Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Changes to OFDM Examples as a Result of Resolution of Comment 268**
Date Submitted	**2004-04-07**
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Re:	Supporting document for Sponsor Ballot Recirculation
Abstract	Additional changes to the standard are required as a result of the Resolution of Comment 263
Purpose	The document is intended for consideration within comments resolution process.
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Changes to OFDM Examples as a Result of Resolution of Comment 268

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7th April 2004

References

1. IEEE, "Draft IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed Broadband Wireless Access Systems," IEEE P802.16-REVd/D4-2004.
2. IEEE P802.16 Commentary Database 80216-04/11r5, http://ieee802.org/16/docs/04/80216-04_11r5.zip
3. Adam Kerr, Paul Petrus, Hassan Yaghoobi, "Unique Randomizer Initialization for Interference Management in 802.16 OFDM PHY," IEEE P802.16 contribution IEEE C802.16d-04/37r2, March 2004.

Introduction

The resolution of Comment 268 [2, 3] (Adam Kerr *et al*.) was to change the randomizer seeds so that they are based on the BSID, Frame Number and IUC, rather than on the IUC and symbol number. However, the examples in section 8.3.3.5 were not updated to reflect this change.
This contribution provides a change to section 8.3.3.5 compatible with the changes to the Randomizer.

Changes

Change 1

Replace Page 416, Line 40 to Page 417, Line 38 with the following:

Modulation Mode: QPSK, rate 3/4, Symbol Number within burst: 1, UIUC: 7, BSID: 1, Frame Number 1 (decimal values)
Input Data (Hex)
45 29 C4 79 AD 0F 55 28 AD 87 B5 76 1A 9C 80 50 45 1B 9F D9 2A 88 95 EB AE B5 2E 03 4F 09 14 69 58 0A 5D
Randomized Data (Hex)
D4 BA A1 12 F2 74 96 30 27 D4 88 9C 96 E3 A9 52 B3 15 AB FD 92 53 07 32 C0 62 48 F0 19 22 E0 91 62 1A C1
Reed-Solomon encoded Data (Hex)
49 31 40 BF D4 BA A1 12 F2 74 96 30 27 D4 88 9C 96 E3 A9 52 B3 15 AB FD 92 53 07 32 C0 62 48 F0 19 22 E0 91 62 1A C1 00
Convolutionally Encoded Data (Hex)
3A 5E E7 AE 49 9E 6F 1C 6F C1 28 BC BD AB 57 CD BC CD E3 A7 92 CA 92 C2 4D BC 8D 78 32 FB BF DF 23 ED 8A 94 16 27 A5 65 CF 7D 16 7A 45 B8 09 CC
Interleaved Data (Hex)
77 FA 4F 17 4E 3E E6 70 E8 CD 3F 76 90 C4 2C DB F9 B7 FB 43 6C F1 9A BD ED 0A 1C D8 1B EC 9B 30 15 BA DA 31 F5 50 49 7D 56 ED B4 88 CC 72 FC 5C

Subcarrier Mapping (frequency offset index: I value Q value)
-100: 1 -1, -99: -1 -1, -98: 1 -1, -97: -1 -1, -96: -1 -1, -95: -1 -1, -94: -1 1, -93: -1 1, -92: 1 -1, -91: 1 1,
-90: -1 -1, -89: -1 -1, -88:pilot= 1 0, -87: 1 1, -86: 1 -1, -85: 1 -1, -84: -1 -1, -83: 1 -1, -82: 1 1, -81: -1 -1,
-80: -1 1, -79: 1 1, -78: -1 -1, -77: -1 -1, -76: -1 1, -75: -1 -1, -74: -1 1, -73: 1 -1, -72: -1 1, -71: 1 -1,
-70: -1 -1, -69: 1 1, -68: 1 1, -67: -1 -1, -66: -1 1, -65: -1 1, -64: 1 1, -63:pilot= -1 0, -62: -1 -1, -61: 1 1,
-60: -1 -1, -59: 1 -1, -58: 1 1, -57: -1 -1, -56: -1 -1, -55: -1 -1, -54: 1 -1, -53: -1 -1, -52: 1 -1, -51: -1 1,
-50: -1 1, -49: 1 -1, -48: 1 1, -47: 1 1, -46: -1 -1, -45: 1 1, -44: 1 -1, -43: 1 1, -42: 1 1, -41: -1 1,
-40: -1 -1, -39: 1 1, -38:pilot= 1 0, -37: -1 -1, -36: 1 -1, -35: -1 1, -34: -1 -1, -33: -1 -1, -32: -1 -1, -31: -1 1,
-30: 1 -1, -29: -1 1, -28: -1 -1, -27: 1 -1, -26: -1 -1, -25: -1 -1, -24: -1 -1, -23: -1 1, -22: -1 -1, -21: 1 -1,
-20: 1 1, -19: 1 1, -18: -1 -1, -17: 1 -1, -16: -1 1, -15: -1 -1, -14: 1 1, -13:pilot= -1 0, -12: -1 -1, -11: -1 -1,
-10: 1 1, -9: 1 -1, -8: -1 1, -7: 1 -1, -6: -1 1, -5: -1 1, -4: -1 1, -3: -1 -1, -2: -1 -1, -1: 1 -1,
0: 0 0, 1: -1 -1, 2: -1 1, 3: -1 -1, 4: 1 -1, 5: 1 1, 6: 1 1, 7: -1 1, 8: -1 1, 9: 1 1,
10: 1 -1, 11: -1 -1, 12: 1 1, 13:pilot= 1 0, 14: -1 -1, 15: 1 -1, 16: -1 1, 17: 1 1, 18: 1 1, 19: 1 -1,
20: -1 1, 21: -1 -1, 22: -1 -1, 23: -1 1, 24: -1 -1, 25: 1 1, 26: -1 1, 27: 1 -1, 28: -1 1, 29: -1 -1,
30: 1 1, 31: -1 -1, 32: 1 1, 33: 1 1, 34: 1 1, 35: 1 -1, 36: 1 -1, 37: 1 -1, 38:pilot= 1 0, 39: -1 1,
40: -1 -1, 41: -1 1, 42: -1 1, 43: -1 -1, 44: 1 -1, 45: -1 1, 46: -1 1, 47: 1 1, 48: -1 -1, 49: 1 1,
50: 1 -1, 51: -1 -1, 52: -1 -1, 53: 1 -1, 54: 1 -1, 55: 1 -1, 56: 1 -1, 57: 1 1, 58: 1 1, 59: 1 -1,
60: 1 1, 61: -1 1, 62: 1 -1, 63:pilot= 1 0, 64: 1 -1, 65: -1 -1, 66: -1 -1, 67: 1 -1, 68: 1 -1, 69: 1 -1,
70: 1 -1, 71: -1 1, 72: -1 -1, 73: -1 1, 74: -1 -1, 75: 1 -1, 76: -1 1, 77: -1 -1, 78: 1 -1, 79: 1 1,
80: -1 1, 81: 1 1, 82: -1 1, 83: 1 1, 84: -1 -1, 85: 1 1, 86: -1 -1, 87: 1 1, 88:pilot= 1 0, 89: 1 -1,
90: -1 -1, 91: 1 1, 92: -1 1, 93: -1 -1, 94: -1 -1, 95: -1 -1, 96: 1 1, 97: 1 -1, 98: 1 -1, 99: -1 -1, 100: 1 1

Change 2

Replace Page 417, Line 45 to Page 418, Line 21 with the following:

Modulation Mode: 16-QAM, rate 3/4, Symbol Numbers within burst: 1-3, UIUC: 7, BSID: 1, Frame Number: 1, subchannel index: 0b00010 (decimal values)
Input Data (Hex)
45 29 C4 79 AD 0F 55 28 AD 87 B5 76 1A 9C 80 50 45 1B 9F D9 2A 88 95 EB AE B5
Randomized Data (Hex)
D4 BA A1 12 F2 74 96 30 27 D4 88 9C 96 E3 A9 52 B3 15 AB FD 92 53 07 32 C0 62 00
Convolutionally Encoded Data (Hex)
EE C6 A1 CB 7E 04 73 6C BC 61 95 D3 B7 C4 EF 0E 4C 76 CF DC 70 69 B3 CE DB E0 E5 B7 B5 4E 88 7D A4 AE 31 30
Interleaved Data (Hex)
B4 FF DA 06 E5 42 EC 1F 86 7C 29 93 9C AD 83 42 6B FE FC 6D CB F6 53 85 AE 68 22 7A CE B1 E7 52 B0 EC BA 95
Subcarrier Mapping (frequency offset index: I value Q value)
1st data symbol:
-100: -1 -3, -99: 3 1, -98: -3 -3, -97: -3 -3, -96: -3 3, -95: -1 -1, -38: pilot = 1 0, -37: 1 1, -36: 3 -1, -35: -3 -1, -34: 3 3, -33: 3 1, -32: 1 -1, 1: -3 -1, 2: -3 1, 3: 1 3, 4: -3 -3, 5: -1 1, 6: 3 -1, 64: 3 -3, 65: -3 1, 66: 1 -1, 67: -1 3, 68: -1 3, 69: 1 -3
2nd data symbol:
-100: -1 3, -99: -3 1, -98: -1 -1, -97: -3 3, -96: -1 1, -95: 1 -3, -38: pilot = -1 0, -37: 3 1, -36: 1 -1, -35: 3 -1, -34: -1 -3, -33: -3 -3, -32: -3 -1, 1: -3 -3, 2: -3 1, 3: 3 -1, 4: -3 3, 5: -3 1, 6: -1 -3, 64: -3 -3, 65: 3 -1, 66: 3 3, 67: 1 -3, 68: -1 1, 69: 3 3
3rd data symbol**:**

-100: -1 -1, -99: -3 -1, -98: 3 -1, -97: -1 1, -96: 1 -1, -95: 1 -1, -38: pilot = 1 0, -37: 3 -3, -36: -1 -1, -35: -3 1, -34: -3 -1, -33: -1 -3, -32: 1 3, 1: -3 -1, 2: 3 -3, 3: 3 3, 4: 1 -1, 5: -1 -3, 6: 1 1, 64: -3 -1, 65: -3 1, 66: -1 -3, 67: -1 -1, 68: -1 3, 69: 3 3

Change 3

Replace Page 418, Line 28 to Page 419, Line 6 with the following:

Modulation Mode: QPSK, rate 3/4, Symbol Numbers within burst: 1-5, UIUC: 7, BSID: 1, Frame Number: 1, subchannel index: 0b00001 (decimal values)
Input Data (Hex)
45 29 C4 79 AD 0F 55 28 AD 87
Randomized Data (Hex)
D4 BA A1 12 F2 74 96 30 27 D4 00 00
Convolutionally Encoded Data (Hex)
EE C6 A1 CB 7E 04 73 6C BC 61 95 D3 B7 DF 00
Interleaved Data (Hex)
BC EC A1 F4 8A 3A 7A 4F 78 39 53 87 DF 2A A2
Subcarrier Mapping (frequency offset index: I value Q value)
1st data symbol:
-100: -1 1, -99: -1 -1, -98: -1 -1, -37: 1 1, -36: -1 -1, -35: -1 1, 1: -1 -1, 2: 1 1, 3: -1 1, 64: -1 1, 65: 1 1, 66: 1 -1
2nd data symbol:
-100: -1 -1, -99: -1 -1, -98: 1 -1, -37: 1 1, -36: -1 1, -35: 1 1, 1: -1 1, 2: -1 1, 3: 1 1, 64: -1 -1, 65: -1 1, 66: -1 1
3rd data symbol:
-100: 1 -1, -99: -1 -1, -98: -1 1, -37: -1 1, -36: 1 -1, -35: 1 1, 1: -1 -1, 2: -1 -1, 3: 1 -1, 64: -1 -1, 65: -1 1, 66: 1 1
4th data symbol:
-100: 1 1, -99: -1 -1, -98: -1 1, -37: 1 -1, -36: 1 -1, -35: 1 -1, 1: 1 1, 2: -1 -1, 3: -1 1, 64: 1 1, 65: 1 -1, 66: -1 -1
5th data symbol:
-100: -1 -1, -99: 1 -1, -98: -1 -1, -37: -1 -1, -36: 1 1, -35: -1 1, 1: -1 1, 2: -1 1, 3: -1 1, 64: -1 1, 65: 1 1, 66: -1 1