

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	MIMO feedback messages	
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Re:	Sponsor ballot on IEEE P802.16e/D5 – Reply comment	
Abstract	MIMO feedback messages	
Purpose	Adopt text into the standard	
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Message Exchange for MIMO Feedback

Zion Hadad - Runcom

1. Problem statement

Current CQI messages used to transmit MIMO feedback information do not suffice to provide detailed measurements of reception conditions at the receiver.

2. Text changes

[Add the following MAC messages after section 6.3.2.3.43, at page 124, line 48]

6.3.2.3.44 MIMO-FEEDBACK-REQUEST message

This message may be sent by a MIMO supporting BS to request feedback about reception form specific BS antennas.

Table xx – MIMO-FEEDBACK-REQUEST Message Format

Syntax	Size	Notes
MIMO_FEEDBACK_REQUEST_Message_Format(){		
Management Message Type = xx	8 bits	
Antenna Number	2 bits	Identifies antenna being queried
Method	2 bits	Feedback method to be employed: 0 = Frequency 1 = Time
If (Method == Time) {		
Number of Taps	4 bits	Number of time domain taps that are request
}		
Else {		
Frame Index for feedback	8 bits	LSB of the frame number being queried
Symbol Number	8 Bits	Symbol offset in the frame where the feedback should be measured on all allocated sub-channels
}		
}		

6.3.2.3.45 MIMO-FEEDBACK-RESPONSE message

This message shall be sent by a MIMO supporting MSS in response to a MIMO-FEEDBACK-REQUEST from the BS, to provide feedback about reception form specific BS antennas

Table xx – MIMO-FEEDBACK-RESPONSE Message Format

Syntax	Size	Notes
MIMO_FEEDBACK_RESPONSE_Message_Format(){		

Management Message Type = xx	8 bits	
Antenna Number	2 bits	Identifies antenna queried
Method	2 bits	Feedback method employed: 0 = Frequency 1 = Time
If (Method == Time) {		
For (I=0; I < Number of Taps, I++) {		
Tap_Real	8 bits	Signed byte. The representing the relative level compared to the maximal tap magnitude in antenna #0, which is normalized to (R,I)=(0x40,0x00)
Tap_Imaginary	8 bits	Signed byte. The representing the relative level compared to the maximal tap magnitude in antenna #0, which is normalized to (R,I)=(0x40,0x00)
Tap_Rel_Delay	14 bits	Units is: 1/32 of the sample
}		
}		
Else {		
Frame Index	8 bits	LSB of the frame number where the measurement took place
Symbol Number	8 Bits	Symbol offset in the frame where the feedback measurement took palce
For (I=0; I < Number of Pilots, I++) {		
Pilot_real	8 bits	Signed byte. The representing the relative level compared to the maximal pilot magnitude in antenna #0, which is normalized to (R,I)=(0x40,0x00)
Pilot_imag	8 bits	Signed byte. The representing the relative level compared to the maximal pilot magnitude in antenna #0, which is normalized to (R,I)=(0x40,0x00)
}		
}		