Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	BS Routing function for Moving RS in Moving BS Mode
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Re:	A response to a Call for Technical Proposal, http://wirelessman.org/relay/docs/80216j-06_034.pdf
Abstract	When a MR-BS has a moving RS associated and the moving RS is in moving BS mode, the mechanism for the MR-BS to route IP packets of the MS(s) needs to be defined.
Purpose	To incorporate the proposed text into the P802.16j Baseline Document (IEEE 802.16j-06/026r1)
Notice	
Release	
Patent Policy and Procedures	

BS Routing Function for Moving RS in Moving BS Mode

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1. Introduction

In contribution [1], two modes of moving RS operation are proposed: moving RS (MRS) mode and moving BS (MBS) mode. When a MR-BS has a moving RS associated and the moving RS is in moving BS mode, the mechanism for the MR-BS to route IP packets of the MS(s) needs to be defined. In this contribution, one such a scheme is proposed.

2. Proposal

If a RS operates in moving BS mode, the RS manages the MS's connection and privacy functions and implements the whole set of function of physical layer and MAC layer (refer to contribution IEEEC80216j-06235). The MR-BS acts as a router when works together with such a moving RS. For DL data delivery, the MR-BS needs to filter the packets and map all the packets of MS(s) served by this moving RS on to a transport connection of this RS. For UL data forwarding, the RS encapsulates UL packets from multiple MS(s) served into R-MAC PDU and map to a UL transport connection of this RS. To enable this operation, the MR-BS needs to keep a table (MRS routing table) for each such a RS to keep all destination IP addresses of MS(s) served by this RS. After a MS selects a moving RS in MBS mode as its serving station and obtains its IP address, the RS shall report this IP address to its associated MR-BS. The MR-BS shall add one more entry into the MRS routing table of the corresponding RS. During inter-cell handover, this table shall be transferred to the target MR-BS from the serving MR-BS.

Two MAC massages are introduced for this purpose: mobile IP address update request (RS_mobile_IP_info-REQ) and response (RS_mobile_IP_info-RSP) messages.

3. Text Proposal

++++++++++++++++++++++++ *Start Text* ++++++++++++++++++++++++++++++++++

3.1 Packet routing for MS(s) served by a moving RS in moving BS mode.

[Insert a new section 6.3.22.2]

If a RS operates in moving BS mode, the RS manages the MS's connection and privacy functions and implements the whole set of function of physical layer and MAC layer (refer to contribution C80216j-06235). The MR-BS acts as a router when works together with such a moving RS. For DL data delivery, the MR-BS needs to filter the packets and map all the packets of MS(s) served by this moving RS on to a transport connection of this RS. For UL data forwarding, the RS encapsulates UL packets from multiple MS(s) served into R-MAC PDU and map to a UL transport connection of this RS. To enable this operation, the MR-BS needs to keep a table (MRS routing table) for each such a RS to keep all destination IP addresses of MS(s) served by this RS. After a MS selects a moving RS in MBS mode as its serving station and obtains its IP address, the RS shall report this IP address to its associated MR-BS. The MR-BS shall add one more entry into the MRS routing table of the corresponding RS. During inter-cell handover, this table shall be transferred to the target MR-BS from the serving MR-BS.

3.2 Message format for IP address reestablish of MS(s) served by a moving RS during handover

Two MAC massages are introduced for this purpose: mobile IP address update request (RS_mobile_IP_info-REQ) and response (RS_mobile_IP_info-RSP) messages.

[Modify the last row in Table 14 in page 46 as follows]

Type	Message name	Message description	Connection
~~62-255~~ 67	RS_mobile_IP_info request	Report MS IP address info by a moving RS in moving BS mode to MR-BS	DL transport connection of a moving RS in moving BS mode
68	RS_mobile_IP_info response	Confirm MS IP address info by a MR-BS as a response to RS_mobile_IP_info request sent by moving RS in moving BS mode	DL transport connection of a moving RS in moving BS mode
69-255		Reserved	

[Add new sections 6.3.2.3.62 and 6.3.2.3.63 after section 6.3.2.3.61 in page 172]

6.3.2.3.63 Mobile IP address info request message

This massage is used for a moving RS in moving BS mode to report MS IP address to the associated MR-BS. The message format is shown in Table xxx

Table XXX. RS mobile IP info (RS_mobile_IP_info- REQ) message format.

Syntax	Size	Notes
RS_mobile_IP_info request format {		

Management message type = 67	8 bits	
Number of IP addresses	4	
For (i = 0; Number of messages; i++) {		
IP address	32	
}		
}		

6.3.2.3.64 Mobile IP address info response message

This massage is used for a MR-BS to confirm the reception of RS_mobile_IP_info request from a RS in moving BS mode. The message format is shown in Table xxx

Table XXX. RS mobile IP info response (RS_mobile_IP_info- RSP) message format.

Syntax	Size	Notes
RS_mobile_IP_info response format {		
Management message type = 68	8 bits	
}		

++++++++++++++++++++++ End Text ++++++++++++++++++++++++++++

Reference

[1] Hang Zhang et al “Moving Relay Station Operation”, IEEE 802.16j-07/087