
SPID	2 bits	
Reserved	1 bits	
CQICH Control Indicator	1 bits	
If(CQICH Control Indicator == 1){		
Allocation Index	6 bits	Index to the channel in a frame the CQI report should be transmitted by the SS
Period (p)	3 bits	A CQI feedback is transmitted on the CQI channels indexed by the (CQI Channel Index) by the SS in every 2^p frames.
Frame offset	3 bits	The MSS starts reporting at the frame of which the number has the same 3 LSB as the specified frame offset. If the current frame is specified, the MSS should start reporting in 8 frames.
Duration (d)	4 bits	A CQI feedback is transmitted on the CQI channels indexed by the (CQI Channel Index) by the SS for $2^{(d-1)}$ frames. If d is 0b0000, the CQICH is de-allocated. If d is 0b1111, the MSS should report until the BS command for the MSS to stop
}		
Dedicated DL Control Indicator	1 bit	
If (Dedicated DL Control Indicator ==1) {		
Dedicated DL Control IE ()	Variable	
}		
}		
}		

[Change table in section 8.4.5.4.25 HARQ UL MAP IE]

Table 302l—HARQ UL MAP IE[IS2]

Syntax	Size	Note
H-ARQ UL MAP IE() {		
Extended UIUC	4	Set to 0x1
Length	8	Indicates the length of the IE in bytes
RCID_Type	2 bits	00 = Normal CID 01 = RCID11 10 = RCID7 11 = RCID3
Reserved	2 bits	
while (data remains) {		
Allocation Start Indication	1 bit	0: No allocation start information 1: Allocation start information follows
If (Allocation Start Indication == 1) {		
OFDMA Symbol offset	8 bits	This value indicates start Symbol offset

		of subsequent sub-bursts in this H-ARQ UL MAP IE
Subchannel offset	7 bits	This value indicates start Subchannel offset of subsequent sub-bursts in this H-ARQ UL MAP IE
Reserved	1 bits	
}		
Mode	3 bits	Indicates the mode of this IE 000 = Chase H-ARQ 001 = Inremental redundancy H-ARQ for CTC 010 = Inremental redundancy H-ARQ for convolutional code 011 – 111 *Reserved*
N sub Burst	4 bits	This field indicates the number of bursts in this UL MAP IE
For (i =0 ;i < N Sub-burst; i++){		
~~Dedicated UL Control Indicator~~	~~1 bit~~	
~~If (Dedicated UL Control Indicator ==1) {~~		
~~Dedicated UL Control IE ()~~	~~variable~~	
~~}~~		
If (Mode == 000) {		
UL HARQ Chase Sub-Burst IE ()		
} else if (Mode== 001) {		
UL HARQ IR CTC Sub-Burst IE ()		
} else if (Mode== 010) {		
UL HARQ IR CC Sub-Burst IE ()		
}		
}		
}		
Padding	Variable	Padding to byte; shall be set to 0
}		

Table 302m—UL HARQ Chase sub-burst IE format

HARQ Chase UL Sub-Burst IE {		
RCID IE()	Variable	
Dedicated UL Control Indicator	1 bit	
If (Dedicated UL Control Indicator ==1) {		
Dedicated UL Control IE ()	variable	
}		
UIUC	4 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
Duration	10 bits	
ACID	4 bits	
AI_SN	1 bit	

Reserved	2 bits	
}		

[Change table in section 6.3.2.3.61 Sub downlink/uplink map (SUB-DL-UL-MAP) message*]*

Table 108z—SUB-DL-UL-MAP message format

Syntax	Size	Notes
SUB-DL-UL-MAP () {		
Compressed map indicator	3 bits	Set to binary 111
Map message length	10 bits	
~~*Reserved*~~	~~2 bits~~	~~Shall be set to 0~~
RCID_Type	2 bits	00 = Normal CID 01 = RCID11 10 = RCID7 11 = RCID3
H-ARQ ACK offset indicator	1 bit	
If (H-ARQ ACK offset indicator == 1){		
DL H-ARQ ACK offset	8 bits	
UL H-ARQ ACK offset	8 bits	
}		
~~RCID_Type~~	~~2 bits~~	~~00 = Normal CID~~ ~~01 = RCID11~~ ~~10 = RCID7~~ ~~11 = RCID3~~
DL IE Count	8 bits	
For (i=1; i <= DL IE Count; i++)		
DL-MAP_IE()	Variable	
}		
UL starting slot offset	11 bits	
Reserved	~~2~~1 bit~~s~~	Shall be set to 0
while (map data remains){		
UL-MAP_IE()	Variable	
}		
If !(byte boundary) {		
Padding Nibble	Variable	Padding to reach byte boundary.
}		
}		