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| Re: | A response to a Call for Technical Proposal, http://www.ieee802.org/16/relay/docs/80216j-07_007r2.pdf |
| Abstract | R-MAP in RS_Zone is used for a parent station (MR-BS or RS) to signal the resource assignment in the RS_Zone. This contribution propose the format of R-MAP in RS_Zone. |
| Purpose | To incorporate the proposed text into the P802.16j Baseline Document (IEEE 802.16j-06/026r2) |
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# R-MAP Within RS_Zone

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## 1. Introduction

R-MAP in RS_Zone is used for a parent station (MR-BS or RS) to signal the resource assignment in the RS_Zone. This contribution is addressing the format of R-MAP in RS_Zone.

## 2. Proposal

As agreed in the session #46, resource assignment will be done by R-MAP. Theoretically, we can use the similar format of DL-MAP/UL-MAP as defined in IEEE802.16e-2005 for R-MAP. However, this is not very efficient since some fields in compressed DL-MAP and UL-MAP messages are redundant. The table below shows these fields.

| **Field in Compressed DL-MAP** | **Bits** | **Required for R-MAP** | **Comments** |
|---|---|---|---|
| Compressed map indicator | 3 | No | R-MAP always immediately follows the R-FCH |
| UL-MAP appended | 1 | No | Can identify Dl or UL IE by R-MAP type value (see proposed text) |
| MAP message length | 11 | yes | |
| PHY synchronization field | 32 | No | Info known during RS initial network entry |

| | | | |
|---|---|---|---|
| DCD count | 8 | No | DCD count mainly for MS during initial network entry and sleep mode MS and idle mode MS |
| Operator ID | 8 | No | Known during initial network entry |
| Sector ID | 8 | No | Known during initial network entry |
| No. OFDM symbol | 8 | No | Used to indicate the DL duration only if a dynamic DL RS_Zone duration change is supported |
| DL IE count | 8 | No | |
| DL IE for loop | Variable | yes | |
| **Field in Compressed UL-MAP** | **Bits** | **Required for R-MAP** | **Comments** |
| | | | |
| UCD count | 8 | No | UCD count mainly for MS during initial network entry and sleep mode MS and idle mode MS |
| Allocation Start Time | 32 | No | Assuming a fixed frame delay |
| No. OFDM symbol | 8 | No | Assuming a fixed boundary between DL and UL sub-frame |
| UL IE for loop | Variable | yes | |
| **Total saving** | **17 byte** | | |

By introducing the new R-MAP format, the total saving is 17 bytes (152 bits). Due to this reason, we propose to introduce new R-MAP format within DL RS_Zone.

## 3. Proposed text change

++++++++++++++++++++++ Start Text ++++++++++++++++++++++++++++++++

*[Modify title of 8.4.5.9 as indicated]*

8.4.5.9 R-MAP Message

*[Insert the following text in subclause 8.4.5.9]*

This message may be used to signal the resource assignments and other control information contained in the relay zones transmitted by an MR-BS or RS. This message shall be sent in the first transmitted DL relay zone. This message shall immediately follow the R-FCH and shall not be preceded by a MAC header and message type field. The modulation and coding rate for the R-MAP message is indicated in the R-FCH. The message format is shown in Table xxx.

Table XXX. R-MAP Message Format.

| Syntax | Size | Notes |
|---|---|---|
| R-MAP format { | | |
| Length | 11 bits | Length of R-MAP |
| for (i = 0; i<Number of IEs; i++) { | | |
| IE type | 2 bits | 0b00: DL MAP IE<br>0b01: UL MAP IE<br>0b10: R-link specific IE<br>0b11: reserved |
| if (IE type == 00) { | | |
| DL MAP IE } | Variable | |
| elseif (IE type == 01) { | | |
| UL MAP IE } | Variable | |
| elseif (IE type == 10) { | | |
| R-link specific IE} | Variable | |
| | | |
| } | | |
| } | | |

The CRC-32 value shall be appended to the end of R-MAP message. The CRC is computed across all bytes of the R-MAP. The CRC calculation is the same as that used for the MAP messages.

*[Add new subclause 8.4.5.9.1]*

**8.4.5.9.1 R-link specific_IE**

R-link specific IE format is shown in Table XXX.

Table XXX. R-link specific IE.

| **Syntax** | **Size** | **Notes** |
|---|---|---|
| R-link_specific_IE () { | | |
| Type | 5 bits | |
| Length | 4 bits | |
| IE specific data | Variable | |
| } | | |

R-link specific IE types are listed in Table yyy.

Table yyy. R-link specific IE types.

| **Type (hexadecimal** | **Usage** |
|---|---|

| ) | |
|---|---|
| 0x00 | RS UL DCH assignment IE |
| 0x01-1F | Reserved |