Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Renaming of handover and paging SAP primitives in section 14.5.9.3**
Date Submitted	**2006-01-11**
Source(s)	Ronald Mao Huawei Technologies Co., Ltd. 10180 Telesis Ct #365 San Diego, CA 92121 Voice: 001-858-882-0335 Fax: 001-858-882-0350 rmao@huawei.com
Re:	Contribution on IEEE 802.16-2004/IEEE802.16g
Abstract	This contribution proposes to update the primitive names in sections 14.5.9.3 of 16g r2.
Purpose	Adoption
Notice	
Release	
Patent Policy and Procedures	

1 Problem Statement

The purpose of this contribution is to update M-SAP and C-SAP primitive names based on universal naming schema.

2 Proposed Text

14.5.9.3 Location Management

14.5.9.3.1 Location Update Procedure

Location management of an MS is performed by mobility management service of an NCMS. An MS in idle mode performs Location Update in order to inform an NCMS of its current location information, i.e., paging group, and this information is used to page cells within paging group of the called MS when there is pending DL traffic toward the MS.

Location Update is performed if any of Location Update conditions is met and there are currently four Location Update conditions defined: Zone Update, Timer Update, Power Down Update, and MAC Hash Skip Threshold Update. In Zone Update, the MS shall perform Location Update process when the MS detects a change in paging group by comparing the paging group identifier, PG_ID, stored in the MS with that of transmitted by the preferred BS in the DCD message or MOB_PAG-ADV broadcasting message. In Timer Update, MS shall periodically perform Location Update process prior to the expiration of the idle mode timer. In Power Down Update, the MS shall attempt to complete a Location Update once as part of its orderly power down procedure. In MAC Hash Skip Threshold update, the MS shall perform Location Update process when the MS MAC hash skip counter exceeds MAC hash skip threshold.

All the above Location Updates are realized by Ranging request/response (RNG-REQ/RSP) message between an MS and a BS, and Location Update request and Location Update response service primitives are defined between a BS and an NCMS to perform Location Update.

Figure 1~~3~~24 shows service primitives for Location Update between a BS and an NCMS.

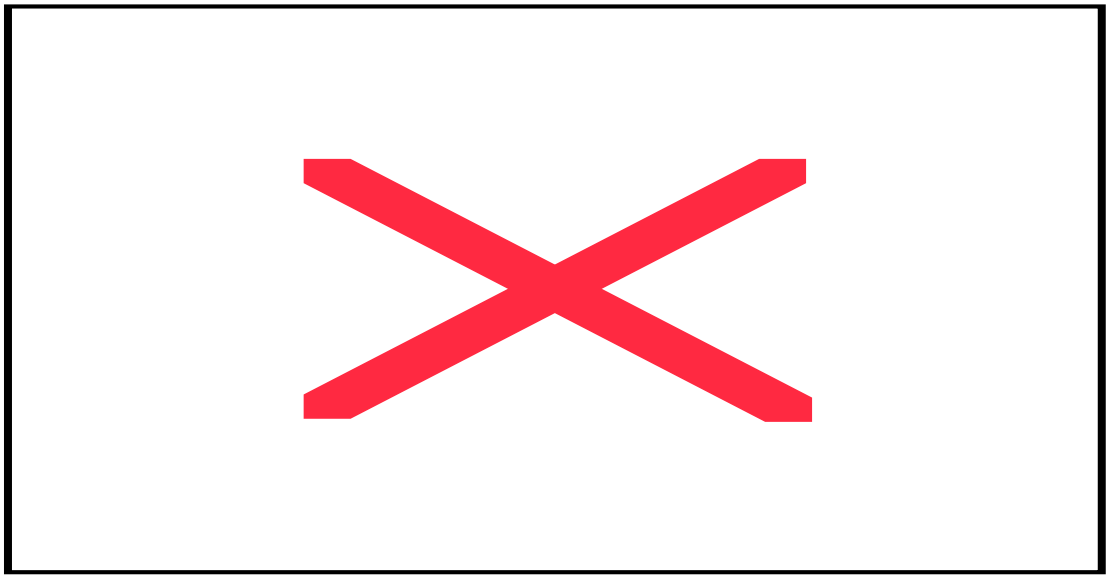

Figure 1 Location Update Primitives

14.5.9.3.2 Service Primitives for Location Update

14.5.9.3.2.1 ~~Location Update request~~C-PG-REQ

This primitive is used by an 802.16 entity to trigger a location update procedure. The Operation Type included in this primitive defines the type of location update rocedure to be performed. The possible Operation Types for this primitive are listed in Table xxx.

Action Type	Description
Location Update	Location Update request

14.5.9.3.2.1.1 Function

This primitive is issued by a BS to inform a management entity of Mobility Management Services in an NCMS that an MS requests to initiate Location Update.

14.5.9.3.2.1.2 Semantics of the service primitive

The parameters of the primitives are as follows:

C-CM-REQ (BS _ NCMS)~~Location Update request~~
(
Operation type: Set,
Action_type: Location Update,
Object_ID: BS,
Attribute_List:
MS MAC Address
BS ID
Paging Controller ID
Paging Group ID
MAC Hash Skip Threshold
Power Down Indicator
)

MS MAC Address
48-bit MAC address which will identify MS
BS ID
Identifier of serving BS
Paging Controller ID
The Paging Controller ID is a logical network identifier for the serving BS or other network entity retaining MS service and operational information and/or administering paging activity for the MS while in Idle Mode.
Paging Group ID
One or more logical affiliation groupings of BS
MAC Hash Skip Threshold
Maximum number of successive MOB_PAG-ADV messages that may be sent from a BS with out individual notification for an MS, including MAC address hash of an MS for which Action Code is 00, 'No Action Required'.
Power Down Indicator
Indicates the MS is currently attempting to perform Location Update due to power down.

14.5.9.3.2.1.3 When generated

This primitive is generated when the BS receives RNG-REQ message with Paging Controller ID and Ranging Purpose Indication with bit #1 set to 1, MAC Hash Skip Threshold, or Power Down Indicator.

14.5.9.3.2.1.4 Effect of receipt

This primitive shall be generated on BS side and a management entity of Mobility Management Services shall respond to this primitive by sending Location Update response.

14.5.9.3.2.2 C-CM-RSP~~Location Update response~~

This primitive is used by NCMS to respond a location update procedure. The Operation Type included in this primitive defines the type of location update rocedure to be performed. The possible Operation Types for this primitive are listed in Table xxx.

Operation Type	Description
Set	Location Update response

14.5.9.3.2.2.1 Function

This primitive is issued by the NCMS to respond to Location Update request from the 802.16 entity.~~BS~~

14.5.9.3.2.2.2 Semantics of the service primitive

The parameters of the primitives are as follows:

```
C-CM-RSP
(
    Operation type: Set,
    Action type: Location Update,
    Object ID: BS,
    Attribute List:
        Location Update response
(
    MS MAC Address
    Location Update Result
```

____Paging Information
____ Paging Controller ID
____MAC Hash Skip Threshold
____Power Down Response
)

MS MAC Address

48-bit MAC address which will identify MS

Location Update Result

Response to Location Update Request:

0b00=Failure of Idle Mode Location Update. The MS shall perform Network Re-entry from Idle Mode

0b01=Success of Idle Mode Location Update

0b10, 0b11: Reserved

Paging Information

New Paging Information assigned to MS. Paging Information shall only be included if Location Update Response=0x01 and if Paging Information has changed. The Paging Information TLV defines the Paging Group ID, PAGING_CYCLE and PAGING OFFSET parameters to be used by the MS in IDLE mode. PAGING_CYCLE is the cycle in which the paging message is transmitted within the paging group. PAGING OFFSET determines the frame within the cycle in which the paging message is transmitted and it must be smaller than PAGING CYCLE value. Paging Group ID specifies the paging group the MS is assigned to.

Paging Controller ID

Paging Controller ID is a logical network identifier for the serving BS or other network entity retaining MS service and operational information and/or administering paging activity for the MS while in Idle Mode. Paging Controller ID shall only be included if Location Update Response=0x01 and if Paging Controller ID has changed.

MAC Hash Skip Threshold

Maximum number of successive MOB_PAG-ADV messages that may be sent from a BS with out individual notification for an MS, including MAC address hash of an MS for which Action Code for the MS is 00,'No Action Required'. If BS does not include this TLV item in the RNG-RSP message, any BS may omit MAC Address Hash of the MS with Action Code 00,'No Action Required' from any MOB_PAG-ADV message.

Power Down Response

Indicates the MS's Power Down Location Update result.

0x00= Failure of Power Down Information Update.

0x01= Success of Power Down Information Update.

14.5.9.3.2.2.3 When generated

This primitive is generated at an NCMS in order to request a BS to issue a RNG-RSP message.

14.5.9.3.2.2.4 Effect of receipt

A BS receiving Location Update response shall transmit RNG-RSP message with the appropriate parameters settings.