# 802.16 Improvements in Optional FEC for TG4

**Project** | IEEE 802.16 Broadband Wireless Access Working Group [http://ieee802.org/16](http://ieee802.org/16)
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**Title** | 802.16 Improvements in Optional FEC for TG4
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**Re:** | IEEE 802.16ab-01/01, June 2001, Proposed revision
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**Abstract** | This proposal describes a modified set of parameters for optional TPCs in TG4 draft spec. The changes are highlighted in red and result in slightly better performance and lower complexity implementation.
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**Purpose** | This document is a revision to the document cited above. Section 8.3.6.4.2.6.3, in document IEEE 802.16ab-01/01, June 2001
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Improvements in Optional FEC for TG4

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8.3.6.4.2.6.3 Turbo Product Coding

If selected, the Turbo Product Codes used in Mode A, Mode B or Mode C are given in Table 1, Table 2 and Table 3 respectively. The parameters shown cover each of the three subcarrier modulation schemes, QPSK, 16 QAM and 64 QAM.

<table>
<thead>
<tr>
<th>Data Block Size (bytes)</th>
<th>Coded block Size (bytes)</th>
<th>Code Rate</th>
<th>Constituent Codes</th>
<th>Code Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>24</td>
<td>~3/8</td>
<td>(16,11)(16,11)</td>
<td>I =2, I, =2, B=4</td>
</tr>
<tr>
<td>14</td>
<td>24</td>
<td>~3/5</td>
<td>(16,11)(16,15)</td>
<td>I =2, I, =2, B=4</td>
</tr>
<tr>
<td>20</td>
<td>24</td>
<td>~5/6</td>
<td>(16,15)(16,15)</td>
<td>I =2, I, =2, B=4</td>
</tr>
</tbody>
</table>

Table 1 - Mode 'a' - 64pt FFT OFDM

<table>
<thead>
<tr>
<th>Data Block Size (bytes)</th>
<th>Coded block Size (bytes)</th>
<th>Code Rate</th>
<th>Constituent Codes</th>
<th>Code Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>24</td>
<td>~2/5</td>
<td>(16,11)(16,11)</td>
<td>I =2, I, =1, B=2</td>
</tr>
<tr>
<td>15</td>
<td>26</td>
<td>~3/5</td>
<td>(16,11)(16,15)</td>
<td>I =2, I, =1, B=2</td>
</tr>
<tr>
<td>22</td>
<td>26</td>
<td>~5/6</td>
<td>(16,15)(16,15)</td>
<td>I =2, I, =1, B=2</td>
</tr>
</tbody>
</table>

Table 2 - Mode 'b' - 256pt FFT OFDM

<table>
<thead>
<tr>
<th>Data Block Size (bytes)</th>
<th>Coded block Size (bytes)</th>
<th>Code Rate</th>
<th>Constituent Codes</th>
<th>Code Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>26</td>
<td>~2/5</td>
<td>(16,11)(16,11)</td>
<td>I =2, I, =1, B=2</td>
</tr>
<tr>
<td>15</td>
<td>26</td>
<td>~3/5</td>
<td>(16,11)(16,15)</td>
<td>I =2, I, =1, B=2</td>
</tr>
<tr>
<td>22</td>
<td>26</td>
<td>~5/6</td>
<td>(16,15)(16,15)</td>
<td>I =2, I, =1, B=2</td>
</tr>
</tbody>
</table>

Table 3 - Mode 'c' - 2048pt FFT OFDMA