

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b> < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >	
Title	<b>Channel Feedback for CL-MIMO in the UL</b>	
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Source(s)	Ron Porat , Keith Holt Nextwave Wireless	Voice: E-mail: <a href="mailto:rporat@nextwave.com">rporat@nextwave.com</a> ;  * <a href="http://standards.ieee.org/faqs/affiliationFAQ.html">http://standards.ieee.org/faqs/affiliationFAQ.html</a> >
Re:	The IEEE 802.16 Working Group's <i>Task Group m</i> (TGm) 's Call for Contributions on Project 802.16m System Description Document (SDD), IEEE 802.16m-08/024 – Uplink MIMO Schemes	
Abstract	This document describes a proposal for 802.16m channel feedback for enabling UL-MIMO	
Purpose	To be discussed and adopted by 802.16m SDD.	
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**Channel Feedback for CL-MIMO in the UL**

Ron Porat, Keith Holt

Nextwave Wireless

**1. Introduction**

In contribution C802.16m-08/372r2 we proposed the idea of analog feedback for CL –MIMO in the DL.

Contributions C802.16m-08/522, /526 and /529 elaborate on that concept and show some simulation results.

Similarly for users with multiple transmit antenna, UL CL-MIMO in FDD will require feedback from the BS to each user of the best precoder.

This may be facilitated by users sending UL sounding, BS measuring the channel and sending back to the users the estimated precoder.

**2. Recommendation**

There are a number of analog feedback options covered in our previous documents that are applicable to UL MIMO as well such feeding back the right singular vectors or channel covariance.

For brevity we refer to those contributions here and recommend adding analog feedback to UL CL-MIMO SDD, as suggested text in SDD below.

\*\*\*\*\* start of the suggested text \*\*\*\*\*

11.x UL MIMO Transmission Scheme

11.x.y Feedback for UL MIMO

11.x.y.z Analog Feedback

In FDD systems and TDD systems, a mobile station may feedback the following information for analog based feedback:

1. Channel matrix
2. Average channel covariance matrix
3. Average right strongest singular vector or vectors
4. Average singular values ratio (for 2 receive antenna subscriber)

\*\*\*\*\* end of the suggested text \*\*\*\*\*