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Re:	Response to Sponsor Ballot
Abstract	Idle Mode – Location Update Enhancement in 802.16e
Purpose	Adoption of proposed changes into P802.16e
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Idle Mode – Location Update due to Power Down

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1. Introduction

In this contribution, Idle Mode location update enhancement is proposed. When an MSS goes into Idle Mode there is information retained and used for expedited network entry from Idle Mode. Even though an MSS turns off its power while it is in Idle Mode, Idle Mode Retain information would be maintained until BS finds out the MSS is not available anymore. If an MSS can report its status of power off before an MSS turns off its power, information related to the MSS in Idle Mode can be managed more efficiently. Operation is shown below in Fig. 1. This mechanism enables the Paging Controller to detect unavailability without performing unavailability check through repeated unanswered paging messages or through expiration of the Idle Mode System Timer. Benefit of proposed Location Update enhancement is exact and quick status update of MSS in Idle Mode and unnecessary action reduction to detect MSS's unavailability.

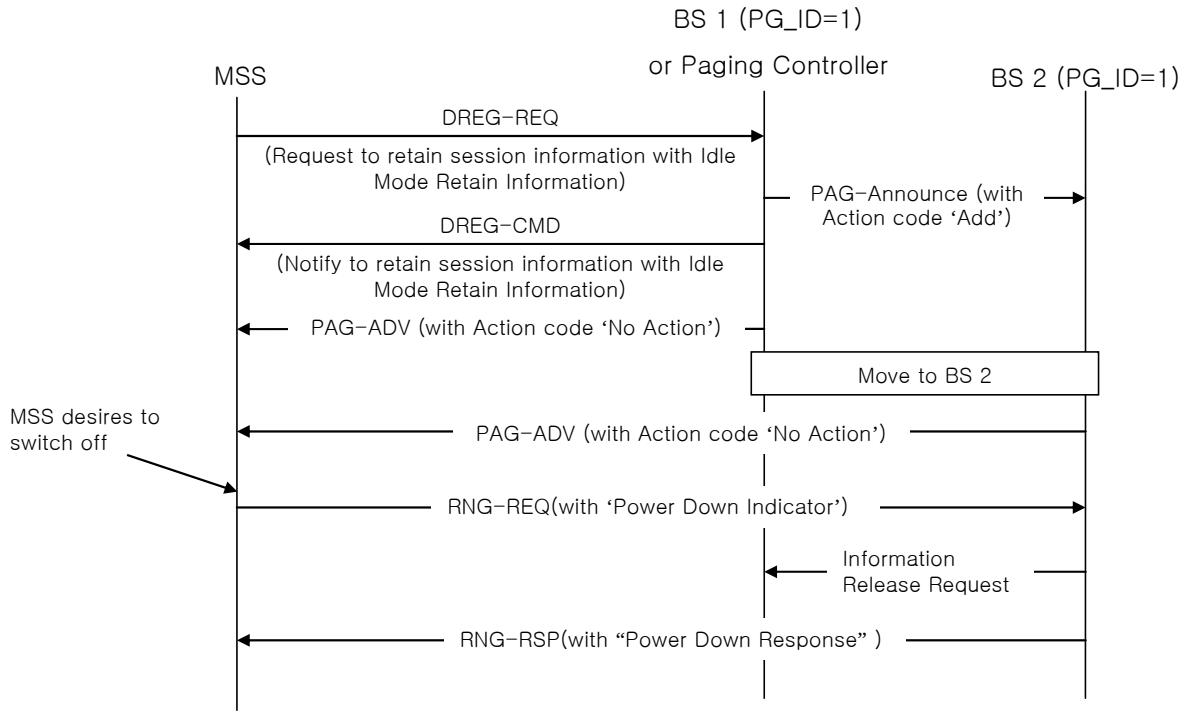

Figure 1. Idle Mode Location Update – Power Down

2. Proposed Text Changes in Document

Remedy1:

Add new Location Update condition for MSS Power Down in the Location Update Conditions

[In 6.3.21.9 Location Update Conditions, page XXX, line XX, insert ; editor should first reflect the Idle Mode Harmonization Contribution which was accepted in Session #33, and modify following]:

6.3.21.9.1 Location Update Conditions

An MSS in Idle Mode shall perform Location Update process operation if any Location Update condition is met. There are ~~two~~ three Location Update evaluation conditions: Zone Update ~~and~~, Timer Update, and Power Down Update. MSS may also perform Location Update process at will.

Remedy2:

Add new Location Update condition – Power down language and mechanics.

[In 6.3.21MSS Idle Mode(optional), page XX, line yy, append new section 6.3.21.9.1.3 Power Down Update; editor should first reflect the Idle Mode Harmonization Contribution which was accepted in Session #33, and insert following]:

6.3.21.9.1.3 Power Down Update

The MSS shall perform Location Update process prior to switching off its power. This mechanism enables the Paging Controller to update MSS's exact status and to delete all information for the MSS and discontinue Idle Mode Paging Control for the MSS at the time of power down. At the time of successful Power Down Location Update, the Paging Controller shall release all Idle Mode retaining information related to the MSS. In case of 'Failure of Power Down Information Update', the Paging Controller shall perform availability check using Location Update polling. Unavailability of MSS shall be determined and the Paging Controller shall delete all Idle Mode retaining information if the MSS does not answer for the BS's Location Update polling up to 'Paging Retry Count'.

Remedy3:

Add Power Down Indicator to the 11.5 RNG-REQ TLV table.

[In 11.5 RNG-REQ TLVs for re-establishment of Service Flows, page XXX, line YY, append to Table 318a-RNG-REQ Message Encodings; editor will make appropriate allocation numbering mm for Type]:

Name	Type	Length	Value
Power down Indicator	mm	1	Presence of item in message indicates the MSS is

			currently attempting to switch power off, regardless of value

Remedy4:

Add Power Down Indicator to the 11.6 RNG-RSP TLV table.

[In 11.6 RNG-RSP TLVs for re-establishment of Service Flows, page XXX, line YY, append to Table 320a-RNG-RSP Message Encodings; editor will make appropriate allocation numbering nn for Type]:

Name	Type	Length	Value
Power down Response	nn	1	0x00= Failure of Power Down Information Update. 0x01= Success of Power Down Information Update 0x10, 0x11: Reserved

Remedy5:

Add Power Down Indication.

[In 6.3.2.3.5 Ranging Request (RNG_REQ) message, page 20, line 50, add]:

The following TLV parameter shall be included in the RNG-REQ message when the MSS is attempting to perform Location Update due to power down:

Power Down Indicator

Indicates the MSS is currently attempting to perform Location Update due to power down.

Remedy6:

Add Power Down Response.

[In 6.3.2.3.6 Ranging Response (RNG_RSP) message, page 22, line 38, add]:

The following TLV parameter shall be included in the RNG-REQ message when a BS sends RNG-RSP message as a reply to the RNG-REQ message from a MSS which is performing Location Update due to power down and :

Power Down Response

Indicates the MSS's Power Down Location Update result.

0x00= Failure of Power Down Information Update.

0x01= Success of Power Down Information Update