Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Fragmented Transmission of the DCD/UCD Message**
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Re:	
Abstract	**Propose a TLV to support Fragmented Transmission of the DCD/UCD Message**
Purpose	Adoption of proposed changes into P802.16d /D5-2004
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1 Introduction

1.1 Problem

Current definition of primary management message does not allow fragmentation of the management message. But, the DCD and UCD messages are too long to be transmitted in a single frame.

The maximum size of a message which can be transmitted in a single frame is about 128 bytes when we assume 1024 FFT, 8 symbols for DL, 1/12 coding and QPSK modulation without MAP message overhead. However, the maximum size of DCD message is 191 bytes. Considering only mandatory TLVs, it is 163 bytes. For the UCD message, it's worse. The size of UCD message with mandatory TLV is 207 bytes.

We can't transmit DCD or UCD message in a single frame without considering the MAP message overhead.

1.2 Remedy

Here, we propose a fragmentation TLV that enables fragmented transmission of the DCD and UCD message. The fragmentation TLV is composed of 4 bits of fragmentation index and 4 bits of total number of fragmentation.
We will separate TLVs in the DCD/UCD message into several fragments. Each fragment has its own fragmentation number. When BS transmits DCD/UCD message, each DCD/UCD message may include a TLV fragment not whole TLV. And each DCD/UCD message with the TLV fragment should include the fragmentation TLV to indicate fragmentation index and total number of fragments. The DCD/UCD count in the message should be same even though each DCD/UCD message contains different fragmentation of TLV.
When a SS finds the fragmentation TLV in the received DCD/UCD message, the SS should receive remaining fragments with same DCD/UCD count to compose complete DCD/UCD message.
Several DCD/UCD message containing the fragment of TLV may be transmitted sequentially over several frames.

2 Proposed Text

6.3.2.3.1 Downlink Channel Descriptor (DCD) message

In page 47, line 6, add the following text

TLV encoded information for DCD message can be fragmented into several fragments. A BS may transmit the DCD message only including a fragment and the fragmentation TLV (see 11.3) which indicates the total number of fragmentation and the fragment index of the included fragment. The DCD message with a different fragment from same original TLV encoded information should be sent with same DCD count.

When a SS finds the fragmentation TLV in the received DCD message, the SS should receive remaining fragments with same DCD count to compose complete DCD message. Several DCD message containing the fragment of TLV may be transmitted sequentially over several frames.

In page 665, line 22, add the following row at Table 356 in section8.4.4.3

Table 356—DCD channel encoding

Name	Type	Length	Value
Fragmentation	18	1	MSB 4 bits: fragmentation index LSB 4 bits: Number of total fragmentation

6.3.2.3.3 Uplink Channel Descriptor (UCD) message

In page 49, line29, add the following text

TLV encoded information for UCD message can be fragmented into several fragments. A BS may transmit the UCD message only including a fragment and the fragmentation TLV (see 11.3) which indicates the total number of fragmentation and the fragment index of the included fragment. The UCD message with a different fragment from same original TLV encoded information should be sent with same UCD count.

When a SS finds the fragmentation TLV in the received UCD message, the SS should receive remaining fragments with same UCD count to compose complete UCD message. Several UCD message containing the fragment of TLV may be transmitted sequentially over several frames.

In page 656, line 18, add the following row at Table 356 in section8.4.4.3

Table 347—UCD common channel encodings

Name	Type	Length	Value
Fragmentation	6	1	MSB 4 bits: fragmentation index LSB 4 bits: Number of total fragmentation