Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
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Re:	
Abstract	Editorial Corrections for uplink pilot locations (OFDMA PHY), pilot modulation sequence (OFDMA PHY), and interleaver description clarification for OFDM and OFDMA PHY sections.
Purpose	Editorial Corrections, clarifications
Notice	
Release	

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Various Editorial Corrections (OFDMA, OFDM PHY layer)

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OFDMA Pilot Carrier Diagram Corrections

8.5.6.2 Uplink

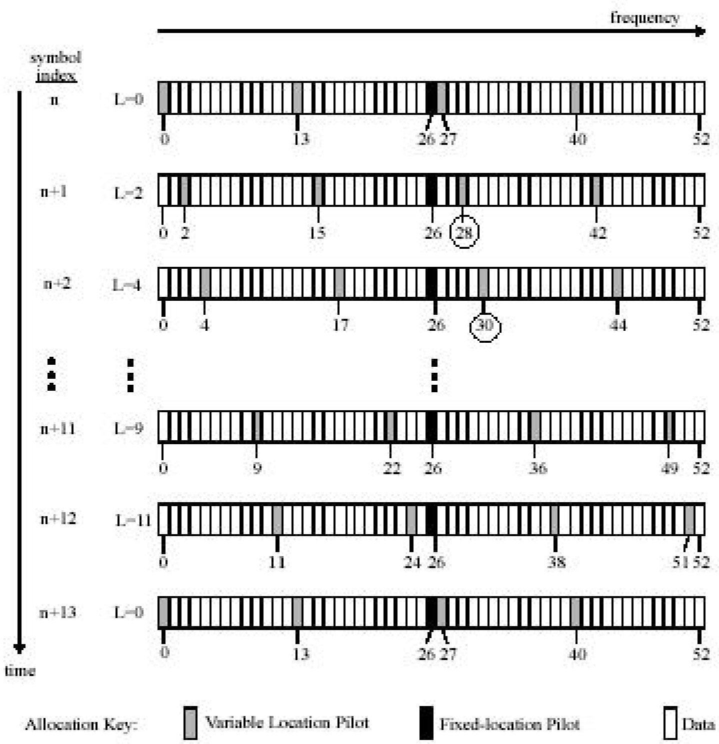

Figure 128bb—Carrier allocations within each OFDMA UL subchannel

The variable location pilot's carrier number for L=2 and L=4 are incorrect (circled) it should be 29 and 31 respectively as shown in figure below.

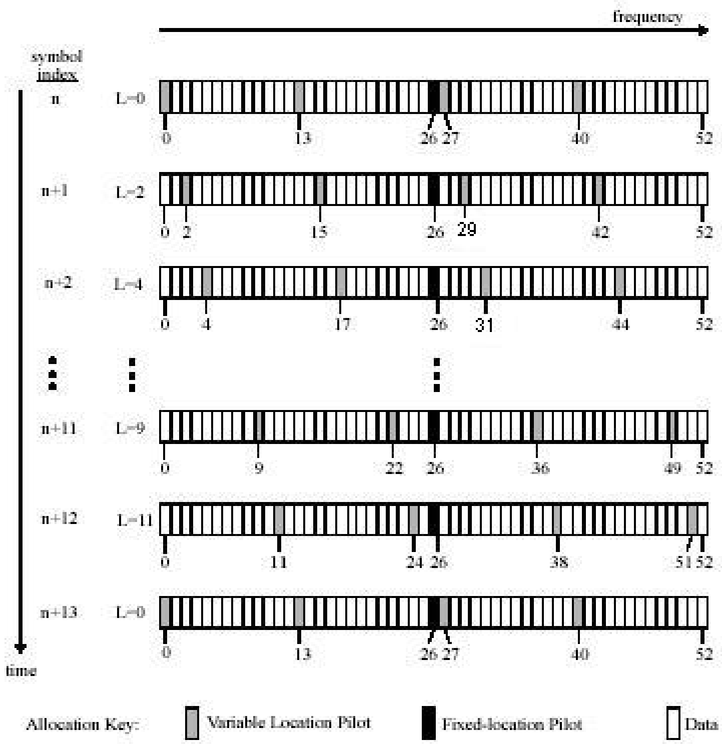

Figure 128bb—Carrier allocations within each OFDMA UL subchannel

OFDMA Pilot Modulation Correction

Correct the sequence wk given in section 8.5.9.4.3 Pilot Modulation. Currently, the text is as below.

" When using data transmission on the UL the initialization vector of the PRBS shall be: [10101010101]. These initializations result in the sequence wk=1111111111100000001..... in the DL, and the sequence wk=10101010101000000000.... in the UL. "

The sequence wk given for the DL missed out a 0. There should be 9 zeroes after the 11 ones. The correct sequence should be as below .

" When using data transmission on the UL the initialization vector of the PRBS shall be: [10101010101]. These initializations result in the sequence wk=11111111111000000000..... in the DL, and the sequence wk=10101010101000000000.... in the UL. "

OFDM & OFDMA Interleaver Text Clarification

This text applies to sections 8.4.3.3 (OFDM) and 8.5.9.3 (OFDMA). The text that explains the 2-step permutation from k to m to j should be clarified to remove any ambiguity. The ambiguity arises when there can be 2 different implementations for the above.

Case 1
If k = 0 maps to m = 2
This means zeroth input bit will be 2nd output bit

Case 2
If k = 0 maps to m = 2
This means zeroth output bit will be 2nd input bit

The correct implementation should be case 2.

Another index l should be introduced to denote index of the input after the first permutation and before the second permutation because it should not be confused with using m which is not in ascending sequence from 0 – Ncbps-1. Currently, text from the standard is shown below.

"Let k be the index of the coded bit before the first permutation at transmission, m be the index
after the first and before the second permutation and j be the index after the second permutation, just prior to modulation mapping, and d be the modulo used for the permutation.

The first permutation is defined by the rule:

m = (Ncbps/d). kmod(d) + floor (k/d) k = 0,1,……. Ncbps-1 (74)

The second permutation is defined by the rule:

j = s.floor(m/s) + (m+ Ncbps – floor (d.m/ Ncbps))mod s m = 0,1,……. Ncbps-1 (75)

The de-interleaver, which performs the inverse operation, is also defined by two permutations. Let j be the index of the received bit before the first permutation, m be the index after the first and before the second permutation and k be the index after the second permutation, just prior to delivering the coded bits to the convolutional decoder.

The first permutation is defined by the rule:

m = s.floor(j/s) + (j + floor (d.j/ Ncbps))mod s j = 0,1,……. Ncbps-1 (76)

The second permutation is defined by the rule:

$k = d.m - (Ncbps-1).\ floor(d.m/\ Ncbps)$ $m = 0,1,\ldots\ldots Ncbps-1$ (77)

The first permutation in the de-interleaver is the inverse of the second permutation in the interleaver, and conversely."

Also In order to clarify both issues, the text can be modified to:

"Let k be the index of the coded bit input before the first permutation at transmission, the kth output after the first and before the second permutation will be the coded bit with index m. Let l be the index of the coded bit input after the first and before the second permutation, the lth output after the second permutation, just prior to modulation mapping will be the coded bit with index j. d be the modulo used for the permutation.

The first permutation is defined by the rule:

$m = (Ncbps/d).\ kmod(d) + floor\ (k/d)$ $k = 0,1,\ldots\ldots Ncbps-1$ (74)

The second permutation is defined by the rule:

$j = s.floor(l/s) + (l+ Ncbps - floor\ (d.l/\ Ncbps))mod\ s$ $l = 0,1,\ldots\ldots Ncbps-1$ (75)

The de-interleaver, which performs the inverse operation, is also defined by two permutations. Let j be the index of the received bit input before the first permutation, the jth output after the first and before the second permutation will be the received bit with index l. Let m be the index of the received bit input after the first and before the second permutation, the m-th output after the second permutation, just prior to the convolutional encoder will be the received bit with index k.

The first permutation is defined by the rule:

$l = s.floor(j/s) + (j + floor\ (d.j/\ Ncbps))mod\ s$ $j = 0,1,\ldots\ldots Ncbps-1$ (76)

The second permutation is defined by the rule:

$k = d.m - (Ncbps-1).\ floor(d.m/\ Ncbps)$ $m = 0,1,\ldots\ldots Ncbps-1$ (77)

The first permutation in the de-interleaver is the inverse of the second permutation in the interleaver, and conversely."