Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**802.16 Improvements in Optional FEC for TG3**
Date Submitted	**2001-06-29**
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Re:	IEEE 802.16ab-01/01, June 2001, Proposed revision
Abstract	This proposal describes a modified set of parameters for optional TPCs in TG3 draft spec. The changes are highlighted in red and result in slightly better performance and lower complexity implementation.
Purpose	This document is a revision to the document cited above. Table 25 is targeted, in document IEEE 802.16ab-01/01, June 2001
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Improvements in Optional FEC for TG3

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This proposal describes a modified set of parameters for optional TPCs in TG3 draft spec. The changes are highlighted in red and result in slightly better performance and lower complexity implementation.

The following modifications are suggested in the OFDM section of TG3

Modulation	Data Block Size (Bytes)	Coded Block Size (Bytes)	Code Rate	Bits/sec/Hz	Constituent Codes	Code Parameters
QPSK	2~~6~~3	48	~1/2	1.~~1~~0	(32,~~31~~26)(16,11)	I_x=4,I_y=~~3~~2,B=8
QPSK	~~41~~35	48	~3/4	1.~~7~~5	~~(32,31)(32,31)~~ (8,7)(64,57)	I_x=~~14~~1,I_y=~~11~~9,B =~~12~~1
16QAM	5~~6~~8	96	~3/5	2.~~3~~4	(32,26)(32,26)	I_x=~~6~~0,I_y=~~3~~8,B= ~~12~~0
16QAM	7~~5~~8	96	~4/5	3.~~1~~3	~~(64,57)(16,15)~~ (16,15) (64,57)	I_x=~~0~~4,I_y=~~17~~3,B =~~0~~12
64QAM	~~107~~92	144	~2/3	~~4.4~~3.8	(64,~~63~~57)(32,26)	I_x=~~25~~16,I_y=~~3~~8
64QAM	~~115~~120	144	~5/6	~~4.8~~5.0	(32,31)(64,57)	I_x=~~8~~13,I_y=~~17~~3,B =7

Table 25. Optional Channel Coding Per Modulation

Figure 1 bellow illustrates the performance of the modified codes in AWGN channel.
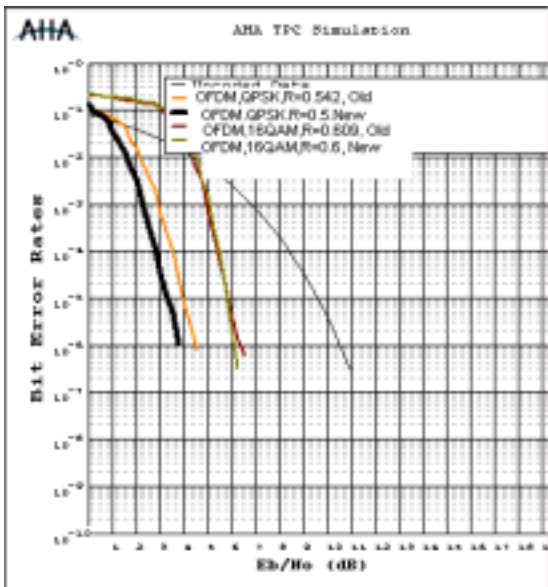
Figure 1. Illustrative performance figures for modified TPC codes

The following modifications are suggested in the OFDMA section of TG3

Modulation	Data Block Size (Bytes)	Coded Block Size (Bytes)	Code Rate	Bits/sec/Hz	Constituent Codes	Code Parameters
QPSK	16	36	~1/2	0.9	(32,26)(16,11)	I_x=11,I_y=2,B=6
QPSK	25	36	~2/3	1.39	(8,7)(64,57)	I_x=2,I_y=17~~6~~,
16QAM	~~38~~40	72	~3/5	2.~~1~~2	~~(64,63)(16,11)~~ (32,26)(32,26)	I_x=~~20~~8,I_y=~~3~~8, ~~B=4~~0
16QAM	5~~5~~6	72	~4/5	3.1	(16,15)(64,57)	I_x=4,I_y=17~~6~~,
64QAM	~~79~~68	108	~5/8	~~4.4~~3.8	(32,~~31~~26)(32, 26)	I_x=~~20~~,I_y=~~4~~5,B=~~6~~0
64QAM	8~~5~~8	108	~4/5	4.~~7~~9	~~(32,31)~~(16,15) (64,57)	I_x=~~14~~0,I_y=~~17~~10

Table 30   Optional Channel Coding per Modulation