

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Consistent MAC Subheader Extendibility Mechanisms	
Date Submitted	2005-03-17	
Source(s)	16e session#36 MAC Header Drafting Group	Voice: 760-448-4168 Fax: 760-448-1989 lwang@cygnuscom.com
Re:	This contribution propose additional capabilities for 802.16eD6	
Abstract	802.16-2004 allows for 5 subheader types and special payloads to be included with the payload message as described in section 6.3.2.2. The present of these subheaders is indicated by a 6-bit type field in the MAC header. The 6-bit type field is used in a bit map fashion and thus the code space is limited to six values. All of the available code space has been allocated in 802.16-2004. New requirements to support mobility and general enhancements prompted TGe to accept extension mechanism to allow extension of up to 11 more subheaders. This contribution proposes an extension mechanism that replaces the current extension mechanism, but which allows extension to a larger code space.	
Purpose	The purpose of this contribution is to define flexible extension mechanism for MAC sub header	
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 >.	

Consistent MAC Subheader Extendibility Mechanisms

Session#36 MAC Header Drafting Group

Introduction

802.16-2004 allows for 5 subheader types and special payloads to be included with the payload message as described in section 6.3.2.2. The present of these subheaders is indicated by a 6-bit type field in the MAC header. The 6-bit type field is used in a bit map fashion and thus the code space is limited to six values. All of the available code space has been allocated in 802.16-2004.

New requirements to support mobility and general enhancements prompted TGe to accept extension mechanism to allow extension of up to 11 more subheaders.

This contribution proposes an extension mechanism that replaces the current extension mechanism, but which allows extension to a larger code space.

References

- a) IEEE Std 802.16-2004
- b) IEEE P802.16eD6, February 2005

Motivations

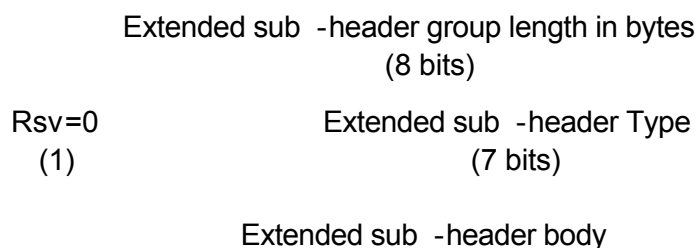
This contribution proposes a flexible and consistent generic MAC subheader extension mechanism.

Suggested Changes

1. page 28, line 4, change section 6.3.2.2.7 as follows:

6.3.2.2.7 Extended Subheader ~~Field~~ Format

The Extended Subheader ~~Field~~ format ~~subheader~~ is specified in ~~Table~~ Figure 20f. The Extended Subheader Field, when used, shall always appear immediately after the Generic MAC Header and before all other subheaders, and PN number (if MAC PDU is protected (i.e. when EC=1)), as described in 6.3.2.2. ~~The ESF and A~~ all extended subheaders ~~related to it~~ shall not be encrypted, but shall be protected by the payload CRC field. The ESF and all extended subheaders associated to it are transmitted sequentially, ~~with the extended subheaders ordered according to the Extended Subheaders Bitmap starting from the MSB~~.



[Figure 20f: Extended Subheader Format](#)

[The fields of the Extended Subheader structure are described in Table 13a](#)

Table 13a Extended subheader field format (ESF)

Name	Length (bits)	Description
Extended subheaders total length	5	Length (in bytes) of all extended subheaders present, excluding the ESF field.
Extended subheaders bitmap	11	Bitmap indicating which extended subheaders are present.

Name	Length (bits)	Description
Extended subheader group length	8	The Extended Subheader Group Length field indicates the length of the subheader group, including all the subheader, and including this length byte
Reserved	1	Reserved =0
Extended Subheader type	7	Type of subheader as defined in table 13b
Extended subheader body	Variable	As defined in table 13b

Table 13b Description of extended subheaders (DL)

ESF bit Type value	Name	Length (bytes)	Description
Bit #0 (LSB) 0	SDU_SN subheader	1	See 6.3.2.2.7.3
Bit #1 1	Generic downlink sleep header	3	See 6.3.2.2.7.2
Bit #2 2	Feedback request subheader	3	See 6.3.2.2.7.4
3	MIMO mode feedback subheader	1	See 6.3.2.2.7.1
4	UL TX power report subheader	1	See 6.3.2.2.7.6
Bits #2-10,5-127	Reserved		

Description of extended subheaders (UL)

ESF bit	Name	Length (bytes)	Description
Bit #0 (LSB)	Mode selection feedback	1	See 6.3.2.2.7.1
Bits #1-10	Reserved		

2. page 501, line 18: insert text as follow:

11.8.7 Extension capabilities

Specifies extension capabilities supports

Type	Length	Value	Scope
27	1	Bit0: support extended subheader Bit1: support extended header	SBC-REQ/RSP