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Re:	IEEE P802.16e/D6
Abstract	Harmonized H-ARQ MAP IE Corrections
Purpose	Adoption of proposed changes into P802.16e /D6
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Harmonized H-ARQ MAP IE Corrections

1 Motivation

This contribution is the results of harmonization efforts. It corrects errors in H-ARQ MAP IEs and provides clarification for some needed features.

2 Text Change

[Modify text in line 1 page 258 in Section 8.4.5.3.21.1 as following]

8.4.5.3.21.1 Dedicated DL Control IE

Table 285k Dedicated DL Control IE Format

Syntax	Size	Note
Dedicated DL Control IE() {		
Length	4 bits	Length of following control information in Nibble.
Control Header	4 bits	Bit #0: SDMA Control Info Bit #1-3: Reserved
If(SDMA Control Info Bit == 1){		
Num SDMA layers	2 bit	~~Number of SDMA layers minus 1~~ This value plus one indicates the total number of SDMA layers associated with the HARQ DL MAP IE
}		
Padding bits	variable	
}		

~~**Num SDMA layers**~~
~~This field shall appear for the first sub burst in each layer of an SDMA allocation, and indicates activation of SDMA. Each SDMA layer has a different pilot pattern (layer *n* uses pilot pattern *n*). The appearance of another burst with Num SDMA layers indicates a new SDMA layer. The number of SDMA layer is incremented and the symbol and subchannel offsets are reset to the beginning of the allocation. The Num SDMA layers appearing in first burst of each layer must be equal.~~

SDMA control info
The Dedicated DL Control IE with SDMA Control Info =1 shall be present within the first sub-burst allocation of each layer of SDMA allocations (including the first layer). Each SDMA layer has is own pilot pattern (layer n uses the pilot pattern defined for antenna n, see 8.4.8). When the SDMA control info is present, the OFDMA Symbol offset and Subchannel offset shall be reset to the beginning of the two dimensional data region defined in the HARQ DL MAP IE.

[Add the following text in line 55 page 259 in Section 8.4.5.3.22]

The enhanced feedback 6-bit channel type shall be used for CQI channels allocated through any of the DL HARQ sub-burst IEs.

[Modify the following text as indicated in Section 8.4.5.3.22]

Each HARQ Map IE and sub-burst IE shall be nibble-aligned. When there is an if-else clause, regardless of whether the 'if' clause or the 'else' clause is executed the resulting Map IE shall be nibble-aligned. When there is a loop, nibble-alignment shall be required before the loop starts and inside the loop.

Table 285m—HARQ DL MAP IE format

Syntax	Size	Note
H-ARQ DL MAP IE {		
Extended DIUC 2	4	Set to 0x~~1~~07
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.
Region_ID use indicator	1 bit	0: not use Region_ID 1: use Region_ID
If (Region_ID use indicator == 0) {		
OFDMA Symbol offset	8 bits	Offset from the start symbol of DL sub-frame
Subchannel offset	~~6~~7 bits	
No. OFDMA Symbols	7 bits	
No. Subchannels	~~6~~7 bits	
Reserved	3 bits	
} else {		
Region_ID	8 bits	Index to the DL region defined in DL region definition TLV in DCD
}		
Mode	4 bits	Indicates the mode of this IE ~~0~~ 0b0000 = Chase H-ARQ ~~1~~ 0b0001 = Inremental redundancy H-ARQ for CTC ~~2~~ 0b0010 = Inremental redundancy H-ARQ for convolutional code ~~3 15~~0b0011 = MIMO Chase H-ARQ 0b0100 = MIMO IR H-ARQ 0b0101 = MIMO IR H-ARQ for Convolutional Code 0b0110 = MIMO STC H-ARQ 0b0111-0b1111
Boosting	3 bits	000: normal (not boosted); 001: +6dB; 010: -6dB; 011: +9dB; 100: +3dB; 101: -3dB; 110: -9dB; 111: -12dB;
If (Mode== ~~0~~0b0000) {		
DL H-ARQ Chase Sub-Burst IE ()	Variable	
} else if (Mode== ~~1~~0b0001) {		
DL H-ARQ IR CTC Sub-Burst IE ()	Variable	
} else if (Mode== ~~2~~0b0010) {		
DL H-ARQ IR CC Sub-Burst IE ()	Variable	
} else if (Mode==0b0011) {		

MIMO DL Chase H-ARQ Sub-Burst IE ()		variable	
} else if (Mode==0b0100) {			
MIMO DL IR H-ARQ Sub-Burst IE ()		variable	
} else if (Mode==0b0101) {			
MIMO DL IR H-ARQ for CC Sub-Burst IE ()		variable	
} else if (Mode == 0b0110) {			
MIMO DL STC H-ARQ 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		3 bits	
For (j=0; j< N sub burst; j++){			
RCID_IE()		Variable	
Duration		10 bits	Duration in slots
Sub-Burst DIUC Indicator		1 bit	If Sub-Burst DIUC Indicator is 1, it indicates that DIUC is explicitly assigned for this sub-burst. Otherwise, the this sub-burst will use the same DIUC as the previous sub-burst If j is 0 then this indicator shall be 1.
Reserved		1 bit	
If(Sub-Burst DIUC Indicator == 1){			
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
Reserved		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.
~~CQICH~~ Dedicated DL Control Indicator		2 bits	LSB #0 indicates inclusion of CQI control LSB #1 indicates inclusion of Dedicated DL Control IE
If(~~CQICH~~ LSB #0 of Dedicated DL Control Indicator == 1){			
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, deallocates all CQI feedback when the current ACID is completed successfully. ~~the CQICH is de-allocated.~~ If d is 0b1111, the MSS should report until the BS command for the MSS to stop
If (Duration != 0b0000){		
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~~	
Elseif~~If~~ (LSB #1 of 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~~ Dedicated DL Control Indicator	2 bits	LSB #0 indicates inclusion of CQI control LSB #1 indicates inclusion of Dedicated DL Control IE

If(~~CQICH~~ LSB #0 of Dedicated DL Control Indicator == 1){			
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, deallocates all CQI feedback when the current ACID is completed successfully. ~~the CQICH is de-allocated.~~ If d is 0b1111, the MSS should report until the BS command for the MSS to stop
If (Duration != 0b0000){			
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~~	
Elseif~~If~~ (LSB #1 of 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		3 bits	
For (j=0; j< N sub burst; j++){			
RCID_IE()		Variable	
Duration		10 bits	Duration in slots
Sub-Burst DIUC Indicator		1 bit	If Sub-Burst DIUC Indicator is 1, it indicates that DIUC is explicitly assigned for this sub-burst.

		Otherwise, the this sub-burst will use the same DIUC as the previous sub-burst If j is 0 then this indicator shall be 1.
Reserved	1 bit	
If(Sub-Burst DIUC Indicator == 1){		
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
Reserved	2 bits	
}		
ACID	4 bits	
AI_SN	1 bit	
SPID	2 bits	
ACK disable	1 bit	When this bit is "1" no ACK channel is allocated and the SS shall not reply with an ACK.
~~CQICH~~ Dedicated DL Control Indicator	2 bits	LSB #0 indicates inclusion of CQI control LSB #1 indicates inclusion of Dedicated DL Control IE
If(~~CQICH~~ LSB #0 of Dedicated DL Control Indicator == 1){		
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, deallocates all CQI feedback when the current ACID is completed successfully. ~~the CQICH is de-allocated.~~ If d is 0b1111, the MSS should report until the BS command for the MSS to stop
If (Duration != 0b0000){		
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~~	
Elseif~~If~~ (LSB #1 of 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

Syntax	Size	Note
H-ARQ UL MAP IE() {		
Extended UIUC	4	Set to 0x~~1~~07
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 bit	
}		
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 = MIMO Chase H-ARQ 100 = MIMO IR H-ARQ 101 = MIMO IR H-ARQ for Convolutional Code 110 = MIMO STC H-ARQ 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 ()					
} else if (Mode== 011) {					
MIMO UL Chase HARQ Sub-Burst IE ()					
} else if (Mode== 100) {					
MIMO UL IR H-ARQ Sub-Burst IE ()					
} else if (Mode== 101) {					
MIMO UL IR HARQ for CC Sub-Burst IE ()					
} else if (Mode == 110) {					
MIMO UL STC HARQ 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		4 1 bit			
ACK disable		1 bit			
Reserved		1 bits			
}					

Table 302n UL HARQ IR CTC Sub-Burst IE Format

HARQ IR UL Sub-Burst IE {					
RCID IE()		Variable			

Dedicated UL Control Indicator		1 bit	
If (Dedicated UL Control Indicator ==1) {			
Dedicated UL Control IE ()		variable	
}			
Nep		4 bits	
Nsch		4 bits	
SPID		2 bits	
ACID		4 bits	
AI_SN		1 bit	
ACK disable		1 bit	
Reserved		3 bits	
}			

Table 302o UL HARQ IR CC 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	
SPID		2 bits	
ACID		4 bits	
AI_SN		1 bit	
ACK disable		1 bit	
Reserved		3 bits	
}			

8.4.5.4.25.1 Dedicated UL Control IE

Table 302p Dedicated UL Control IE Format

Syntax		Size		Note
Dedicated UL Control IE() {				
Length		4 bits		Length of following control information in Nibble.
~~Control Information~~ Control Header		~~Variable~~4 bits		Bit #0: SDMA Control Info

				Bit #1-3: Reserved	
If(SDMA Control Info Bit == 1){					
Num SDMA layers		2 bit		This value plus one indicates the total number of SDMA layers associated with the HARQ UL MAP IE	
Pilot pattern		2 bit		00 = pattern A 01 = pattern B 10 = pattern C 11 = pattern D	
}					
Padding bits		variable			
}					

SDMA control info
The Dedicated UL Control IE with SDMA Control Info =1 shall be present within the first sub-burst allocation of each layer of SDMA allocations. When the SDMA control info is present, the OFDMA Symbol offset and Subchannel offset shall be reset to the Start OFDMA Symbol offset and Start Subchannel offset of the HARQ UL MAP IE. The specified pilot pattern (see 8.4.8.1.5) is used for all sub-burst allocations until the next occurrence of SDMA Control Info or until the end of the current HARQ UL MAP IE. The information specified in this SDMA control info is first applied to the same sub-burst allocation that contains the Dedicated UL Control IE.

***[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	
}		
OFDMA Symbol offset	8 bits	This value indicates start Symbol offset of subsequent sub-bursts in this UL Allocation start IE
Subchannel offset	7 bits	This value indicates start Subchannel offset of subsequent sub-bursts in this UL Allocation start IE
~~UL starting slot offset~~	~~11 bits~~	
Reserved	~~2 bits~~ 1 bit	Shall be set to 0
while (map data remains){		
UL-MAP_IE()	Variable	
}		
If !(byte boundary) {		
Padding Nibble	Variable	Padding to reach byte boundary.
}		
}		

[Add the following text in the section 8.4.5.3.21.2 Reduced CID IE]

8.4.5.3.21.2 Reduced CID IE

Table A presents the format of reduced CID. BS may use reduced CID instead of basic CID or multicast CID to reduce the size of H-ARQ MAP message. The type of reduced CID is determined by BS considering the range of basic CIDs of SS connected with the BS and specified by the RCID_Type field of the Format Configuration IE.
The reduced CID is composed of 1 bit of prefix and n-bits of LSB of CID of SS. The prefix is set to 1 for the broadcast CID or multicast CID and set to 0 for basic CID. The reduced CID can not be used instead of transport CID, primary management CID or secondary management CID.

Figure B shows the decoding of reduced CID when the RCID_Type is set to 3.

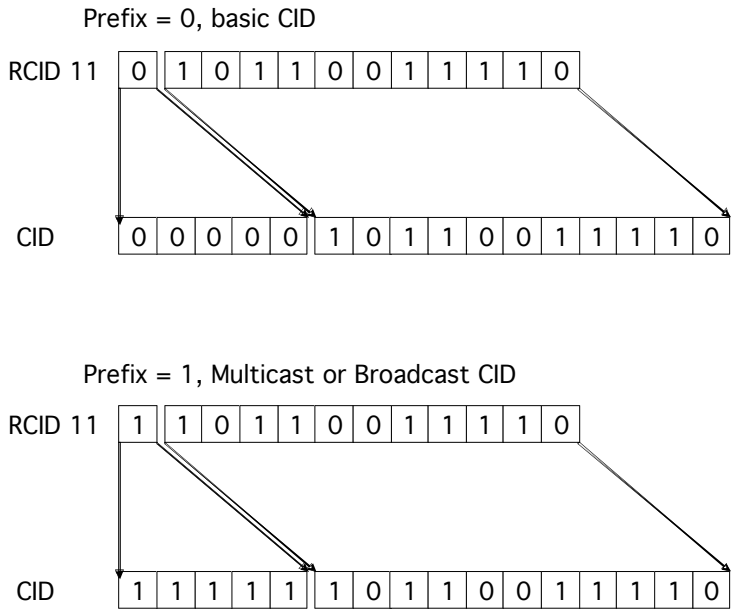

Figure B Reduced CID Decoding

Table A RCID_IE format

Syntax	Size	Notes
RCID_IE ( ) {	-	Support of Reduced CID
if (RCID_Type == 0){	-	RCID_Type is specified in Format_Configuration_IE
CID	16	normal CID
}else{		
Prefix	1	for multicast, AAS, Padding & broadcast burst temporary disable RCID
if (Prefix == 1){	-	-
RCID 11	11	11 LSB of multicast, AAS or broadcast CID
}else{	-	-
if (RCID_Type == 1){	-	-
RCID 11	11	11 LSB of basic CID
} else if (RCID_Type == 2){		
RCID 7	7	7 LSB of basic CID
} else if (RCID_Type == 3){		
RCID 3	3	3 LSB of basic CID
}	-	-
}	-	-
}	-	-
}	-	-

CID

Normal 16 bits CID

Prefix

A value of one indicates that 11 bits RCID for broadcast and multicast follows the prefix. Otherwise, the n-bits RCID for basic CID follows the prefix. The value of n is determined by the RCID_Type field in Format_Configuration_IE.

RCID n
n-bits LSB of CID

[Add a capability TLV for the region ID usage in the table in section 11.8.3.7.8]

Type	Length	Value	Scope
158	1	… Bit #4: DL region definition support	SBC-REQ (see 6.3.2.3.23) SBC-RSP (see 6.3.2.3.24)

[Change the name CHID to Region_ID in Table 285r—Enhanced DL MAP IE, page 266, line 36]

Type	Length	Value
~~CHID~~ Region_ID	~~6~~8 bits	~~As defined in DCD~~ Index to the DL region defined in DL region definition TLV in DCD

[Modify page 266, line 36]

~~Channel index defined in DCD message~~ Index to the DL region defined in DL region definition TLV in DCD

[Modify Table 358a in Section 11.4.1, page 475, line 33-40]

DL ~~channel~~ region definition	Variable	Num_region~~channels~~ (~~6~~8 bits)
		For (i = 0; i<Num_region~~channel~~;i++){
		OFDMA symbol offset (8 bits)
		Subchannel offset (6 bits)
		No. OFDMA symbols (8 bits)
		No. subchannels (6 bits)
		}
		padding bits to align boundary of byte
				SBC-REQ (see 6.3.2.3.23)
				SBC-RSP (see 6.3.2.3.24)

[Add the following words in the title of 8.4.9.2.1.2 (defining IR scheme for convolutional code)]
8.4.9.2.1.2 Incremental Redundancy H-ARQ support (optional)

[Make the following replacements in first column of table 316a]

~~1st retransmission~~ SPID=0
~~2nd retransmission~~ SPID=1
~~3rd retransmission~~ SPID=2
~~4th retransmission~~ SPID=3

[Add the following words in the title and contents of of 8.4.9.6. This section defines some encodings for Chase combining -hARQ that are needed only for working with H-ARQ map]
8.4.9.6 Chase Combining HARQ using H-ARQ map (optional)
Chase Combining HARQ may be enabled for any of the existing FEC modes. When Chase combining H-ARQ is indicated by the H-ARQ map, a change in the H-ARQ mode is signaled using the "H-ARQ Compact_DL-MAP IE format for Switch H-ARQ Mode" (see section
6.3.2.3.43.6.7). The definitions of the H-ARQ modes are defined in Table 333.

From contribution 147r1

3 Motivation

This contribution presents some fixes and refinements to the MAP/HARQ harmonization contribution from last session.

The changes include the following:

1. MAC ordering refinements
2. Text refinements
3. Additional text clarifications.

4 Overview of the proposed solution

[change the following in table 283]

Table 283 H-ARQ MAP or Sub-MAP Pointer IE Format

Syntax	Size	Note
H-ARQ and Sub- MAP Pointer IE {		
Extended DIUC	4 bits	H-ARQ MAP Pointer = 0x07
Length ~~=2xN~~	4 bits	~~N is the number of HARQ MAP or Sub-MAP bursts~~
While (data remains) {		
DIUC	4 bits	
No. Slots	8 bits	
Repetition Coding Indication	2 bits	
MAP Version	2 bits	0b00 – H-ARQ MAP v1 0b01 – Sub-MAP 0b02 – Sub-MAP with CID Mask included
~~CID mask included~~	~~1 bits~~	~~0 CID mask not included~~ ~~1 CID mask included~~
If (CID mask included) {		
Idle users	1 bit	Bursts for Idle users included in the Sub MAP
Sleep users	1 bit	Bursts for Sleep users included in the Sub MAP
CID Mask Length	2 bits	00: ~~11~~ 12 bits 01: ~~19~~ 20 bits 10: ~~35~~ 36 bits 11: ~~51~~ 52 bits
CID mask	n bits	n = The number of bits of CID mask is determined by CID Mask Length. When the MAP message pointed by this pointer IE includes any MAP IE for an awake mode MSS, the ((Basic CID of the MSS) MOD n)-the LSB of CID mask shall be set to 1. Otherwise, it may be set to 0..
}		
}		
}		

[Change the following text to section 11.8.3.7.12]

The maximal number of uplink data burst allocations for the SS in a single UL subframe (note that the number of non-HARQ burst is always limited to1 ~~this is limited to 1 in case H-ARQ is disabled~~)

[Delete in section 6.3.17]

~~HARQ is enabled on a CID basis. An HARQ enabled CID must have ARQ enabled as well for this CID. See section 6.3.17.6~~

[Add to the end of section 11.13.32]

HARQ is enabled on a CID basis. ~~An HARQ enabled CID must have ARQ enabled as well for this CID. See section 6.3.17.6~~

To deal with ordering implication of HARQ, each connection may enable ARQ or PDU SN mechanisms on top of the enabled HARQ connection.

Time stamp of first HARQ burst transmission is used as a the time relevance for all MAC specific Management messages and Sub headers (such as BW requests, Fast feedback, ARQ feadbacks etc..) that been transmitted in this burst.

[Change in section 11.13.31]

11.13.31 HARQ Service Flows

Specifies whether the connection uses HARQ or not.

The relevance connections of this parameter when appears in REG-REQ/RSP messages are Basic, Primary and Secondary CIDs.

Type	Length	Value	Scope
~~44~~ [145/146].xx	1	0 = Non HARQ (default) 1 = HARQ Connection	DSA-REQ, DSA-RSP, REG-REQ, REG-RSP

[Add section 11.13.3x]

11.13.3x HARQ Channel mapping

This TLV is valid only in HARQ enabled connection. It specifies a HARQ channel number that may be used to carry data from this connection. This TLV may specify more then one channel per connection. HARQ channels may share more then one connection. An absent of this TLV means all HARQ channels can be used by this connection.

The relevance connections of this parameter when appears in REG-REQ/RSP messages are Basic, Primary and Secondary CIDs.

This TLV can only be set by the BS side.

Type	Length	Value	Scope
[145/146].XX	Variable	HARQ channel Index (1 byte each)	DSA-REQ, DSA-RSP, REG-REQ, REG-RSP

[add the following section at the end of section 6.3.2.2]

6.3.2.2.x PDU SN Extended Subheader

Specify the PDU sequence number in a monotonic increasing manner.

Table 13xx—PDU (short) SN extended subheader

Name	Length(bits)	Description
PDU SN (short)	8	Specify the PDU SN number

Table 13xx—PDU SN (long) extended subheader

Name	Length(bits)	Description
PDU SN (long)	16	Specify the PDU SN number

[Add to table 13b&c two bits 3&4 referring to the two new TLVs above]

[Add section 11.13.3x]

11.13.3x PDU SN Extended Subheader for HARQ reordering

This TLV is valid only in HARQ enabled connection. It specifies whether PDU SN extended subheader should be applied by the transmitter on every PDU on this connection. This SN may be used by the receiver to ensure PDU ordering.
This counter should start at 0 and should be reset after HHO/FBSS operations
The relevance connections of this parameter when appears in REG-REQ/RSP messages are Basic, Primary and Secondary CIDs (each should have its own PDU numbering)
This TLV can only be set by the BS side.

Type	Length	Value	Scope
[145/146].XX	1	0 – No PDU SN extended SH (default) 1 - PDU SN (short) extended SH 2 - PDU SN (long) extended SH 3-256 – reserved.	DSA-REQ, DSA-RSP, REG-REQ, REG-RSP

5 Usage of CID Switch IE in Sub-MAP

5.1 Problem

The CID inclusion mode at the start of sub-MAP is not clear.

5.2 Remedy & Text Change

Reset CID inclusion mode at the start of every MAP.

[Add section 8.4.5.3.7 CID Switch IE]

[Change 8.4.5.3.7 as indicated:]

The DL-MAP and Sub-DL-UL-MAP shall begin in the mode where CIDs are not included.

6 H-ARQ ACK Region clarification

6.1 Problem

H-ARQ ACK Region shall be allocated by the specific extended IE which mandatory terminal can't decode. This makes a problem when allocates data bursts in UL sub-frame.

6.2 Remedy & Text Change

To fix this problem, BS may allocate large Fast Feedback region in DL-MAP message and override a part of the Fast Feedback region as a H-ARQ ACK region.

[Add sentence at the end of the section* 8.4.5.4.26 HARQ ACK Region Allocation IE*]

HARQ ACK Region Allocation IE may override Fast feedback Region. This means that when the HARQ ACK Region Allocation IE indicates the same region which is allocated for CQICH, then the region shall be used for HARQ ACK region.