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Re:	Call for contribution IEEE 802.16d-03/02	
Abstract	This contribution presents some corrections to problems currently exists in the IEEE 802.16a OFDMA mode.	
Purpose	Proposal for inclusion in the 802.16d amendment document	
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## OFDMA Errata

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### 1 General

The current OFDMA UL and DL MAP information Elements are missing some reserved bit for flexibility of future enhancements, this contribution present a minor modifications to those messages that enables future extensions. Also some correction to the frame duration is defines since the current FDD restriction of multiples of 3 was erroneous and the initialization of DL pilots modulation.

### 2 Proposed changes

Section 8.5.5.2, Page 196, Line 15

Change the DL-MAP Information Element according to the following table:

**Table 116ao: OFDMA DL-MAP Information Element format**

Syntax	Size	Notes
DL-Map_Information_Element() {		
<b>DIUC</b>	4 bits	
if (DIUC == 15) {		
Extended DIUC dependent IE	Variable	AAS_DL_IE()
} else {		
<b>OFDM Symbol offset</b>	<del>40.8</del> bits	
<b>Subchannel offset</b>	<del>6.5</del> bits	
<b>Boosting</b>	2 bits	00: normal (not boosted); 01: +6dB; 10: -6dB; 11: reserved
<b>Reserved</b>	1 bits	Reserved set to 0
<b>No. OFDM Symbols</b>	<del>40.8</del> bits	
<b>No. Subchannels</b>	<del>6.5</del> bits	
<b>Reserved</b>	3 bits	Reserved set to 0
}		
}		

Section 8.5.5.3, Page 199, Line 6

Change the UL-MAP Information Element according to the following table:

**Table 116bp: OFDMA UL-MAP Information Element format**

Syntax	Size	Notes
UL-Map_Information_Element() {		
<b>CID</b>	16 bits	
<b>UIUC</b>	4 bits	

if (UIUC == 4) {		
CDMA_Allocation_IE()	52 bits	
} else if (UIUC == 15) {		
Extended UIUC dependent IE	Variable	Power_Control_IE() or AAS_UL_IE()
} else {		
<b>OFDM Symbol offset</b>	<b>9-10</b> bits	
<b>Subchannel offset</b>	<b>5-6</b> bits	
<b>Boosting</b>	<b>2</b> bits	<b>00: normal (not boosted); 01: +6dB; 10: -6dB; 11: reserved</b>
<b>No. OFDM Symbols</b>	<b>9-8</b> bits	
<b>No. Subchannels</b>	5 bits	
<b>Reserved</b>	<b>2-3</b> bits	Reserved set to 0
}		
}		

Section 8.5.4.4, Page 194, Line 8  
Change:

Table 116bj – OFDMA frame duration (T<sub>F</sub> ms) codes

Code(N)	Nominal(D)	Actual
0	N/A	AAS-only gap up to 200 ms following (see 8.5.6.3)
1	2	FDD: $\text{round}(D/3T_s) * 3T_s$ TDD: $\text{max}(\text{round}(D/T_s), 7) * T_s$
2	3.5	
3	5	
4	7	
5	10	
6	14	
7	15	
8	20	
9-255		Reserved

In an FDD case, the frame duration shall be an integer multiple of ~~three~~one OFDM symbols duration, such that the actual frame duration is as listed in Table 116bj. In a TDD case, the frame duration shall be an integer multiple of one OFDM symbol duration, such that the actual frame duration is as listed in Table 116bj, plus a RTG and TTG guard interval. Both RTG and TTG shall be no less than 5 μs in duration.

Section 8.5.9.4.3, Page 226, line 29:  
Change:

When using data transmission on the DL, the initialization vector of the PRBS is: ~~[1111111111]~~done according to Table xxx, except for the OFDMA DL PHY preamble (see 8.5.9.4.3.1). When using data transmission on the UL the initialization vector of the PRBS shall be: [101010101]. These initializations result in the sequence  $w_k =$  ~~[appropriate value from table xxx1111111111]~~000000001..... in the DL and the sequence  $w_k =$ 10101010101000000000.... in the UL.

Table xxx – OFDMA DL PRBS Initialization

$\text{mod}(ID_{cell}, 6)$	PRBS Initialization
----------------------------	---------------------

0	[111111111111]
1	[00011101010]
2	[11001010111]
3	[10111000101]
4	[01010100011]
5	[01110001100]

Section 8.5.9.4.3.1, Page 226, line 51:

The initialization vector of the pilot modulation PRBS (defined in 8.5.9.4.3) for the symbol in which the DL-MAP message starts, and two consecutive symbols thereafter is ~~[01010101010]~~ done according to table yyy.

Table yyy – OFDMA DL Frame Preamble Initialization

$\text{mod}(ID_{cell},6)$	PRBS Initialization
0	[01010101010]
1	[00011101010]
2	[10011010011]
3	[01000101010]
4	[11100100011]
5	[00111001111]

**Reason for the change:**

The current definition presents a problem in a multi-cell deployment where sectors using the same frequency interfere one with other. A SS receiving signal from both sectors may be unable to perform channel estimation in such a scenario. The proposed solution provides different set of pilots and preamble to each cell so the wanted signal can be distinguished from the interference.