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| Project                      | IEEE 802.16 Broadband Wireless Access Working Group < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >   |  |
| Title                        | Consistent MAC Subheader Extendibility Mechanisms   |  |
| Date Submitted               | 2005-03-17  |  |
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| 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   |  |
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# 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

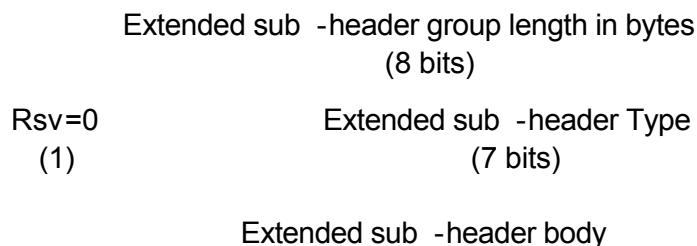
This contribution proposes a flexible and consistent generic MAC subheader extension mechanism.

## 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 GMH and before all other subheaders, as described in 6.3.2.2. The ESF and 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)**

| <b>Name</b>                      | <b>Length (bits)</b> | <b>Description</b>   |
|----------------------------------|----------------------|--|
| 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.                       |

| <u>Name</u>                     | <u>Length (bits)</u> | <u>Description</u>   |
|---------------------------------|----------------------|--|
| 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)**

| <b>ESF bit</b>   | <b>Type value</b> | <b>Name</b>                   | <b>Length (bytes)</b> | <b>Description</b> |
|------------------|-------------------|-------------------------------|-----------------------|--------------------|
| Bit #0 (LSB) 0   |                   | SDU_SN                        | 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    | 2                     | See 6.3.2.2.7.4    |
| 3                |                   | Mode selection feedback       | 1                     | See 6.3.2.2.7.1    |
| Bits #2-10 4-127 |                   | Reserved                      |                       |                    |

**Description of extended subheaders (UL)**

| <b>ESF bit</b> | <b>Name</b>             | <b>Length (bytes)</b> | <b>Description</b> |
|----------------|-------------------------|-----------------------|--------------------|
| 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<br>Bit1: support extended header | SBC-REQ/RSP |