Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>	
Title	**SDD Text Proposal for Opportunistic UL Sounding in IEEE 802.16m**	
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Re:	SDD Session 56 Cleanup, PHY: text; in response to the TGm Call for Contributions and Comments 802.16m-08/033 for Session 57	
Abstract	This contribution proposes SDD text proposal for UL sounding channel.	
Purpose	For discussion and adoption by IEEE 802.16m group	
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Opportunistic UL Sounding in IEEE 802.16m

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1. Purpose

In order to have an efficient UL MIMO feedback from multiple users in the cell, we propose that BS broadcasts SNR threshold and multiple MSs response through CDM sounding feedback. This contribution gives some consideration on UL MIMO sounding channel design and with modified text to SDD.

2. The UL sounding for MU-MIMO

The procedures of CL MU-MIMO can be categorized into three steps shown in Figure 1.

(1) BS broadcasts SNR threshold value to the active MSs dynamically.

(2) MS compares its average channel measurement to the reference of broadcast SNR threshold. If the channel measurement is greater than the threshold value, the MS feedbacks its specific CDM sequence to BS in the specific UL sounding channel.

(3) BS collects multiple MS's opportunistic channel feedback information and then schedules MU-MIMO scheme.

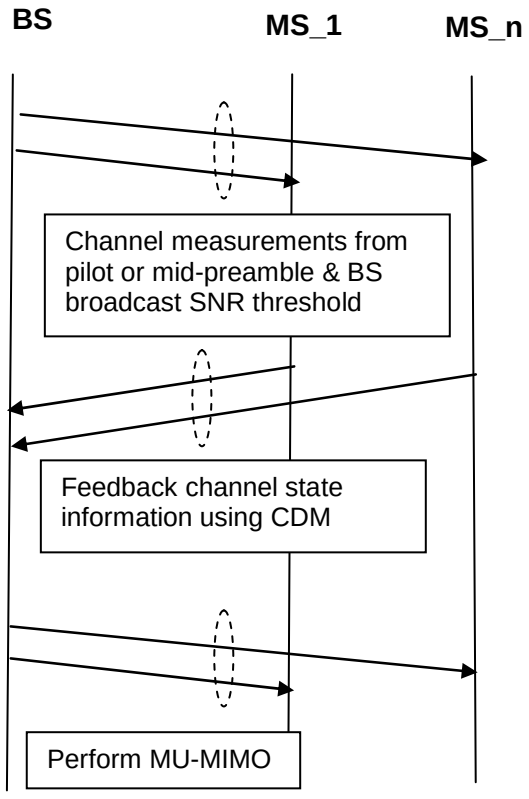

Figure 1. The procedures of CL MU-MIMO scheme

4 Proposed Text for SDD

----------Start of the text----------

11.9.2.3 UL Sounding Channel

The UL sounding channel is used by an MS to send a sounding signal for MIMO feedback, channel quality feedback and acquiring UL channel information at the BS.

11.9.2.3.1 Multiplexing with other control information and data

The BS can configure an MS to transmit an UL sounding signal on specific UL sub-bands. The sounding signal is transmitted over predefined subcarriers within the intended sub-bands. The periodicity of the sounding signal for each MS is configurable.
The UL sounding channel is FDM with other control and data channels.

11.9.2.3.x Multiplexing sounding feedback for multiple users/antennas

The BS can configure multiple MSs to transmit UL sounding signals on specific UL sounding channels. The UL sounding channels from multiple users or multiple antennas of users are CDM.

11.9.2.3.x.x Opportunistic UL sounding

BS broadcasts SNR threshold value to the MSs. MS compares its average DL channel measurement to the reference SNR threshold. If the channel measurement is greater than the threshold value, the MS feedbacks its CDM sequence to BS in the specific UL sounding channel.

----------End of the text----------