Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**	
Title	**Problems with DBPC Messages**	
Date Submitted	**2004-11-10**	
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Re:	Supporting document for Reply to Comment	
Abstract	Changes required in order to enable good operation of 802.16 systems.	
Purpose	The document is intended for consideration within the comments resolution process.	
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Problems with DBPC Messages

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November 2004

References

[1] IEEE, "IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed Broadband Wireless Access Systems," IEEE Std 802.16-2004.
[2] Yuval Lomnitz, Comment 084, 802.16maint-04/04r5.
[3] Yuval Lomnitz, Yigal Eliaspur, Dov Andelman , "DL Burst profile selection unsuitable for OFDMA," IEEE C802.16maint-04/13, 2004-08-19.
[4] IEEE, "IEEE Draft Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed Broadband Wireless Access Systems," IEEE P802.16-REVd/D5-2004.

Introduction

The changes proposed in this document are to correct errors in the specification and usage of the DBPC-REQ and DBPC-RSP messages as described in IEEE 802.16-2004 [1, 4].

Description of Problem

The DBPC messages are sent by an SS when it receives data carried on a DIUC whose modulation is either more or less robust than the terminal estimates it can deal with. When the SS can receive data using a less robust modulation than the data it is receiving, it is REQUIRED to send a request to increase the data rate. This will include broadcast data. As a result broadcast data will cause a storm of DBPC-REQ messages flooding the uplink. The solution is not to exclude the message, as has been proposed in [2, 3], but to modify the description of the use of the DBPC-REQ/RSP messages (sections 6.3.2.3.20 and 6.3.2.3.21) and the associated STL diagrams and operational description in section 6.3.10.1. In this way the changes are also applicable to all PHY modes: certainly the OFDM PHY will suffer the problem along with the OFDMA PHY.

Do Not Remove the Message

I do not think the changes in [2,3] are complete or appropriate for the following reasons:

1. The changes in [2.3] are PHY specific: the problem is there regardless of the PHY mode.
2. According to section 6.3.10.1, the unsolicited RNG-REQ can only be sent in a contended Initial Ranging Interval, whereas the DBPC-REQ can be sent in allocated transmission opportunities.
3. A mimimal RNG-REQ is larger than the DBPC-REQ (40 bits cf 24 bits)).

Text Changes

Text changes are relative to [4].
Page 74, Line 11:
The DBPC-REQ message is sent by the SS to the BS on the SS's Basic CID to request a change of the <u>least robust</u> downlink burst profile used by the BS to transport data to the SS.
Page 75:
Page 202:
Page 203: Figure 79 needs to indicate action of SS in event of non-detection of DBPC-RSP.
Page 204: Figure 80 needs to indicate action of SS in the event of the BS refusing the DBPC-REQ.
Figures 79 and 80 need to include Timers so that BS is not flooded with requests. This will require additional timers to be defined.