Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Text for Clarification of Interleaver for OFDM and OFDMA**
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Re:	
Abstract	Addressing a request for clarification in sections 8.4.3.3 and 8.5.9.3 on block interleaving for the OFDM and OFDMA modes, respectively. The request came from contribution IEEE C802.16d-03/41
Purpose	Task group approval of the new text.
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Clarification Text for OFDM and OFDMA Interleaving

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In P802.16d/D2-2003, p. 18 line 28 to 65, replace with the following:

[802.16a-2003] Change:

Let N_{cpc} be the number of coded bits per carrier, i.e., 2, 4 or 6 for QPSK, 16-QAM or 64-QAM, respectively. Let $s = N_{cpc}/2$. Within a block of N_{cbps} bits at transmission, lLet k be the index of the a coded bit before the first permutation at transmission; m_k be the index of that coded bit after the first and before the second permutation; and let j_k be the index of that coded bit after the second permutation, just prior to modulation mapping.

The first permutation is defined by the ruleformulat:

~~$m = (N_{cbps} / 16) \cdot k_{mod(16)} + floor(k / 16)$ $k = 0, 1, \ldots, N_{cbps} - 1$ (44)~~
$m_k = (N_{cbps} / N_{mod}) \cdot k_{mod(Nmod)} + floor(k / N_{mod})$ $k = 0, 1, \ldots, N_{cbps} - 1$ (44)

The second permutation is defined by the ruleformula:

~~$j = s \cdot floor(m / s) + (m + N_{cbps} - floor(16 \cdot m_k / N_{cbps}))_{mod(s)}$ $k = 0, 1, \ldots, N_{cbps} - 1$ (45)~~
$j_k = s \cdot floor(m_k / s) + (m_k + N_{cbps} - floor(N_{mod} \cdot m_k / N_{cbps}))_{mod(s)}$ $k = 0, 1, \ldots, N_{cbps} - 1$ (45)

The de-interleaver, which performs the inverse operation, is also defined by two permutations. Within a received block of N_{cbps} bits, lLet j be the index of the receiveda bit before the first permutation; let m_j be the index of that bit after the first and before the second permutation; and let k_j be the index of that bit after the second permutation, just prior to delivering the coded bitsblock to the convolutional decoder.

The first permutation is defined by the ruleformula:

~~$m = s \cdot floor(j / s) + (j + floor(16 \cdot j / N_{cbps}))_{mod(s)}$ $j = 0, 1, \ldots, N_{cbps} - 1$ (46)~~
$m_j = s \cdot floor(j / s) + (j + floor(N_{mod} \cdot j / N_{cbps}))_{mod(s)}$ $j = 0, 1, \ldots, N_{cbps} - 1$ (46)

The second permutation is defined by the ruleformula:

~~$k = 16 \cdot m - (N_{cbps} - 1) \cdot floor(16 \cdot m / N_{cbps})$ $j = 0, 1, \ldots, N_{cbps} - 1$ (47)~~
$k_j = N_{mod} \cdot m_j - (N_{cbps} - 1) \cdot floor(N_{mod} \cdot m_j / N_{cbps})$ $j = 0, 1, \ldots, N_{cbps} - 1$ (47)

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