

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >
Title	Changes to remove "CRC appended" field in compressed DL-MAP
Date Submitted	2004-06-25
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Re:	IEEE P802.16e/D3-2004
Abstract	Changes to remove "CRC appended" field in compressed DL-MAP, which is redundant and may cause mis-identification of a bit error.
Purpose	
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Changes to remove "CRC appended" field in compressed DL-MAP

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1. Motivation

The field "CRC appended" is erroneous, as explained below. The change we propose is backward compatible.

2. Details

The field "CRC appended" controls the inclusion of CRC at the end of the compressed MAP. Normal MAPs always have CRC as they are MAC broadcast management messages (see 6.3.2.3).

- (1) The standard defines "DL synchronization" as being able to decode the DL-MAP (see 6.3.9.2). It is difficult to define synchronization if the MAP doesn't include CRC, as it's difficult to tell if the MAP was received correctly. MAC timers and processes are based on the notion of DL synchronization.
- (2) A frame that is sent with "CRC appended" set to 1 may suffer errors that will invert the status of this bit. In regular MAC messages, the HCS over the GMH protects the "CRC appended" bit, however in compressed maps there is no protection, so a combination of two bit errors, one of which is on the "CRC appended" field, may cause the error not to be detected.
- (3) being a broadcast management message, it stands to reason that the rule that applies to normal MAC messages (6.3.2.3) regarding CRC inclusion will also apply in this case.

3. Changes summary

[In P802.16e-D3, p.79, line 1, add following text, between BEGIN and END]:

BEGIN

8.4.5.6.1 Compressed DL-MAP

[Make the following change in table 303]

Table 303—Compressed DL-MAP message format

Syntax	Size	Notes
Compressed DL-MAP() {		
Compressed map indicator	2 bits	Set to binary 11 for compressed format
<i>reserved</i>	1 bit	Shall be set to zero
UL-MAP appended	1 bit	
CRC appended <i>reserved</i>	1 bit	Shall be set to one
Map message length	11	
PHY Synchronization Field	32 bits	
DCD Count	8 bits	
Operator ID	8 bits	
Sector ID	8 bits	
DL IE count	8 bits	
for (<i>i</i> = 1; <i>i</i> <= DL IE count; <i>i</i> ++) {		

DL-MAP_IE() <i>variable</i>		
}		
if !(byte boundary) {		
Padding Nibble	4 bits	Padding to reach byte boundary.
}		
CRC	32 bits	
}		

[change the text in p.551, lines 59-65 as follows]:

CRC appended

A value of one indicates a CRC-32 value is appended to the end of the compressed map(s) data. The CRC is computed across all bytes of the compressed map(s) starting with the byte containing the Compressed map indicator through the last byte of the map(s) as specified by the Map message length field. The CRC calculation is the same as that used for standard MAC messages. A value of zero indicates that no CRC is appended.

[move the above paragraph to the end of the field descriptions].