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Title	**Clarification of Paging Announce Message – HO Ad-Hoc Consensus Contribution**	
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Re:	Response to HO Ad-Hoc Call for Contributions on IEEE 802.16e/D3	
Abstract	This document contains suggestions to clarify the Paging-announce message used for Idle Mode	

Purpose	This document is submitted for review by 802.16e Working Group members
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Clarification of Paging-announce Message

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1. Problem Statement

Idle Mode specified in 802.16e/D3 may have a problem with the current paging-announce message, a backbone message exchanged between BSs or BS and ASA. In the MOB-PAG_ADV message, an MSS should be informed of the action that the MSS should perform in Idle Mode, e.g. perform ranging and network re-entry. However, paging-announce message has no information of the action so that the recipient BS cannot determine which action code should be set when it broadcasts the MOB-PAG_ADV message

Therefore, in this contribution, we clarify the paging-announce message as follows:

- A field of Paging-Group ID has been included

If both the sender and recipient BS have multiple paging group IDs (or an end entity is ASA), it is necessary to provide the information of which paging group the MSS belongs to.

- The PAGING_CYCLE field has been removed.

After a paging group is defined, a BS belonging to the paging group has already been informed of PAGING_CYCLE by Paging-group-action message.

- 3-bit Action Code has been included

With the Action Code, the action that an MSS should perform during Idle Mode can be clarified with regard to the actions defined in MOB-PAG_ADV. Also, it can be sure whether the MSS enters or exits Idle Mode.

2. Proposed Remedy

[Proposed text change in line 43 of page 57:]

6.3.21 MSS Idle Mode

The paging-groups are defined in the management system. One possible method of definition is by using the paging-group-action backbone message. Another backbone message, paging-announce, is used to manage the list of MSS in idle mode and initiate paging of the MSS on all BS belonging to the paging group.

[Proposed text change in line 2 of page 58:]

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. 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. The initiation of Idle Mode may be notified over backbone network using Paging-announce message.

[Proposed text change in line 51 of page 59:]

6.3.21.8.2 BS side

The BS at which the MSS entered the network may report to the BS that initiated the paging about the MSS network re-entry, using the MSS-info-Request backbone message. If the BS that has initiated the paging is not informed about MSS reentry into the network, it shall initiate another paging sequence for the MSS. The MSS-info-Request backbone message may also be used to inform the BS at which the MSS has entered IDLE mode that the MSS has transitioned to a different Paging Group. The termination of Idle Mode may be notified over backbone network using Paging-announce message.

[Proposed message change in line 32 of page 123:]

D.2.9 Paging-announce message

This message is sent from BS to BS (or the ASA server) to announce that the recipient BS should page the provided list of MSS, according to their PAGING CYCLE and PAGING OFFSET. This message is also be used to inform the recipient entity (BS or the ASA server) that an MSS enters or exits Idle Mode.

The message contains the following information:

[Proposed message change in line 39 of page 123:]

Field	Size	Notes
Message Type=?	8-bit	
Sender BS-ID	48-bit	Base station unique identifier (Same number as that broadcasted on the DL-MAP message)
~~Target~~ Recipient BS-ID	48-bit	Set to 0xffffff to indicate broadcast
Time Stamp	32-bit	Number of milliseconds since midnight GMT (set to 0xffffff to ignore)
Num MSS	8-bit	Number of MSSs to page
For (j=0; j<Num NSS; j++){		
MSS MAC address	48-bit	
Paging Group ID	8-bit	The identifier of the paging group to which the MSS belongs
~~PAGING_CYCLE~~	~~16-bit~~	~~MSS PAGING CYCLE parameter~~
PAGING_OFFSET	8-bit	MSS PAGING OFFSET parameter
Action Code	3-bit	0=MSS enters Idle Mode 1=MSS exits Idle Mode 2=MSS should be paged to perform ranging to establish location and acknowledgement message 3=MSS should be paged to enter network 4-7= Reserved
Reserved	5-bit	
}		
Security field	TBD	
CRC field	32-bit	