|  |  |
| --- | --- |
| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** |
| Title | **Modification of service primitives for BS power management** |
| Date Submitted | **2014-01-20** |
| Source(s) | Anseok Lee, Jaesun Cha, Eunkyung Kim, Jae-joon Park, Hyun Lee, Kwangjae Lim, Sungcheol ChangETRI | E-mail: alee@etri.re.kr, jscha@etri.re.kr \*<<http://standards.ieee.org/faqs/affiliationFAQ.html>> |
| Re: | Call for Contributions: Multi-tier Networks (16-13-0191-02-000q) |
| Abstract | This contribution changes BS and NCMS operation when they generates or receives service primitives for BS power management. |
| Purpose | To discuss and adopt the proposed texts in IEEE P802.16q AWD |
| Notice | *This document does not represent the agreed views of the IEEE 802.16 Working Group or any of its subgroups*. It represents only the views of the participants listed in the “Source(s)” field above. It is offered as a basis for discussion. It is not binding on the contributor(s), who reserve(s) the right to add, amend or withdraw material contained herein. |
| Release | The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE’s name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE’s sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16. |
| Patent Policy | The contributor is familiar with the IEEE-SA Patent Policy and Procedures:<<http://standards.ieee.org/guides/bylaws/sect6-7.html#6>> and <<http://standards.ieee.org/guides/opman/sect6.html#6.3>>.Further information is located at <<http://standards.ieee.org/board/pat/pat-material.html>> and <<http://standards.ieee.org/board/pat>>. |

# Modification of Service Primitives for BS Power Management

Anseok Lee, Jaesun Cha, Eunkyung Kim, Jae-joon Park,

Hyun Lee, Kwangjae Lim, Sungcheol Chang

ETRI

# Introduction

In the last meeting, contribution 16-13-0175-00-000q was submitted to change duty-cycle mode termination procedure and it was accepted. Proposed changes were intended for duty-cycle mode, but some proposals were applied to standby mode. Therefore, this problem has to be fixed.

# Proposed Texts

----------------- Start of the text proposal --------------------------------------------------------------------------------------

[*Remedy: Change the texts in subclause 14.2.12.2 as follows:*]

**14.2.12.2 M-BPM-RSP**

This primitive is used by the BS or the NCMS in response to M-BPM-REQ primitive for BS power management. The possible Action\_Types for this primitive are listed in table below:

|  |  |
| --- | --- |
| Action\_Type | Description |
| Duty-cycle mode | Duty-cycle mode transition procedure between BS and NCMS. |
| Standby mode | Standby mode transition procedure between BS and NCMS |

**14.2.12.2.1 M-BPM-RSP (Action\_Type = Duty-cycle mode)**

**14.2.12.2.1.1 Function**

This primitive is used by the BS or the NCMS in response to M-BPM-REQ primitive for BS power management.

**14.2.12.2.1.2 Semantics:**

The following parameters are included in this primitive:

**M-BPM-RSP**

(

Operation\_Type: Action,

Action\_Type: Duty-cycle mode,

Destination: NCMS, BS

Attribute\_List:

Operation,

Result,

Reason

)

Operation

Indicates a type of operation. The value of this parameter shall be the same as one included in the received M-BPM-REQ primitive.

0: initiate duty-cycle mode

1: terminate duty-cycle mode

2: update of a duty-cycle pattern

Result

Indicates a result of the operation indicated by the Operation parameter included in the received M-BPM-REQ primitive. This parameter may include ‘success’ and ‘failure’.

Reason

Indicates a reason for failure. This parameter is included in this primitive only when the Result parameter in this primitive is set to ‘failure’.

**14.2.12.2.1.3 When generated**

* BS to NCMS: If the BS receives the M-BPM-REQ primitive, it generates this primitive after performing the operation indicated by Operation parameter included in the M-BPM-REQ primitive.
* NCMS to BS: If the NCMS receives the M-BPM-REQ primitive, it generates this primitive after making a decision on the requested mode transition. If the NCMS accepts the request, it generates M-BPM-RSP primitive with Result parameter set to ‘success’. Otherwise, it generates M-BPM-RSP primitive with Result parameter set to ‘failure’~~updates the current operational mode of the BS as normal mode and responds by generating this primitive~~.

**14.2.12.2.1.4 Effect of receipt**

* BS to NCMS: If the Result parameter is set to ‘success’, the NCMS updates a current operational mode of the BS. The NCMS may notify neighbor BSs of information on the BS’s operational mode and relevant parameters. This information may be used by the neighbor BSs for radio resource management. If the Result parameter is set to ‘failure’, the NCMS may re-generate M-BPM-REQ primitive or terminate the transaction according to service provider’s policy. If the NCMS does not receive this primitive within a pre-defined time, the NCMS regards this transaction as failure.
* NCMS to BS: ~~If the BS receives this primitive, it terminates this transaction.~~If the Result parameter in the received M-BPM-RSP primitive is ‘success’, the BS terminate duty-cycle mode and transmits a RNG-RSP message to accept an MS’s network access. If the Result parameter in the received M-BPM-RSP primitive is ‘failure, the BS continues to stay in duty-cycle mode and transmits a RNG-RSP message to reject an MS’s network access.

**14.2.12.2.2 M-BPM-RSP (Action\_Type = Standby mode)**

**14.2.12.2.2.1 Function**

This primitive is used by the BS or the NCMS in response to M-BPM-REQ primitive for BS power management.

**14.2.12.2.2.2 Semantics:**

The following parameters are included in this primitive:

**M-BPM-RSP**

(

Operation\_Type: Action,

Action\_Type: Standby mode,

Destination: BS, NCMS

Attribute\_List:

Operation,

Result,

Reason

)

Operation

Indicates a type of operation.

0: initiate standby mode

1: terminate standby mode

2: update of standby mode parameter

Result

Indicates a result of the operation indicated by the Operation parameter included in the received M-BPM-REQ primitive. This parameter may include ‘success’ and ‘failure’.

Reason

Indicates a reason for failure. This parameter is included in this primitive only when the Result parameter in this primitive is set to ‘failure’.

**14.2.12.2.2.3 When generated**

* BS to NCMS: If the BS receives the M-BPM-REQ primitive, it generates this primitive after performing the operation indicated by Operation parameter included in the M-BPM-REQ primitive.
* NCMS to BS: If the NCMS receives the M-BPM-REQ primitive, the NCMS ~~generates this primitive after making a decision on the request mode transition. If the NCMS accepts the request, it generates M-BPM-RSP primitive with Result parameter set to ‘success’. Otherwise, it generates M-BPM-RSP primitive with Result parameter set to ‘failure’~~updates the current operational mode of the BS according to the Operation parameter in the received M-BPM-REQ primitive after generating this primitive.

**14.2.12.2.2.4 Effect of receipt**

* BS to NCMS: If the Result parameter is set to ‘success’, the NCMS updates a current operational mode of the BS. The NCMS may notify neighbor BSs of the BS’s operational mode for them to manage neighbor BS list. If the Result parameter is set to ‘failure’, the NCMS may re-generate M-BPM-REQ primitive or terminate the transaction according to service provider’s policy. If the NCMS does not receive this primitive within a pre-defined time, the NCMS regards this transaction as failure
* NCMS to BS: If the BS receives this primitive, it acknowledges the NCMS has received the mode transition of the BS.~~If the Result parameter in the received M-BPM-RSP primitive is ‘success’, the BS terminate duty-cycle mode and transmits a RNG-RSP message to accept an MS’s network access. If the Result parameter in the received M-BPM-RSP primitive is ‘failure, the BS continues to stay in duty-cycle mode and transmits a RNG-RSP message to reject an MS’s network access.~~

----------------- End of the text proposal --------------------------------------------------------------------------------------