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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** | |
| Title | **IEEE 802.16s Draft System Description Document** | |
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| Source(s) | GRIDMAN Task Group | Voice:  E-mail: |
| Re: | GRIDMAN Task Group: Narrowband Channel | |
| Abstract | Draft system requirements document | |
| Purpose | For comment prior to session #105 | |
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IEEE 802.16s Draft System Description Document

July 27, 2016

## Introduction

The draft development process will follow this approach.

Phase 1: Agree on the overall structure of the PHY layer and its principles of operation. The proposals and operation should address the requirements in the SRD, and conform to the scope defined in the PAR. Capture the design principles of the amendment into this System Description Document (SDD).

Phase 2: Consider MAC changes needed to support the PHY operation and further optimizations for efficiency to satisfy the SRD requirements.

* Text Proposals should provide a table of system description parameters and performance analysis addressing the requirements in the SRD.
* Text proposals should describe any necessary (consequential) MAC changes and how they affect the performance metrics
* Text Proposals can be adopted into the SDD with the approval of the Task Group.

When the SDD has adopted proposals meeting the requirements of the SRD,

Phase 3 will map the SDD into the base standard, which then leads us to a ToC and outline for the draft amendment.

## System Description Parameters

* Primary design specifications
  + Subcarrier spacing
  + Sampling Clock
  + FFT Size
  + Permutations, number of data/pilot/guard subcarriers
  + Preamble and CDMA coding scheme to fit the channel
  + Variations between UL and DL
* Performance metrics: derived from or affected by primary specifications
  + PHY Throughput
  + Goodput
  + Frame Size / Latency
  + Peak to Average Power Ratio
  + Inter-carrier Interference
  + Inter-symbol Interference, Delay Spread
  + Interference management, MIMO, beam forming
  + CINR performance
  + Out of band emissions
  + Mobility capability

## Table of System Description Parameters

## Performance Analysis (with reference to SRD)

## Reference

## Content from July discussion

* Frequency bands are in the SRD, but not the SDD. This is consistent with the frequency-agnostic form of 802.16-2012
* To accommodate regulatory variations in spectral masks and channel sizes, provide more flexibility in profile parameters than the base standard now provides:
  + Develop a limited set of profiles in the range of 100KHz to 1.25 MHz. Within each profile, a set of parameters can be varied: frame size, channel width, range (gap), sampling factor.
  + Proposals should include description of operation with 5mS frame size, and with 100 KHz channels.
  + To ensure interoperability, support of the range of parameters within a profile is mandatory.
* Discussion of Band AMC Vs PUSC.
  + Each optimize different things. Either or both could be used.
  + Regardless of the definition of 802.16s profile, the profile will remove the mandatory requirement for PUSC in Zone 1.
* The 802.16s profile defines Packet packing/aggregation, header compression to improve efficiency with small packets
* The 802.16s profile defines options for reducing latency. Frame size of 5 mS. The profile leverages existing mechanisms to manage jitter.
* The 802.16s profile does not compromise existing mechanisms for priority and QoS.