Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Renaming of handover and paging SAP primitives in Section 14.5.7.2**
Date Submitted	**2006-01-09**
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Re:	Contribution on IEEE 802.16-2004/IEEE802.16g
Abstract	This contribution proposes to update the primitive names in sections 14.5.7.2 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

14.5.7.2 Idle Mode Service Primitives

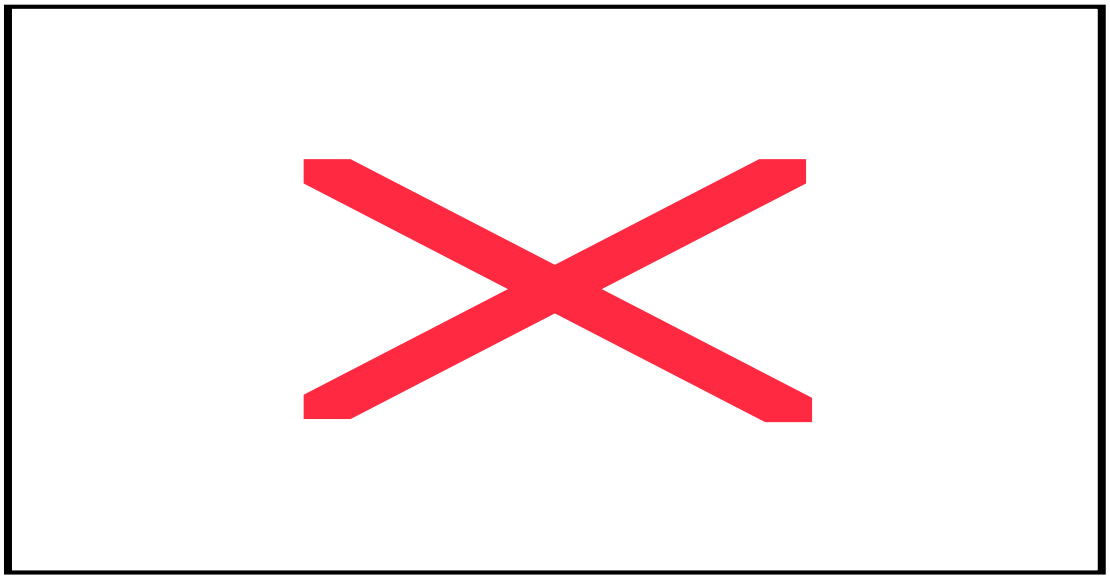

Figure 1 Idle Mode Initialization

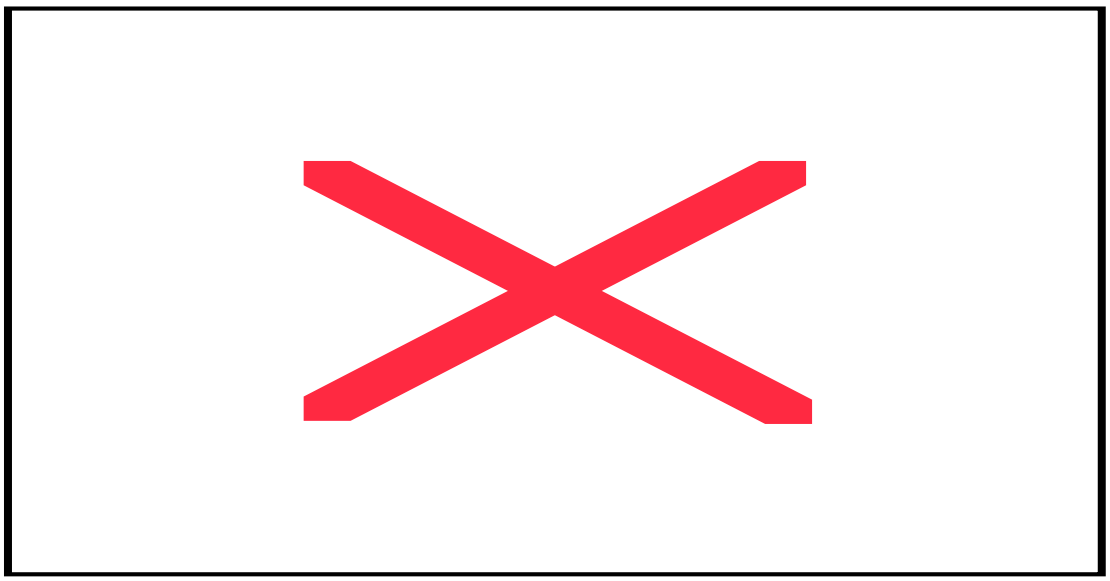

Figure 2 Paging Announce

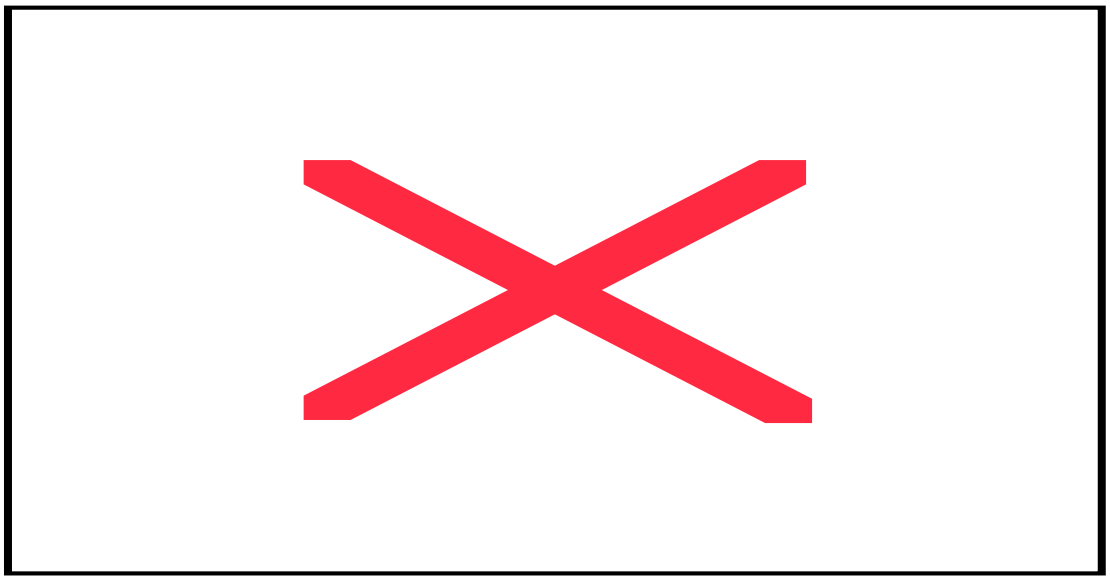

Figure 3 Idle Re-Entry Primitives

14.5.7.2.1 C-PG-REQ~~Idle_Mode_Initiation.request~~

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

Operation Type	Action Type	Description
Set	Idle Mode Initialization	Idle Mode Initialization Request
Set	Paging Announce	Pagine Announce Request
Set	Idle Re-Entry	Idle Re-Entry Request

14.5.7.2.1.1 Function

14.5.7.2.1.1.1 Idle Mode Initialization

This primitive is issued by BS to inform a management entity of Paging Services in NCMS that an MS requests to initiate Idle Mode.

14.5.7.2.1.1.2 Paging Announce

This primitive is issued by a management entity of Paging Services in NCMS to request a BS to page an MS which is supposed to be in Idle Mode by transmitting MOB_PAG-ADV message including the MS MAC Address Hash and relevant Action Code.

14.5.7.2.1.1.3 Idle Mode Re-Entry

This primitive is issued by a BS to inform a management entity of Paging Services that the specified MS is attempting to re-enter network in response to paging.

14.5.7.2.1.2 Semantics of the service primitive

14.5.7.2.1.2.1 Idle Mode Initialization

The parameters of the primitives are as follows:

~~**Idle_Mode_Initiation.request**~~
~~(~~
C-PG-REQ
(
Operation type: Set,
Action type: Idle Mode Initiation,
Object ID: NCMS,
Attribute List: MS MAC Address
Paging_Cycle_Request
Idle Mode Retain Information
MAC Hash Skip Threshold
Service Flow parameters
Service and operational information
)

MS MAC Address
48-bit MAC Address which will identify MS during Idle Mode
Paging_Cycle_Request
Paging Cycle requested by MS
Idle Mode Retain Information
MS request for Paging Controller retention of network re-entry related MAC management message and MS service and operational information to expedite future Network Re-entry from Idle Mode. (see 6.3.2.3.42.)
MAC Hash Skip Threshold
Maximum number of successive MOB_PAG-ADV messages that may be sent from a BS individual notification for an MS, including MS MAC Address Hash of an MS for which Action Code is 0b00, 'No Action Required'.
Service Flow parameters
Parameters for Service Flow which exists without actually being activated to carry traffic at MS Idle Mode Initialization, e.g. Paging Preference.
Service and operational information
MS service and operational information associated with MAC state machines, CS classifier information, etc.

14.5.7.2.1.2.2 Paging Annouce

The parameters of the primitives are as follows:

C-PG-REQ
(
Operation type: Set,
Action type: Paging Announce,
Object ID: NCMS,
Attribute List:
MS MAC Address
Paging Information
Action Code
)

MS MAC Address
48-bit MAC Address which will identify MS during Idle Mode
Paging Information
Paging Group ID, Paging Cycle, and Paging Offset parameters followed by MS in Idle Mode.
Action Code
Action required for MS in Idle Mode (e.g. Network Re-entry, ranging for location update, and so on)

14.5.7.2.1.2.3 Idle Re-Entry

The parameters of the primitives are as follows:

C-PG-REQ
(
Operation type: Set,
Action type: Idle ReEntry,
Object ID: NCMS,
Attribute List:
MS MAC Address
Paging Information
Paging Controller ID
BS ID
)

MS MAC Address
48-bit MAC Address which will identify MS during Idle Mode
Paging Information
Paging Group ID, Paging Cycle, and Paging Offset parameters followed used by MS in Idle
Mode.
Paging Controller ID
A logical network identifier for the serving BS or other network entity retaining MS service and
operational information and/or administrating paging activity for the MS while in Idle Mode.
Paging Controller ID shall be set to BS ID when a BS is acting as Paging Controller.
BS ID
A network identifier of the BS at which the MS is attempting to re-enter network

14.5.7.2.1.3 When generated

14.5.7.2.1.3.1 Idle Mode Initialization

This primitive is generated when a BS receives a DREG-REQ message with Deregistration_Request_Code=0x01, “request for MS De-Registration from serving BS and initiation of MS Idle Mode.

14.5.7.2.1.3.2 Paging Announce

This primitive is generated by a management entity of Paging Services to request a BS to transmit BS Broadcast Paging message.

14.5.7.2.1.3.3 Idle Re-Entry

This primitive is generated by a BS when it receives a RNG-REQ message including Ranging Purpose Indication with setting bit #0 to 1 in combination with Paging Controller ID.

14.5.7.2.1.4 Effect of receipt

14.5.7.2.1.4.1 Idle Mode Initialization

This primitive shall be generated on BS side and a management entity of Paging Services shall respond to this primitive by sending Idle_Mode_Initiation -response.

14.5.7.2.1.4.2 Paging Announce

A BS receiving Paging_Announce shall transmit MOB_PAG-ADV message following the information provided by this primitive.

14.5.7.2.1.4.3 Idle Re-Entry

Idle_ReEntry_indication notifies a management entity of Paging Services that the specified MS is attempting to re-enter network through the specified BS in order to receive DL traffic. The management entity also checks MS service and operational information for the MS, and transmits Idle_ReEntry_confirmation in response to this primitive.

14.5.7.2.2 C-PG-RSP~~Idle_Mode_Initiation.response~~

This primitive is used by an 802.16 entity or NCMS to respond a idle mode service request. The Operation Type included in this primitive defines the type of idle mode service procedure to be performed. The possible Operation Types for this primitive are listed in Table xxx.

Operation Type	Action Type	Description
Set	Idle Mode Initialization	Idle Mode Initialization Response
Set	Idle Re-Entry	Idle Re-Entry Response

14.5.7.2.2.1 Function

14.5.7.2.2.1.1 Idle Mode Initialization

This primitive is issued by a management entity in Paging Services in NCMS to respond to Idle_Mode_Initiation -Request.

14.5.7.2.2.1.2 Idle Re-Entry

This primitive is issued by a management entity of Paging Services to confirm the MS Network Re-entry from Idle Mode and provides the BS at which the MS is attempting to re-enter network with service and operational information.

14.5.7.2.2.2 Semantics of the Service Primitive

14.5.7.2.2.2.1 Idle Mode Initialization

The parameters of the primitives are as follows:

C-PG-RSP
(
Operation_type: Set,
Action_type: Idle_Mode_Initiation,
Object ID: NCMS,
Attribute List: ~~Idle_Mode_Initiation.response~~
(
Action code
MS MAC Address
Paging Information
Paging Controller ID
Idle Mode Retain Information
MAC Hash Skip Threshold
REQ-duration
)

Action code
Indicates the value of Action code to be included in DREQ-CMD message. (see Table 55.)

MS MAC Address
48-bit MAC Address which will identify MS during Idle Mode

Paging Information
Paging Group ID, Paging Cycle, and Paging Offset parameters followed by MS in Idle Mode.

Paging Controller ID
A logical network identifier for the serving BS or other network entity retaining MS service and operational information and/or administrating paging activity for the MS while in Idle Mode. Paging Controller ID shall be set to BS ID when a BS is acting as Paging Controller.

Idle Mode Retain Information
MS request for Paging Controller retention of network re-entry related MAC management message and MS service and operational information to expedite future Network Re-entry from Idle Mode. (see 6.3.2.3.42.)

MAC Hash Skip Threshold
Maximum number of successive MOB_PAG-ADV messages that may be sent from a BS individual notification for an MS, including MS MAC Address Hash of an MS for which Action Code is 0b00, 'No Action Required'.

REQ-duration
Waiting value for the DREG-REQ message re-transmission (measured in frames).

14.5.7.2.2.2.2 Idle Re-Entry

The parameters of the primitives are as follows:

C-PG-RSP
(
Operation_type: Set,
Action_type: Idle_ReEntry,
Object ID: NCMS,
Attribute List:
MS MAC Address
Service and operational information
)

MS MAC Address
48-bit MAC Address which will identify MS during Idle Mode

Service and operational information
MS service and operational information associated with MAC state machines, CS classifier information, etc.

14.5.7.2.2.3 When generated

14.5.7.2.2.3.1 Idle Mode Initialization

This primitive is generated to request a BS to issue a DREG-CMD message.

14.5.7.2.2.3.2 Idle Re-Entry

This primitive is generated by BS when a RNG-REQ message including Ranging Purpose Indication with setting bit #0 to 1 in combination with Paging Controller ID.

14.5.7.2.2.4 Effect of receipt

14.5.7.2.2.4.1 Idle Mode Initialization

A BS receiving Idle_Mode_Initiation.response shall transmit DREG-CMD message with setting each field in accordance with the information elements in this primitive.

14.5.7.2.2.4.2 Idle Re-Entry

BS receiving Idle_ReEntry.confirmation transmits RNG-RSP message including HO Process Optimization which is based on the service and operational information in this primitive.

~~**14.5.7.2.3 Paging_Announce**~~

~~**14.5.7.2.3.1 Function**~~

~~This primitive is issued by a management entity of Paging Services in NCMS to request a BS to page an MS which is supposed to be in Idle Mode by transmitting MOB_PAG-ADV message including the MS MAC Address Hash and relevant Action Code.~~

~~**14.5.7.2.3.2 Semantics of the service primitive**~~

~~The parameters of the primitives are as follows:~~

~~**Paging_Announce**~~
~~(~~
~~MS MAC Address~~
~~Paging Information~~
~~Action Code~~
~~)~~

~~**MS MAC Address**~~
~~48-bit MAC Address which will identify MS during Idle Mode~~
~~**Paging Information**~~
~~Paging Group ID, Paging Cycle, and Paging Offset parameters followed by MS in Idle Mode.~~
~~**Action Code**~~
~~Action required for MS in Idle Mode (e.g. Network Re-entry, ranging for location~~

update, and so on)

14.5.7.2.3.3 When generated

This primitive is generated by a management entity of Paging Services to request a BS to transmit BS Broadcast Paging message.

14.5.7.2.3.4 Effect of receipt

A BS receiving Paging_Announce shall transmit MOB_PAG-ADV message following the information provided by this primitive.

14.5.7.2.4 Idle_ReEntry.indication

14.5.7.2.4.1 Function

This primitive is issued by a BS to inform a management entity of Paging Services that the specified MS is attempting to re-enter network in response to paging.

14.5.7.2.4.2 Semantics of the service primitive

The parameters of the primitives are as follows:

Idle_ReEntry.indication
(
MS MAC Address
Paging Information
Paging Controller ID
BS ID
)

MS MAC Address
48-bit MAC Address which will identify MS during Idle Mode
Paging Information
Paging Group ID, Paging Cycle, and Paging Offset parameters followed used by MS in Idle
Mode.
Paging Controller ID
A logical network identifier for the serving BS or other network entity retaining MS service and
operational information and/or administrating paging activity for the MS while in Idle Mode.
Paging Controller ID shall be set to BS ID when a BS is acting as Paging Controller.
BS ID
A network identifier of the BS at which the MS is attempting to re-enter network

14.5.7.2.4.3 When generated

This primitive is generated by a BS when it receives a RNG-REQ message including Ranging Purpose Indication with setting bit #0 to 1 in combination with Paging Controller ID.

14.5.7.2.4.4 Effect of receipt

Idle_ReEntry.indication notifies a management entity of Paging Services that the specified MS is

~~attempting to re-enter network through the specified BS in order to receive DL traffic. The management entity also checks MS service and operational information for the MS, and transmits Idle_ReEntry.confirmation in response to this primitive.~~

~~**14.5.7.2.5 Idle_ReEntry.confirmation**~~

~~**14.5.7.2.5.1 Function**~~

~~This primitive is issued by a management entity of Paging Services to confirm the MS Network Re-entry from Idle Mode and provides the BS at which the MS is attempting to re-enter network with service and operational information.~~

~~**14.5.7.2.5.2 Semantics of the service primitive**~~

~~The parameters of the primitives are as follows:~~

~~**Idle_ReEntry.confirmation**~~
~~(~~
~~MS MAC Address~~
~~Service and operational information~~
~~)~~
~~**MS MAC Address**~~
~~48-bit MAC Address which will identify MS during Idle Mode~~
~~**Service and operational information**~~
~~MS service and operational information associated with MAC state machines, CS classifier~~
~~information, etc.~~

~~**14.5.7.2.5.3 When generated**~~

~~This primitive is generated by BS when a RNG-REQ message including Ranging Purpose Indication with setting bit #0 to 1 in combination with Paging Controller ID.~~

~~**14.5.7.2.5.4 Effect of receipt**~~

~~BS receiving Idle_ReEntry.confirmation transmits RNG-RSP message including HO Process Optimization which is based on the service and operational information in this primitive.~~

14.5.7.2.~~3~~6 C-PG-ACK~~Idle_ReEntry_Complete~~

This primitive is used by an 802.16 entity to acknowledge the NCMS of idle re-entry. The Operation Type included in this primitive defines the type of idle mode service procedure to be performed. The possible Operation Types for this primitive are listed in Table xxx.

Operation Type	Description
Set	Idle Re-Entry

14.5.7.2.6.1 Function

This primitive is issued by a BS to inform a management entity of Paging Services that an MS has re-entered network successfully.

14.5.7.2.6.2 Semantics of the service primitive

The parameters of the primitives are as follows:

C-PG-ACK~~Idle_ReEntry.confirmation~~
(
Operation type: Set,
Action type: Idle ReEntry,
Object ID: NCMS,
Attribute List:
MS MAC Address
Paging Controller ID
BS ID
)

MS MAC Address
48-bit MAC Address which will identify MS during Idle Mode

Paging Controller ID
A logical network identifier for the serving BS or other network entity retaining MS service and operational information and/or administrating paging activity for the MS while in Idle Mode.
Paging Controller ID shall be set to BS ID when a BS is acting as Paging Controller.

BS ID
A network identifier of the BS at which the MS is attempting to re-enter network

14.5.7.2.6.3 When generated

This primitive is generated by a BS when Network Re-entry process specified in 6.3.22.10 has been completed.

14.5.7.2.6.4 Effect of receipt

The buffered DL traffic is delivered to the serving BS and finally to MS.