Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
Title	**Further Bit Assignment in Relay MAC Header**
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Re:	Response to the call for technical comments regarding IEEE Project 802.16j (i.e., IEEE 802.16j-07/019).
Abstract	This contribution proposes more detailed bit assignment in relay MAC header.
Purpose	To adopt the bit assignment proposed herein into IEEE 802.16j.
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Further Bit Assignment in Relay MAC Header

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1. Introduction

As described in our previous contribution [1], there are totally 8 bits set as "reserved" in the relay MAC header specified in the current baseline [2], the actual usage of which is still subject to future discussion.

This contribution intends to further specify the usage of 3 bits out of these 8 "reserved" bits.

2. Summary of Proposal

Figure 1 illustrates the relay MAC header introduced in the current baseline [2].

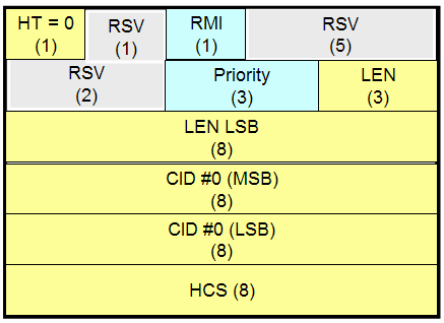

Figure 1: Relay MAC header (GMH) introduced in the current baseline.

Per the discussion in our previous contribution [1], the fragmentation subheader and packing subheader bit shall be used to indicate the presence or absence of a fragmentation subheader and packing subheader on the relay link, respectively.

Various extended subheaders defined in the legacy 802.16e standard [3] may still be used in relay network. Therefore, the relay MAC header shall contain one such bit to indicate the presence or absence of extended subheader(s).

This contribution proposes to use the 6^{th}, 7^{th} and 9^{th} bit to be the *fragmentation subheader*, *packing subheader*

and *ESF* bit, respectively.

3. Proposed Text Changes

6. MAC Common Part Sublayer

6.3.2.1.1.1 Relay MAC PDU header format

[Change Table 7a as follows]

Table 7a—Relay MAC PDU header

Syntax	Size	Notes
MAC Header() {		
HT	1 bit	
if (HT == 0) {		
Reserved	1 bit	Currently reserved. Content is subject to further discussion
RMI	1 bit	Relay mode indication (RMI) is used to indicate whether this MAC header is GMH or Relay MAC header RMI = 0: use GMH RMI = 1: use relay MAC header
Reserved	2 bits	Currently reserved. Content is subject to further discussion
Fragmentation subheader	*1 bit*	*Fragmentation subheader (FSH)* *1 = present, 0 = absent*
Packing subheader	*1 bit*	*Packing subheader (PSH)* *1 = present, 0 = absent*
Reserved	1 bit	Currently reserved. Content is subject to further discussion
ESF	*1 bit*	*Extended subheader field.* *If ESF = 0, the extended subheader is absent.* *If ESF = 1, the extended subheader is present and will follow the GMH immediately.* *The ESF is applicable both in the DL and in the UL.*
Reserved	1 bit	Currently reserved. Content is subject to further discussion
Priority	3 bits	Priority of the associated tunneled MPDU
LEN	11 bits	
CID	16 bits	May be tunnel CID or basic CID of the RS
HCS	8 bits	Header check sequence
}		
else if (HT == 1) {		If no payload is attached
Use legacy 802.16e or 802.16j format	39 bits	
HCS	8 bits	
}		
}		

[Change Figure 22a as follows]

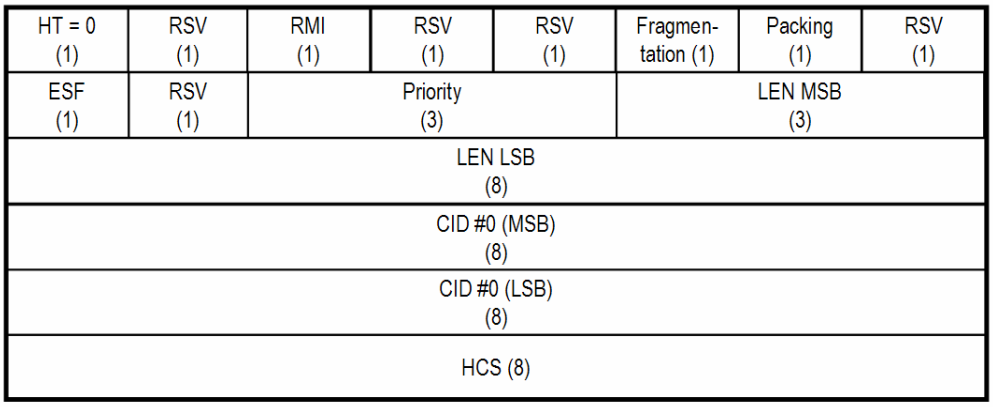

Figure 22a—Header format of relay MAC PDU with payload

4. Reference

[1] “A Discussion of Bit Assignment in Relay MAC Header”, IEEE 802.16j-07/379, July 2007

[2] “Air Interface for Fixed and Mobile Broadband Wireless Access Systems - Multihop Relay Specification”, IEEE 802.16j-06/026r4, June 2007

[3] “IEEE Standard for Local and Metropolitan Area Networks − Part 16: Air Interface for Fixed Broadband Wireless Access Systems, Amendment 2: Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands,” IEEE Computer Society and the IEEE Microwave Theory and Techniques Society, February 2006.