Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
Title	**UL Sounding Section for the IEEE 802.16m Amendment**
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Re:	"802.16m amendment working document": IEEE 802.16m-08/050, "Call for Contributions on Project 802.16m Draft Amendment Content". Target topic: "15.3.6 Uplink Physical Structure".
Abstract	Proposes sounding schemes for 802.16 amendment
Purpose	Review and adopt
Notice	
Release	
Patent Policy	

Sounding Section for the IEEE 802.16m Amendment

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Introduction

The contribution proposes text for UL sounding section in the UL PHY control.

Proposed text

15.3.6.y Sounding Channel

15.3.6.y.1 UL Sounding Channel

The UL sounding channel is used by an AMS to send a sounding signal for MIMO feedback, channel quality feedback and acquiring UL channel information at the ABS. The sounding channel is a collection of time-frequency subcarriers that are set aside within an UL subframe for an MS to transmit a sounding response on the uplink. The sounding channel can be configured for the AMSs to transmit UL sounding channel waveform. The allocation of channel sounding waveform is per PRU basis and it occupies specific UL subcarriers and OFDMA symbols.

15.3.6.y.1.1 Sounding Signaling Methodology

ABS broadcasts the sounding region used by the AMSs for transmitting the sounding signal in the UL. ABS transmits the Sounding Request message using the USCCH [Sounding Request message is TBD] to the AMS informing the parameters used for performing the sounding.
Optionally, the ABS shall broadcast an CQI threshold that shall be used by the AMSs that perform sounding. If the CQI measured on DL for a PRU/subband exceeds the threshold then the AMS transmits in the corresponding PRU/subband the sounding signal. Otherwise, the AMS shall not transmit the sounding signal in corresponding PRU/subband.
AMS shall follow the instructions for power control adjustment when transmits the sounding signal.

15.3.6.y.1.2   PHY Structure of UL Sounding Channel Allocation

Sounding signals from one or several AMSs are allocated in the sounding channel. Sounding channel is time-frequency sub-carriers that are reserved for allocation of the sounding signals. The sounding channel consists of sub-channels. Each sounding sub-channel may be allocated in a CRU or DRU group, defined according to "UL sub-carrier to resource unit mapping". A sub-channel may occupy all CRUs/DRUs in a CRU/DRU group or a subset of the CRUs/DRUs in a CRU/DRU group. An ABS shall indicate the allocation of an UL sounding sub-channel within a CRU/DRU group of a subframe.

The sounding region occupies the 4th OFDMA symbol inside of a PRU.