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Source(s)	Yossi Segal Itzik Kitroser Yigal Leiba Zion Hadad Runcom Technologies Ltd. 2 Hachoma St. 75655 Rishon Lezion, Israel	Voice: +972-3-9528440 Fax: +972-3-9528805 yossis@runcom.co.il itzikk@runcom.co.il yigall@runcom.co.il zionh@runcom.co.il
	Avi Freedman Hexagon System Engineering 21c Yegi'a Kapa'im st. P.O. Box 10149 Petach Tikva, 49001 Israel	Voice: +972-3-9224420 Fax: +972-3-9224396 avi@hexagonltd.com
Re:	Contribution elaborating on comments for letter ballot #11b	
Abstract	This document includes text referenced in several comments given for ballot 11b	
Purpose	To be integrated into P802.16d/D3 2003 draft document	
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Complementary document for ballot 11b comments

Yossi Segal

Yigal Leiba

Itzik Kitroser

Zion Hadad

Runcom

Avi Freedman

Hexagon

1 Introduction

The following contribution contains the relevant information that should be changed in the appropriate sections. This document is referenced by the several comments.

8.5.4.2 PMP frame structure

Change figure 204 to reflect allocation of 4 Sub-Channels per cell:

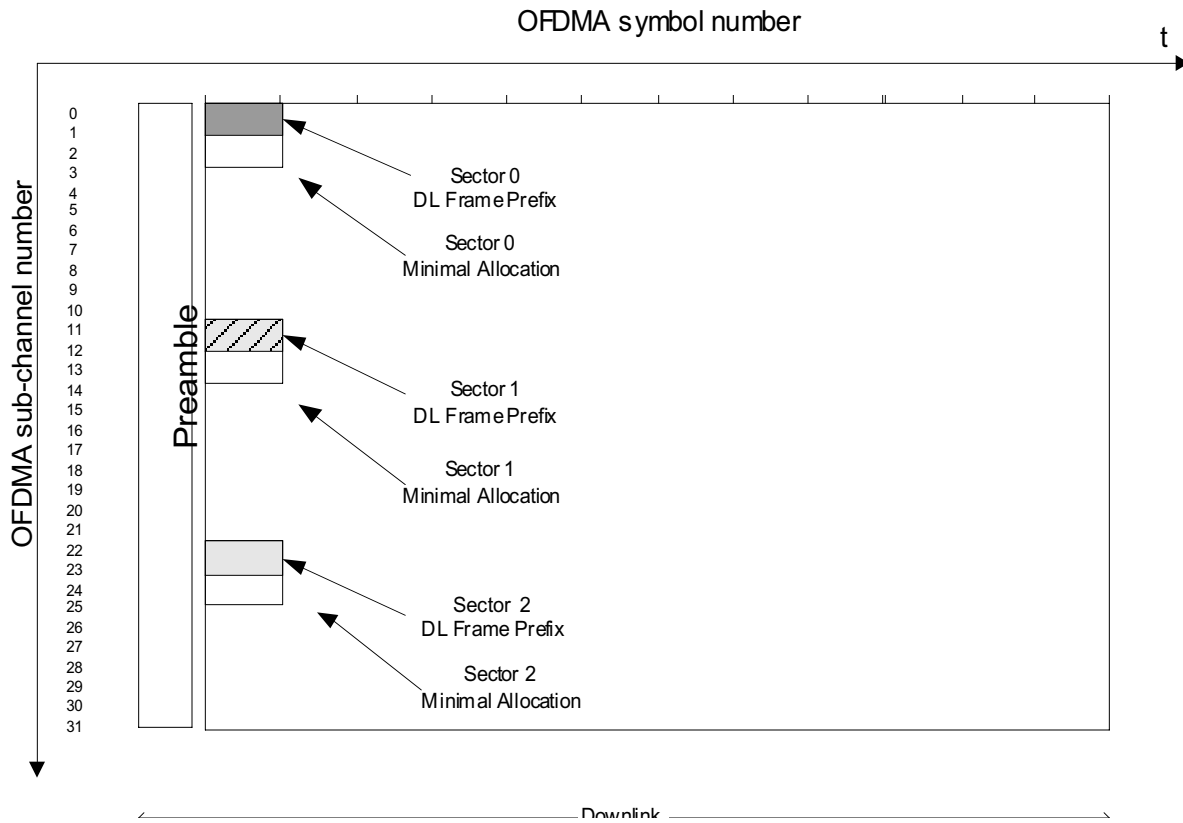
The first four transmitted sub-channels in the first data symbol of the DL contain the FCH and the beginning of the OFDMA DL MAP. These Sub-Channels are transmitted using QPSK rate 1/2 with the mandatory coding scheme, these Sub-Channels are also transmitted using repetition code (transmitting the same data onto two physical Sub-Channels) this will allow to transmit the data of two Sub-Channels only on the first Four Sub-Channels (the rest of the OFDMA DL MAP is also transmitted in the same way, the length of it is sent in the FCH), the repetition code is transmitted onto two adjunct Sub-Channels.

The FCH contains the DL_Frame Prefix as described in section 8.5.4.3, and specifies the length of the DL_MAP message that immediately follow the DL_Frame Prefix. Note that the DL-MAP message may 'spill' over into the first DL burst. Although the first DL burst contains broadcast MAC control messages, it is not necessary to use the most robust well known modulation/coding. A more efficient modulation/coding may be used if it is supported and applicable to all the SSs of a BS. With exception of the map messages, no MAC PDUs shall be split over multiple consecutive bursts with different burst profiles.

8.5.4.5 Allocation of sub-channels for FCH, and logical sub-channel numbering

The minimal allocation of sub-channels for a sector (if the sector is used) is 4 sub-channels. The first two transmitted sub-channels in the first data symbol of the DL contains the FCH as defined in 8.5.4.2 (in the repetition format). For sector 0 Sub-channels 0-3 are used as the basic allocated Sub-Channels, for Sector 1 Sub-channels 11-14, for sector 2 Sub-channels 22-25, Figure 207a depicts this structure:

Change figure 207a to reflect allocation of 4 Sub-Channels per cell:



After decoding the DL_Frame_Prefix message with the FCH, the SS has the knowledge of how many and which sub-channels are allocated to the sector. In order to observe the allocation of the sub-channels as a contiguous block of allocation, the sub-channels shall be renumbered, the renumbering shall start from the

FCH sub-channels (renumbered to values 0..2), then continue numbering the sub-channels in a cyclic manner to the last allocated sub-channel and from the first allocated sub-channel to the FCH Sub-Channels, Figure 207b gives an example of such renumbering for sector 2

Change figure 207a to reflect allocation of 4 Sub-Channels per cell:

	Physical Enumeration	Logical Enumeration (Renumbered)
	SC 7	SC 7
	DL FramePrefix	SC 0
	DL FramePrefix	SC 1
	SC 13	SC 2
	SC 14	SC 3
	SC 18	SC 4
	SC 27	SC 5
	SC 31	SC 6

After decoding the DL Frame Prefix, indication of the length of the OFDMA DL MAP can be retrieved and the OFDMA DL MAP can be decoded, taking into account that the OFDMA DL MAP message is also sent with a repetition code (and its allocation can exceed the first symbol boundary).

8.5.6.1.1 Preamble

The PN series modulating the pilots is defined in Table 227a, the series modulated depends on the Sector and the Preamble type (PNId), and the defined series shall be mapped onto the preamble carriers in an ascending order:

Sector	Preamble type (PNId)	Series to modulate (W_k)	PAPR
0	0	+1,-1,+1,-1,+1,-1,+1,+1,+1,+1,+1,+1,-1,-1,-1,+1,+1,+1,-1, -1,-1,+1,-1,-1,+1,-1,-1,+1,-1,+1,+1,-1,+1,+1,-1,-1,+1,+1,-1, +1,+1,+1,-1,+1,+1,-1,-1,+1,-1,-1,-1,-1,+1,-1,-1,+1,+1,+1,+1, -1,-1,+1,+1,+1,-1,-1,-1,-1,-1,+1,-1,-1,-1,+1,-1,-1,-1, -1,-1,-1,+1,-1,-1,+1,+1,+1,+1,+1,+1,+1,+1,-1,+1,-1,+1,+1,-1, +1,-1,-1,+1,+1,+1,-1,+1,-1,+1,-1,+1,-1,+1,-1,-1,+1,+1,-1,-1, +1,+1,-1,-1,+1,+1,-1,-1,-1,-1,-1,+1,-1,+1,+1,+1,+1,-1,+1,+1, -1,-1,-1,-1,-1,-1,-1,-1,+1,-1,+1,-1,+1,-1,-1,-1,+1,-1,-1, -1,+1,+1,-1,+1,-1,-1,-1,-1,+1,+1,+1,-1,-1,+1,-1,+1,+1,-1, +1,+1,-1,+1,-1,+1,-1,-1,+1,+1,+1,-1,+1,+1,+1,+1,-1,-1,+1, +1,+1,+1,+1,-1,-1,+1,+1,-1,-1,-1,+1,+1,+1,+1,+1,+1,+1,+1, -1,+1,-1,+1,-1,+1,-1,+1,-1,-1,-1,+1,-1,-1,+1,-1,-1,+1,+1, +1,+1,-1,-1,+1,-1,+1,-1,+1,+1,+1,-1,-1,+1,+1,+1,+1,+1,-1, +1,-1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,+1, +1,+1,-1,-1,+1,+1,-1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,-1,+1, +1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,-1,+1, +1,-1,-1,-1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,+1,+1,+1,+1,-1, -1,-1,-1,+1,+1,+1,-1,-1,+1,+1,-1,+1,+1,+1,-1,+1,+1,+1,-1, +1,+1,-1,-1,+1,-1,+1,-1,+1,-1,-1,+1,+1,+1,+1,-1,+1,+1,-1, -1,+1,-1,-1,-1,+1,-1,-1,+1,+1,+1,-1,-1,-1,+1,-1,-1,+1, -1,+1,-1,-1,+1,+1,+1,-1,+1,-1,+1,-1,-1,-1,+1,-1,+1,+1,+1, -1,+1,+1,-1,+1,+1,+1,-1,-1,-1,+1,+1,-1,-1,-1,-1,+1,-1, +1,+1,+1,+1,+1,+1,-1,+1,+1,-1,-1,+1,-1,+1,+1,+1,+1,-1,+1,+1, +1,+1,-1,+1,+1,-1,-1,-1,-1,+1,-1,+1,+1,-1,-1,-1,+1,-1, +1,+1,+1,+1,-1,+1,-1,-1,-1,+1,+1,+1,-1,-1,-1,-1,+1,-1, +1,+1,+1,+1,-1,+1,-1,-1,-1	4.17

1	0	<p>+1,-1,+1,+1,-1,-1,+1,-1,+1,+1,+1,+1,+1,+1,+1,-1,+1,-1,-1, -1,+1,-1,-1,+1,-1,+1,-1,+1,-1,+1,+1,-1,-1,-1,-1,+1,+1, +1,+1,+1,+1,-1,+1,+1,-1,+1,+1,+1,-1,+1,+1,+1,+1,-1,+1,+1, +1,+1,-1,+1,-1,-1,+1,+1,+1,-1,+1,-1,-1,-1,+1,+1,-1,-1,-1, -1,+1,-1,-1,-1,-1,+1,+1,-1,+1,-1,+1,-1,-1,+1,+1,+1,-1, +1,+1,+1,-1,+1,-1,-1,+1,-1,-1,+1,+1,-1,-1,+1,+1,-1,-1,-1, -1,+1,+1,+1,-1,-1,+1,-1,-1,+1,-1,+1,+1,+1,+1,-1,-1,+1, +1,-1,-1,-1,-1,+1,-1,-1,-1,+1,-1,+1,+1,+1,+1,-1,+1,-1,-1, -1,-1,-1,+1,-1,+1,+1,-1,+1,+1,-1,+1,-1,+1,+1,+1,-1, +1,-1,-1,+1,+1,-1,+1,-1,-1,-1,+1,+1,+1,-1,-1,-1,-1,+1, +1,+1,+1,+1,+1,-1,+1,-1,-1,-1,+1,-1,+1,-1,-1,+1,-1,-1, +1,+1,-1,-1,-1,-1,-1,-1,+1,-1,+1,+1,-1,+1,-1,-1,+1,+1, -1,-1,-1,+1,-1,+1,-1,+1,+1,-1,-1,+1,-1,-1,-1,+1,+1,+1, -1,-1,-1,-1,-1,-1,-1,+1,-1,+1,+1,-1,-1,+1,-1,-1,+1,+1, -1,+1,+1,-1,-1,-1,+1,-1,+1,+1,-1,-1,+1,-1,-1,-1,+1,+1, -1,+1,+1,-1,-1,-1,+1,+1,+1,-1,-1,+1,+1,+1,-1,-1,+1,+1, +1,+1,-1,+1,-1,-1,+1,+1,+1,+1,-1,-1,+1,-1,-1,+1,+1,-1, -1,+1,-1,+1,+1,+1,-1,+1,-1,-1,-1,+1,-1,-1,-1,+1,+1,+1, +1,-1,-1,+1,+1,-1,+1,+1,-1,+1,+1,-1,-1,-1,-1,+1,+1,+1, +1,-1,-1,+1,+1,-1,+1,+1,-1,+1,+1,-1,-1,-1,-1,+1,+1,+1, +1,-1,+1,-1,+1,+1,+1,+1,-1,+1,+1,-1,-1,-1,-1,-1,-1,-1, -1,+1,-1,+1,-1,+1,-1,-1,+1,-1,-1,+1,-1,+1,+1,-1,+1,-1, -1,-1,-1,+1,+1,+1,+1,-1,-1,+1,+1,-1,-1,-1,-1,-1,+1,+1, -1,-1,-1,-1,+1,+1,-1,-1,+1,+1,+1,-1,-1,+1,-1,+1,+1,-1, +1,+1,+1,-1,+1,+1,-1,-1,+1,+1,-1,-1,-1,+1,+1,-1,-1,+1, -1,-1,-1,-1,-1,+1,-1,+1,+1,-1,-1,-1,-1,-1,-1,+1,+1,-1, +1,-1,-1,+1,-1,-1,-1,-1,-1,-1,+1,+1,-1,-1,-1,+1,+1,-1, +1,+1,+1,+1,-1,+1,+1,-1</p>	4.23
1	1	<p>-1,-1,-1,+1,+1,-1,-1,+1,+1,+1,-1,-1,+1,+1,+1,-1,+1,-1,-1, +1,-1,-1,-1,-1,+1,+1,-1,-1,+1,+1,+1,-1,-1,+1,-1,-1,-1, +1,+1,-1,-1,+1,-1,-1,+1,-1,+1,+1,+1,+1,-1,-1,+1,+1,-1, -1,-1,+1,+1,+1,+1,+1,+1,-1,+1,+1,+1,-1,-1,+1,-1,+1,+1, +1,+1,+1,+1,+1,+1,+1,-1,-1,-1,-1,+1,-1,-1,+1,-1,-1,+1, +1,-1,+1,+1,-1,+1,+1,+1,-1,-1,-1,-1,+1,-1,-1,+1,-1,-1, +1,-1,-1,-1,-1,+1,-1,-1,+1,-1,+1,+1,+1,+1,-1,-1,+1,+1, -1,+1,-1,-1,+1,+1,+1,-1,+1,-1,+1,+1,-1,+1,-1,-1,+1,+1, -1,-1,-1,+1,+1,-1,-1,+1,-1,+1,+1,+1,-1,-1,+1,-1,-1,-1, +1,-1,+1,+1,-1,+1,-1,-1,-1,-1,+1,+1,+1,-1,+1,+1,+1, -1,-1,-1,-1,+1,-1,-1,-1,+1,+1,+1,-1,+1,-1,-1,+1,-1,-1, -1,+1,+1,-1,+1,-1,+1,+1,-1,+1,+1,+1,+1,-1,-1,-1,+1,+1, +1,+1,-1,-1,-1,-1,+1,+1,-1,-1,+1,-1,-1,-1,+1,+1,+1, -1,+1,+1,-1,+1,-1,-1,+1,-1,+1,+1,+1,+1,+1,-1,-1,-1,+1, -1,+1,+1,+1,+1,-1,+1,-1,-1,-1,-1,-1,-1,+1,+1,+1,+1, +1,-1,+1,-1,+1,+1,+1,+1,-1,-1,+1,+1,+1,-1,+1,-1,-1,-1, +1,+1,+1,+1,-1,+1,+1,+1,+1,+1,+1,-1,+1,+1,+1,-1,-1,-1, -1,+1,+1,-1,-1,-1,+1,+1,-1,+1,+1,-1,-1,+1,+1,-1,+1,+1, -1,+1,-1,+1,-1,+1,-1,-1,-1,-1,+1,+1,-1,-1,-1,-1,+1,+1, -1,+1,-1,+1,-1,+1,+1,+1,-1,+1,-1,-1,+1,-1,-1,-1,+1,+1, -1,-1,-1,-1,+1,-1,+1,+1,-1,-1,+1,+1,+1,+1,-1,+1,+1, -1,-1,+1,+1,-1,+1,+1,+1,-1,+1,-1,-1,+1,-1,-1,-1,-1,-1, -1,-1,+1,+1,-1,+1,+1,+1,-1,+1,-1,-1,+1,-1,-1,-1,-1,-1, -1,-1,-1,+1,-1,+1,+1,-1,+1,+1,-1,-1,-1,-1,+1,+1,+1, +1,-1,-1,+1,+1,+1,+1,+1,+1,+1,+1,-1,-1,-1,+1,-1,-1,-1, -1,+1,-1,-1,+1,-1,-1,-1,+1,-1,-1,+1,+1,-1,+1,+1,-1,+1, -1,+1,-1,-1,+1,-1,-1,-1,+1,+1,+1,-1,+1,+1,-1,+1,-1,+1, +1,+1,-1,-1,-1,+1,+1,+1,+1,-1,-1,-1,+1,-1,-1,+1,+1,-1, +1,+1,-1,-1,+1,+1,+1,+1,-1,-1,-1,+1,-1,-1,+1,+1,-1,-1</p>	4.21

1	2	<p>-1,-1,-1,-1,+1,-1,-1,-1,-1,+1,-1,-1,-1,+1,-1,+1,+1,+1,-1, -1,-1,-1,-1,-1,+1,+1,+1,+1,+1,+1,-1,-1,+1,+1,+1,+1,-1,-1,+1, -1,-1,-1,+1,+1,+1,+1,-1,-1,-1,-1,+1,+1,-1,-1,+1,+1,+1,-1, -1,+1,-1,+1,+1,-1,-1,-1,+1,-1,-1,+1,-1,+1,+1,+1,+1,-1,+1, -1,+1,+1,+1,-1,+1,-1,+1,-1,+1,-1,-1,+1,-1,+1,-1,+1,+1, -1,-1,-1,+1,+1,+1,+1,-1,+1,+1,+1,+1,+1,-1,+1,-1,-1,+1,+1, -1,+1,-1,-1,+1,-1,-1,+1,-1,-1,+1,+1,-1,+1,-1,+1,+1,-1,+1, +1,-1,-1,-1,+1,+1,-1,-1,+1,+1,-1,+1,+1,-1,+1,+1,-1,-1, +1,+1,+1,-1,-1,-1,-1,+1,-1,-1,-1,+1,-1,+1,+1,+1,+1,+1, +1,-1,+1,+1,-1,-1,+1,-1,+1,+1,-1,+1,-1,-1,+1,-1,+1,+1, +1,-1,+1,+1,+1,-1,+1,-1,+1,+1,+1,+1,+1,+1,+1,+1,+1,+1, +1,-1,+1,+1,+1,+1,-1,+1,-1,-1,+1,+1,+1,+1,+1,+1,+1,+1, +1,-1,-1,+1,-1,-1,-1,-1,+1,+1,-1,+1,+1,+1,+1,+1,+1,+1, -1,-1,+1,+1,+1,-1,+1,-1,-1,+1,+1,+1,-1,+1,+1,-1,-1,+1,-1, -1,+1,-1,-1,+1,+1,+1,+1,-1,+1,-1,-1,+1,+1,+1,-1,-1,+1,-1, +1,-1,+1,+1,-1,-1,+1,+1,-1,-1,-1,+1,+1,-1,+1,-1,+1,+1, +1,+1,+1,-1,+1,+1,+1,-1,-1,-1,+1,-1,+1,-1,+1,+1,+1,-1,-1, +1,+1,+1,-1,-1,+1,+1,+1,-1,-1,-1,+1,-1,+1,-1,+1,+1,-1,-1, +1,-1,-1,-1,+1,+1,-1,-1,-1,-1,-1,+1,-1,-1,+1,+1,+1,-1, -1,-1,-1,-1,+1,+1,-1,-1,+1,-1,-1,-1,-1,+1,+1,-1,+1,+1, +1,-1,+1,+1,+1,+1,+1,+1</p>	4.21
2	0	<p>-1,-1,-1,-1,-1,+1,+1,-1,+1,+1,-1,+1,+1,+1,+1,-1,+1, -1,-1,-1,-1,-1,+1,+1,+1,+1,+1,+1,-1,-1,-1,-1,-1,-1, -1,-1,-1,-1,-1,+1,+1,-1,+1,-1,-1,-1,+1,+1,+1,+1,+1,+1, -1,-1,-1,-1,+1,+1,+1,+1,-1,+1,-1,+1,-1,+1,+1,+1,+1,+1, +1,+1,+1,+1,-1,+1,+1,-1,+1,+1,-1,+1,+1,+1,+1,+1,+1,+1, +1,-1,-1,+1,+1,+1,-1,+1,+1,-1,+1,-1,-1,+1,+1,+1,+1,+1, -1,+1,+1,-1,-1,+1,+1,+1,-1,+1,-1,-1,+1,+1,+1,+1,+1,+1, -1,-1,-1,-1,+1,-1,+1,-1,+1,-1,+1,-1,+1,+1,-1,+1,+1,+1, -1,+1,-1,-1,+1,+1,-1,-1,+1,-1,-1,+1,-1,-1,-1,+1,+1, -1,-1,+1,-1,-1,+1,+1,+1,-1,+1,+1,+1,-1,-1,+1,+1,+1, +1,-1,+1,+1,+1,+1,-1,-1,+1,-1,+1,-1,-1,+1,-1,+1,-1,-1, +1,+1,-1,+1,+1,-1,-1,-1,+1,+1,+1,+1,-1,+1,-1,+1,+1,+1, -1,+1,-1,-1,+1,-1,+1,-1,+1,-1,+1,+1,+1,-1,-1,+1,-1,-1, -1,+1,-1,+1,-1,+1,-1,+1,-1,+1,+1,+1,-1,-1,+1,+1,+1,+1, +1,-1,+1,-1,-1,+1,-1,-1,-1,+1,-1,-1,-1,+1,+1,-1,-1,+1, -1,+1,-1,-1,-1,+1,-1,-1,-1,-1,-1,+1,-1,-1,+1,+1,+1,-1, -1,+1,-1,-1,-1,+1,+1,+1,-1,-1,+1,+1,+1,-1,-1,+1,+1,+1, +1,+1,-1,-1,+1,+1,+1,+1,+1,+1,-1,-1,-1,+1,+1,+1,+1,+1, +1,+1,-1,-1,+1,+1,-1,-1,+1,+1,-1,+1,+1,+1,+1,+1,+1,+1, -1,-1,+1,-1,+1,+1,-1,+1,-1,+1,+1,-1,-1,+1,-1,-1,+1, +1,+1,+1,-1,-1,+1,+1,-1,+1,-1,+1,+1,+1,-1,-1,+1,-1,+1, +1,+1,+1,+1,-1,+1,-1,+1,+1,+1,+1,-1,+1,+1,-1,-1,+1,+1, -1,+1,-1,-1,+1,-1,-1,-1,+1,+1,+1,+1,-1,+1,-1,-1,-1, +1,-1,+1,-1,-1,+1,+1,+1,-1,+1,+1,+1,-1,+1,-1,-1,+1, +1,-1,+1,-1,+1,+1,-1,+1,+1,+1,+1,-1,+1,-1,-1,+1,+1</p>	4.22

8.5.6.1.1 Preambles pilot modulation

replace lines 30-40

The pilots in the DL preamble shall follow the instructions in section 8.5.6.1.1, and shall be modulated according to the following formula:

$$\text{Re}(\text{Preamble}_n) = \frac{8}{3} \chi\left(\frac{1}{2} - W_k\right)$$

$$\text{Im}(\text{Preamble}_n) = 0$$

where Preamble_n and W_k are defined in 8.5.6.1.1.

8.5.8.4 downlink

The downlink shall enable the co-transmission of regular Sub-Channel transmission and STC Sub-Channel transmission as explained in 8.5.8. The minimal allocation of sub-channels for a sector (if the sector is used) is 4 sub-channels. The first two transmitted sub-channels in the first data symbol of the DL containing the FCH as defined in 8.5.4.2, this transmission is performed using the repetition code by sending the same information on each sub-channel. For sector 0 Sub-channels 4-7 are used as the basic allocated Sub-Channels, for Sector 1 Sub-channels 15-18, for sector 2 Sub-channels 26-29.

In the following figure the structure of the DL Frame-Prefix Sub-Channel allocation (for the combined operation of STC and regular transmission) is shown:

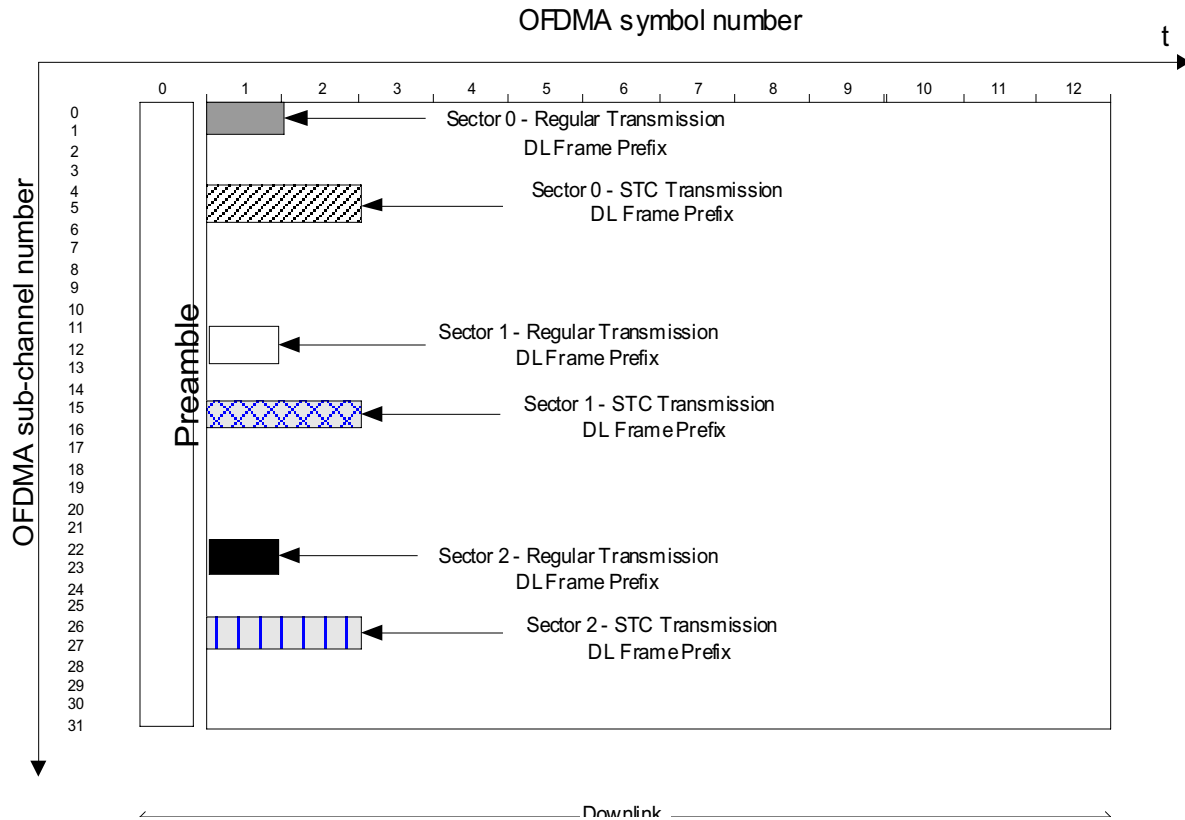


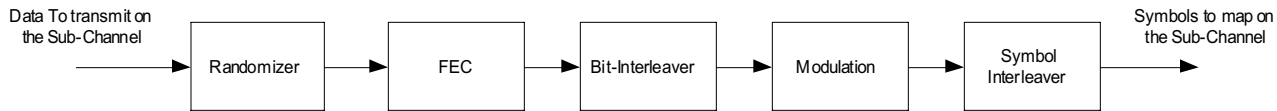
Figure 215a—DL Frame Prefix sub-channel allocation for the combined operation of STC and non-STC transmission

8.5.9 Channel coding

Channel coding procedures include randomization (see 8.5.9.1), FEC encoding (see 8.5.9.2), bit interleaving (see 8.5.9.3) modulation (see 8.5.9.4) and symbol interleaving (8.5.9.5).

When repetition code is to transmit, allocation for the transmission shall always include an even number of adjacent Sub-Channels. The first Sub-Channel shall set the randomization seed used in section 8.5.9.1, and the data shall follow the coding chain up to the symbol interleaving. The data outputted from the modulation (section 8.5.9.4) shall be mapped onto the two consecutive allocated Sub-Channels, the process of regular encoding and repetition encoding is shown in figure XXX.YY

Regular Channel Coding Process



Repetition Coding - Channel Coding Process

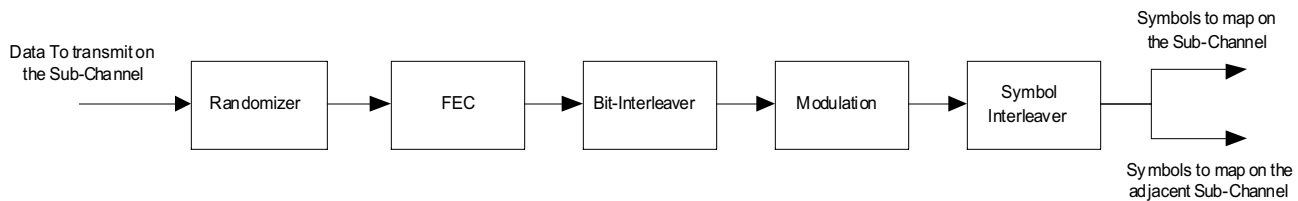


Figure XXX.YY— Channel Coding Process for regular and repetition coding transmission

8.5.9.4 Symbol Interleaver

Data symbols entering the symbol Interleaver shall be mapped on their appropriate allocated sub-carrier of the specified sub-channel.

The allocation shall follow the formula:

TBD

8.5.9.4.3 Pilot modulation

TBD