| | |
|---|---|
| Project | **IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>** |
| Title | **PHY Profiles for Scalable FFT sizes** |
| Date Submitted | **2004-11-11** |
| Source(s) | Seungjoo Maeng, Jaeho Jeon, Inseok Hwang, Soonyoung Yoon, Panyuh Joo<br>sjmaeng@samsung.com<br><br>Samsung Electronics Co., Ltd.<br>Dong Suwon P.O.Box 105<br>416, Maetan-3dong, Yeongtong-gu,<br>Suwon-city, Gyeonggi-do, Korea<br>442-600 |
| Re: | IEEE P802.16e/D5-2004 |
| Abstract | In this contribution, we propose PHY profiles for scalable FFT sizes. |
| Purpose | Adopting of proposed method into P802.16e |
| Notice | This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein. |
| Release | The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16. |
| Patent Policy and Procedures | The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures (Version 1.0) <http://ieee802.org/16/ipr/patents/policy.html>, including the statement "IEEE standards may include the known use of patent(s), including patent applications, if there is technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing the standard."<br><br>Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair <mailto:r.b.marks@ieee.org > as early as possible, in written or electronic form, of any patents (granted or under application) that may cover technology that is under consideration by or has been approved by IEEE 802.16. The Chair will disclose this notification via the IEEE 802.16 web site <http://ieee802.org/16/ipr/patents/notices>. |

# PHY Profiles for Scalable FFT sizes

# 1. Introduction

In the current P802.16-REVd/D5 standard, PHY profiles for 8.75MHz and 17.5MHz are defined.

Also, FFT sizes other than 2048, that is, 1024, 512, and 128, are defined in the P802.16e/D5 standard, but there are no PHY profiles for the bandwidths scaled down from 8.75MHz.

In this contribution, we propose to add the PHY profiles for 4.375MHz and 1.09375MHz, those are scaled down version of 8.75MHz.

.

# 2. Suggested Text Changes

***[Add the followings in section 12.4, page 311, line 30]***

### 12.4 WirelessMAN-OFMDA and WirelessHUMAN(-OFDMA) system profiles

**Table 409a Profile Definitions**

| Identifier | Description |
|---|---|
| OFDMA_profP10 | WirelessMAN-OFDMA 4.375MHz channel basic PHY Profile |
| OFDMA_profP11 | WirelessMAN-OFDMA 1.09375MHz channel basic PHY Profile |

#### 12.4.3.11 WirelessMAN-OFDMA 4.375MHz channel basic PHY Profile

Profile identifier: OFDMA_ProfP10
Systems implementing OFDMA_ProfP10 shall meet the minimum performance requirements listed in Table 376a:

**Table 376a Minimum Performance requirements for OFDMA_ProfP10**

| Capability | Minimum Performance |
|---|---|
| Channel bandwidth | 4.375MHz |
| Operation mode | Licensed bands only |
| BER performance threshold, BER=$10^{-6}$ (using all subchannels BS/SS)<br>QPSK-1/2<br>QPSK-3/4<br>16QAM-1/2<br>16QAM-3/4<br>64QAM-2/3 (if 64-QAM supported)<br>64QAM-3/4 (if 64-QAM supported) | <br>≤ -85.5 dBm<br>≤ -82.5 dBm<br>≤ -78.5 dBm<br>≤ -75.5 dBm<br>≤ -71.5 dBm<br>≤ -69.5 dBm |
| Reference frequency tolerance<br>BS | <br>≤ +/- $4*10^{-6}$ |

| | |
|---|---|
| SS to BS synchronization tolerance | ≤ 1% of the subcarrier spacing |
| Frame duration code set | {2, 4, 6, 8} |
| Spectrum mask | Local regulation |

NOTE – When using this profile, the sampling frequency (see 8.4.2.4) shall be: $Fs$=floor(n×$BW$/2000)×2000

**12.4.3.12 WirelessMAN-OFDMA 1.09375MHz channel basic PHY Profile**

Profile identifier: OFDMA_ProfP11
Systems implementing OFDMA_ProfP11 shall meet the minimum performance requirements listed in Table 376a:

**Table 376b Minimum Performance requirements for OFDMA_ProfP10**

| Capability | Minimum Performance |
|---|---|
| Channel bandwidth | 1.09375MHz |
| Operation mode | Licensed bands only |
| BER performance threshold, BER=$10^{-6}$ (using all subchannels BS/SS)<br>QPSK-1/2<br>QPSK-3/4<br>16QAM-1/2<br>16QAM-3/4<br>64QAM-2/3 (if 64-QAM supported)<br>64QAM-3/4 (if 64-QAM supported) | <br>≤ -91.5 dBm<br>≤ -88.5 dBm<br>≤ -84.5 dBm<br>≤ -81.5 dBm<br>≤ -77.5 dBm<br>≤ -75.5 dBm |
| Reference frequency tolerance<br>BS<br>SS to BS synchronization tolerance | <br>≤ +/- 4*$10^{-6}$<br>≤ 1% of the subcarrier spacing |
| Frame duration code set | {2, 4, 6, 8} |
| Spectrum mask | Local regulation |

NOTE – When using this profile, the sampling frequency (see 8.4.2.4) shall be: $Fs$=floor(n×$BW$/2000)×2000