

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Clarification TLV for repetition	
Date Submitted	2005-07-21	
Source(s)	Kyungjoo Suh Jaehee Cho Hyongoo Kang Joongkeun Cho Samsung Electronics CO., LTD.	joo.suh@samsung.com Voice: +82-31-279-5123 jaehee1.cho@samsung.com Voice: +82-31-279-5596
Re:	Call for comments, Sponsor Ballot on 802.16e/D9	
Abstract	Draft includes Repetition Coding Indication field which indicates Repetition Coding Indication to perform proper modulation in the cell edge, as a result to get signaling gain. We propose to extend the RNG-REQ and RNG-RSP message encodings.	
Purpose	Change RNG-REQ and RNG-RSP message encodings for repetition	
Notice	This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.	
Release	The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.	
Patent Policy and Procedures	The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures < http://ieee802.org/16/ipr/patents/policy.html >, including the statement "IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft publication will be approved for publication. Please notify the Chair < mailto:chair@wirelessman.org > as early as possible, in written or electronic form, if patented technology (or technology under patent application) might be incorporated into a draft standard being developed within the IEEE 802.16 Working Group. The Chair will disclose this notification via the IEEE 802.16 web site < http://ieee802.org/16/ipr/patents/notices >.	

Clarification of TLV for Repetition

Kyungjoo Suh, Jaehee Cho, Hyongoo Kang, Joongkeun Cho

– Samsung Electronics

1. Motivation

At the cell edge, it is reasonable to expect that the CINR is below 0 dB in reuse 1 operation. The required CINR for QPSK 1/2 is 3 dB even in AWGN environment. For this propose, OFDMA PHY provide the repetition scheme. However, in the RNG REQ/RSP, there is no field to report repetition required in the “Downlink Operational Burst Profile” field. So in the initial ranging, BS can’t allocate a burst to MS at an appropriate MCS and repetition level.

2. Proposed Remedy

I’d like to make new TLV only for the OFDMA system called “Requested downlink repetition coding level” for RNG_REQ and “ Downlink Operational Burst Profile for OFDMA” for RNG_RSP .

3. Changes summary

[Insert the new text in the table 364a of section 11.5 as shown below:]

11.5 RNG-REQ management message encodings

Table 364a-RNG-REQ message encodings

Name	Type (1 byte)	Length	Value (variable-length)	PHY Scope
Requested downlink repetition coding level	Xx (probably 11)	1	<p>This parameter indicates repetition coding level Indication requested by the MS for downlink traffic. If this TLV is not present in the RNG-REQ, it shall be assumed that repetition coding is not requested.</p> <p>Bit 0 -1: Repetition coding level: 0b00 - no repetition 0b01 - Repetition coding of 2 0b10 - Repetition coding of 4 0b11 - Repetition coding of 6</p> <p>The BS shall ignore this field if the DIUC requested in the 'requested downlink burst profile' TLV refers to modulations higher than QPSK.</p> <p>Bit 2- 7: reserved</p>	OFDMA

[Insert the new text in the table 367 of section 11.6 as shown below:]

11.6 RNG-RSP management message encodings

Table 367-RNG-RSP message encodings

Name	Type (1 byte)	Length	Value (variable-length)	PHY Scope
Downlink Operational Burst Profile for OFDMA	xx (probably 31)	2	<p>This parameter is sent in response to the RNG-REQ Requested Downlink Burst Profile parameter.</p> <p>Byte 0:</p> <p>bits 0-3: Specifies the least robust DIUC that may be used by the BS for transmissions to the MS.</p> <p>bits 4-7: Specifies Repetition Coding Indication</p> <p>0b0000 - No repetition coding</p> <p>0b0001 - Repetition coding of 2</p> <p>0b0010 - Repetition coding of 4</p> <p>0b0011 - Repetition coding of 6</p> <p>The repetition coding indication shall be 0b0000 if the DIUC refers to modulations higher than QPSK.</p> <p>Byte 1: Configuration Change Count value of DCD _____ defining the burst profile associated with DIUC.</p>	OFDMA