Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
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Re:	This is a response to Call for Technical Proposals regarding IEEE Project P802.16j.
Abstract	This document proposes an RS Service-End procedure in an IEEE 802.16j network.
Purpose	The document is submitted for review by 802.16 Working Group members.
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RS Service-End Procedure
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KWU, ETRI*, Siemens**

1 Introduction

This contribution covers the issues related to MAC layer handover procedure defined in Table of Contents of Task Group Working Document [1]. In this proposal, we present RS service-end procedure and related MAC management messages.

In MMR networks, an RS may end its service and be removed from the networks. For example, a nomadic RS is used to extend service area temporarily (e.g., conference, concert, campaign, etc.). After the temporary event, network operator may remove the RS from the network. In this case, all MS's connected to the RS should be transferred to another RS or MR-BS before uninstalling the RS. For the purpose, an RS service-end procedure is required.

2 Service-End Procedure

To support the RS service-end procedure, we utilize two messages, DREG-REQ and DREG-CMD. We propose service-end procedure and related timer as well. The RS service-end procedure is described as follows: (shown in figure 1.)

1. An RS shall transmit DREG-REQ to an MR-BS when it wants to end its service. By transmitting DREG-REQ, the RS initiates service-end procedure and requests handover of all its subordinate MS's.

2. Upon receiving DREG-REQ, the MR-BS decides whether it allows service-end of the RS. If the request is accepted, the MR-BS transmits DREG-CMD with "Action Code = 0x02" and starts BS-initiated handover process for the requested MS's through the RS.

3. If MR-BS rejects the request, MR-BS transmits DREG-CMD with "Action Code = 0x06" to the RS. In that case, the RS continues normal operation. After the REQ-duration expires, the RS retransmits DREG-REQ to the MR-BS.

4. After handover procedures between the MR-BS and its subordinate MS's are completed, the MR-BS informs the RS that handover is completed by transmitting DREG-CMD with "Action Code = 0x04". Upon receiving DREG-CMD, the RS starts deregistration process.
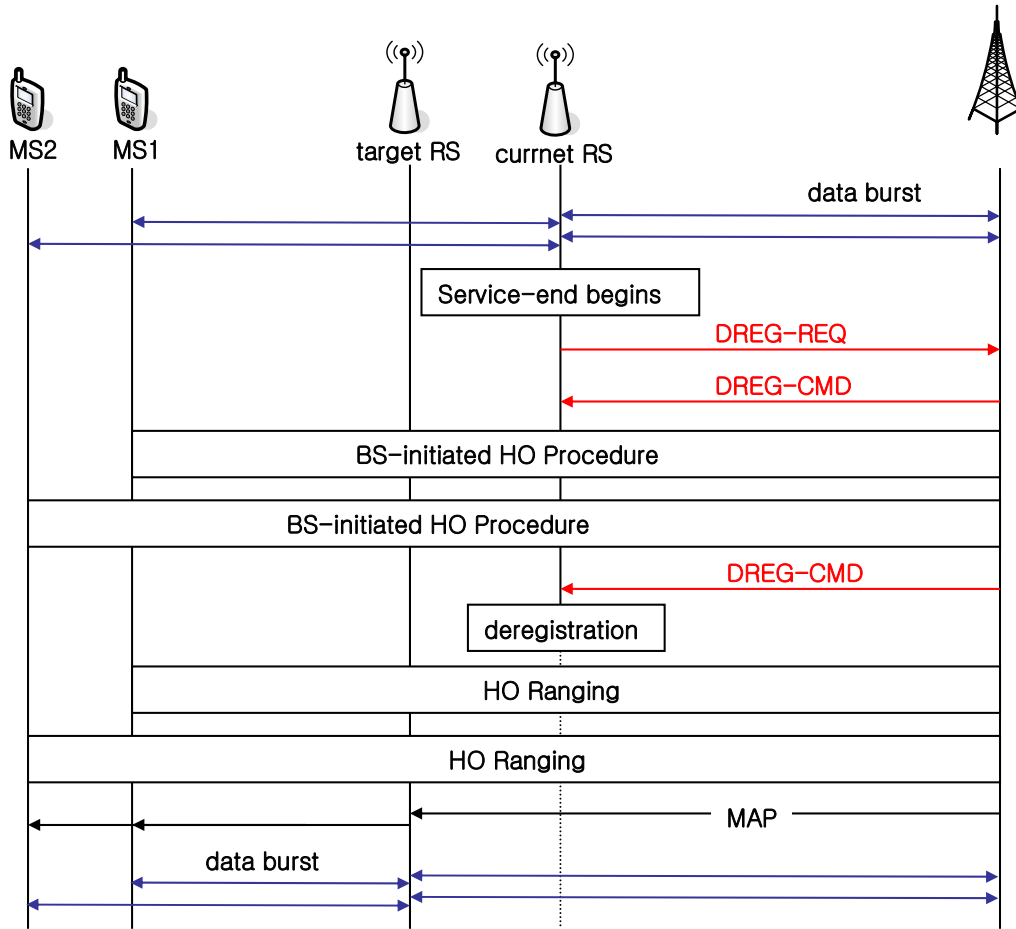
Figure 1 RS Service-End procedure

3. Text Proposals

[*Insert the new subclause 6.3.22.6*]

6.3.22.6 RS Service-End

In MMR networks, an RS may end its service and be removed from the networks. During RS service-end process, all subordinate MS's of the RS should be transferred to another RS or MR-BS prior to RS deregistration. An RS shall transmit DREG-REQ to an MR-BS so that it initiates service-end procedure and requests handover of all its subordinate MS's. Upon receiving DREG-REQ, the MR-BS decides whether it allows the RS service-end. If the request is accepted, the MR-BS may transmit DREG-CMD to inform the acceptance and start BS-initiated handover process for the requested MS's. After handover procedures between the MR-BS and its subordinate MS's are completed, the MR-BS informs the RS that handover is completed by transmitting DREG-CMD. Upon receiving DREG-CMD, the RS starts deregistration process.

If the MR-BS rejects the request (Action Code = 0x06), the MR-BS informs the RS rejection of the request by transmitting DREG-CMD. Upon receiving DREG-CMD with rejection information, the RS continues normal operation. After REQ-duration expires, the RS retransmits DREG-REQ to the MR-BS.

[*Change Table 55 as follows*]

Table 55 Action codes and actions

Action codes (hexadecimal)	Action
00	SS/RS immediately terminate service with the BS and should attempt network entry at another BS.
01	SS/RS shall listen to the current BS but shall not transmit until an RES-CMD message or DREG-CMD with Action Code 02 or 03 is received.
02	SS/RS shall listen to the current BS but only transmit on the Basic, and Primary Management Connections.
03	SS/RS shall return to normal operation and may transmit on any of its active connections.
04	SS shall terminate current Normal Operations with the BS; the BS shall transmit this action code only in response to any SS DREG-REQ message. RS shall terminate current Normal Operations with the BS.
05	MS shall immediately begin de-registration from serving BS and request initiation of MS Idle Mode.
06	The MS/RS may retransmit the DREG-REQ message after the time duration (REQ-duration) provided in the message.
07	The MS/RS shall not retransmit the DREG-REQ message and shall wait the DREG-CMD message. BS transmittal of a subsequent DREG-CMD with Action Code 03 shall cancel this restriction.

Change the explanation text of the "REQ-duration" field as indicated:

REQ-duration
Waiting value for the DREG-REQ message re-transmission (measured in frames) If serving BS includes REQ-duration in a message including an Action Code = 0x05, the MS may initiate an Idle Mode request through a DREG-REQ with Action Code = 0x01, request for MS De-Registration from serving BS and initiation of MS Idle Mode, at REQ-duration expiration.
If the RS receives the DREG-CMD message with Action Code = 0x06, it resends DREG-REQ message after REQ-duration timer expiry.

4. Reference

[1] IEEE 802.16j-06/017r2, "Table of Contents of Task Group Working Document"