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Re:	Response to Recirculation Ballot #14b	
Abstract	MSS's Network Service Retain Request delivery to BS	
Purpose	Adoption of proposed changes into P802.16e	
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Handling DL Traffic for Idle Mode MSSs

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1. Problem Statement

When an IP packet destined to a specific MSS is delivered to a BS while the MSS is in normal operation, packet CS performs classification of the higher layer protocol PDU into the appropriate connection, and delivery of the resulting CS PDU to the MAC SAP associated with the service flow for transport to the peer MAC SAP. Therefore, downlink IP packet can be delivered to its destination MSS in normal operation.

When a managed MSS initiates Idle Mode, all information required for the classifier, such as destination IP address and Ethernet destination MAC address would be released in Packet CS due to MSS de-registration. Depending on the service such as Push to Talk and VoIP, downlink IP packet should be delivered to the MSS's last attachment BS while the MSS is in idle mode. Therefore, some managed MSSs that expects downlink IP packet from the network while in Idle Mode shall request the BS to retain information needed for Network Service.

2. Overview of Proposed Solution

If a managed MSS, which expects downlink IP packet, wants to initiate an Idle Mode, the MSS should request the BS to retain information for Network Service. In case of MSS initiated Idle Mode, the MSS can contain 'Network Service retain request' for the MSS's last attachment BS to retain CS classification related information in DREG-REQ message, and in case of BS initiated Idle Mode, the MSS can send MAC message which contains 'Network Service retain request'. Upon reception of this message, the MSS's last attachment BS retains CS classification related information. Therefore, IP packet destined to the MSS in Idle Mode which requested Network Service retain can be delivered to the BS and the BS, buffers data and sends Paging message (MOB-PAG-ADV) indicating the presence of DL traffic pending. Then, the MSS turns into Normal Operation and receives pending DL traffic.

Our proposal only applies to the managed MSS which expects downlink IP packet of some services such as Push to Talk and VoIP, while in Idle Mode. The CS classifier of MSS's last attachment BS takes proper action for IP packet to be delivered from the network to the MSS's last attachment BS.

3. Proposed Changes in Document

Remedy:

In order for IP packet directed to managed MSSs which are in Idle mode to be delivered from the network to the MSS's last attachment BS, the BS should retain CS classification related information and perform proper action for the packet from the network to be delivered to the BS. For this purpose, we add a mechanism that the MSS sends 'Network Service retain request' when it enters Idle Mode. We also add one MAC management message to deliver MSS's 'Network Service retain request' for BS initiated Idle Mode.

Remedy1:

An MSS shall include its Network Service retain request when the MSS enters Idle Mode when the MSS expects DL traffic from the network while it is in Idle Mode.

[In 6.3.21.1 MSS Idle Mode Initiation, page 57, line 26 - page 58, line3, modify as]:

6.3.21.1 MSS Idle Mode Initiation

Idle Mode Initiation may begin after MSS de-registration. During Normal Operation with its Serving BS, an MSS may signal intent to begin Idle Mode by sending a DREG-REQ with a De-registration_Request_Code = 0x01; request for MSS de-registration from Serving BS and initiation of MSS Idle Mode. If a managed MSS expects DL traffic from the network in Idle Mode, MSS shall include Network Service Retain TLV in DREG-REQ message. Similarly, a Serving BS may signal for an MSS to begin Idle Mode by sending a DREG-CMD with an Action Code = 0x05; require MSS de-registration from Serving BS and request initiation of MSS Idle Mode. Upon reception of unsolicited DREG-CMD with an Action Code = 0x05, an MSS shall send Network Service Retain Request in MOB-SVC-IND message and enter Idle Mode.

Remedy2:

Add Network Service Request TLV to DREG-REQ when De-Registration Request Code=0x01

[In 6.3.2.3.26 De/Re-register Request (DREG-REQ) message, page 16, line 24, add Network Service Request parameter as]:

The SS shall include the following parameters in the DREG-REQ only if De-Registration_Request_Code =0x01

Paging Cycle Request

PAGING_CYCLE requested by MSS

Network Service Retain RequestNetwork Service Retain requested by MSS

Remedy3:

Add MSS Service Retain Indication message language and Table.

[Insert 6.3.2.3.61 Mobile Service Retain Indication Message, page 31, line 58]:

6.3.2.3.61 Mobile Service Retain Indication Message

In order to request the BS to retain MSS's Network Service, a managed MSS shall transmit a MOB-SVC-IND message to the BS in case of BS initiated Idle Mode. The MOB-SVC-IND message is sent from the MSS to the BS on the MSS's basic CID.

Table 92o – MOB-SVC-IND Message Format

<u>Syntax</u>	<u>Size</u>	<u>Notes</u>
<u>MOB-SVC-IND message format() {</u>		
<u>Management Message Type=??</u>	<u>8 bits</u>	
<u>Network Service Retain Request</u>	<u>1 bits</u>	<u>When this bit is set, the BS receiving this message shall retain MSS's Network Service.</u>
<u>reserved</u>	<u>7 bits</u>	
<u>HMAC Tuple</u>	<u>21 bytes</u>	<u>See 11.4.11</u>
<u>}</u>		