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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 feedback from multiple users in the cell, we propose that BS broadcasts a channel quality threshold and multiple MSs response through CDM sounding feedback. This contribution gives some consideration on UL sounding channel design and with modified text to SDD.

2. UL sounding feedback for multiple users

The UL sounding feedback can be categorized into two steps shown in Figure 1.
  (1) BS broadcasts a channel quality threshold value to the active MSs dynamically.
  (2) MS compares its average channel measurement to the reference of the channel quality threshold. If the channel measurement is greater than the threshold value, the MS feedbacks its CDM sequence to BS in the corresponding UL sounding channel.
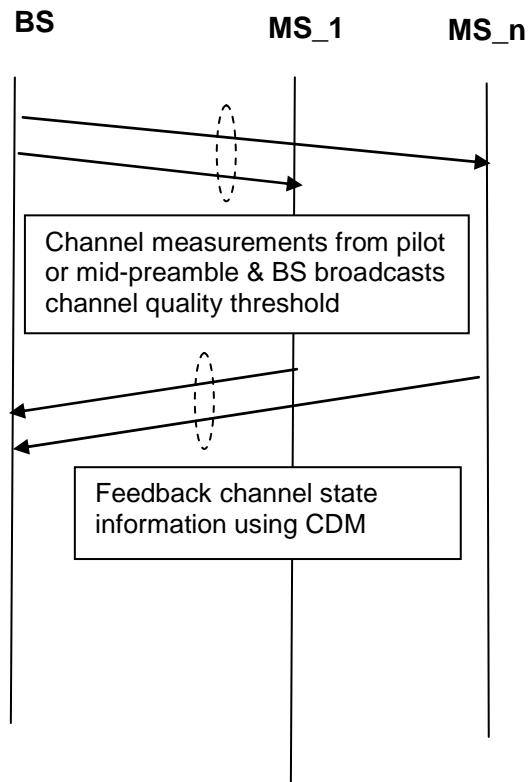
BS **MS_1** **MS_n**

Channel measurements from pilot or mid-preamble & BS broadcasts channel quality threshold

Feedback channel state information using CDM

Figure 1. UL sounding feedback 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

The BS can configure multiple MSs to transmit UL sounding signals on the corresponding 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 a channel quality threshold to the MSs.   MS compares its average DL channel measurement to the reference channel quality threshold.   If the channel measurement is greater than the threshold value, the MS feedbacks its CDM sequence to BS in the corresponding UL sounding channel.

---End of the text--