Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**	
Title	**Signaling Acknowledgment Mechanism in MR Network**	
Date Submitted	**2007-03-28**	
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Re:	IEEE 802.16j-07/007r2:"Call for Technical comments and contributions regarding IEEE Project P802.16j"	
Abstract	This document presents sleep mode operations for IEEE 802.16j. The existing IEEE 802.16e messages are reused and new parameters are introduced in order to facilitate the sleep mode management in IEEE 802.16j.	
Purpose	Propose an efficient signaling acknowledgment operations for IEEE 802.16j	
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Signaling Acknowledgment Mechanism in MR Network

Introduction

In MR network defined by IEEE802.16j, many signaling messages are shared between MR-BS and RS although network procedures are performed by MR-BS and MS. In distributed scheduling mode, the amount of signaling required between MR-BS and RS is greatly increased since the MR-BS needs to inform RSs of important MS information to aid RSs in resource scheduling. In order to ensure delivery of these messages in a reliable and on-time manner, an acknowledgment mechanism is needed for IEEE802.16j.

In this contribution, we propose to add a generic acknowledgment MAC header which RS can use to transmit acknowledgment of received MAC management messages if necessary. An generic ACK MAC header provides the following advantages:

1. Use minimum bandwidth to provide acknowledgment with all necessary information
2. No need to define a new ACK message for each messages needs acknowledgment
3. Allows flexibility in implementation. One ACK header is implemented to acknowledge all messages.

The specific text change is based on accepted contribution C80216j-07_028r3[2], in which an extended MAC signaling header type II is added.

Specific Text change

[Modify section 6.3.2.1.2.2, Table 7g]

[Insert the following subclause at the end of 6.3.2.1.2.2:]

6.3.2.1.2.2.2 Extended MAC Signaling Header Type II

Table X-1—Extended Type field encodings for Extended MAC signaling header type II

Extended Type field	MAC header Type	Reference figure	Reference table
2	Acknowledgment Header used by the RS to acknowledge the reception of a MAC management message from the MR-BS or superordinate RS		
3-7~~2 3~~	*Reserved*		

[Insert the following subclause at the end of 6.3.2.1.2.2.3:]

6.3.2.1.2.2.2.3 Acknowledgment Header

An Acknowledgment Header is sent by an RS as a response to a MAC management messages received from the MR-BS or its superordinate RS that requires acknowledgment. The RS sends this header to the MR-BS or its superordinate RS as an indication of the message reception. The Acknowledgment Header shall be sent on RS's basic CID. The Acknowledgment Header is illustrated in Figure 20l.
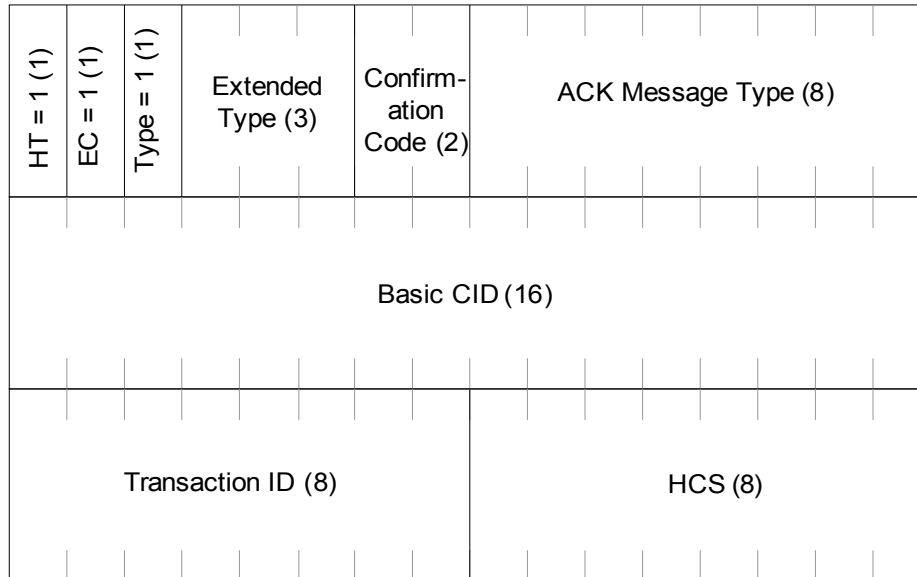
HT = 1 (1)	EC = 1 (1)	Type = 1 (1)	Extended Type (3)	Confirm-ation Code (2)	ACK Message Type (8)
			Basic CID (16)		
			Transaction ID (8)		HCS (8)

Figure 20l – Acknowledgement Header

The Acknowledgment header shall have the following properties:

    a.   This is a MAC signaling header type II. The length of the header shall always be 6 bypes.

    b.   The Type field of this header shall be set to 1.

    c.   The Extended Type field of this header shall be set to 0b010

    d.   The content of the header is listed in table 7k.

The content of Acknowledgment header is defined in Table 7k.

Table 7k - Acknowledgement header fields

Name	Size	Description
Confirmation Code	2~~5~~ bits	An indication that MAC message received by RS 0b~~00~~000: Received successfully 0b~~00~~001 – 0b~~111~~11: Reserved
ACK Message Type	8 bits	The MAC message type of the message received

		by the RS from the MR-BS or its superordinate RS
Basic CID	16 bits	The basic CID of the RS
Transaction ID	8 bits	Transaction ID included in the MAC management message received from the BS. If Transaction ID is not included, set this field to zero.
HCS	8 bits	Header Check Sequence (same usage as HCS entry in Table 5).

References

[1] IEEE802.16j-06/026r2 Baseline Document for Draft Standard for 16j
[2] IEEE C802.16j_07/028r3 Message definition to support MS network entry in centralized allocation model