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Title	Modification of QoS Primitives	
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Re:	Contribution on comments to P802.16g-D5	
Abstract	In this contribution, we propose to add MBS information in QoS primitives to support MBS service	
Purpose	Adoption	
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Amendment for QoS primitives

1. Introduction

In the current baseline document, there has a QoS section and the SFM primitives have been defined. This contribution has added necessary Information to support MBS service.

2. Proposed Text Changes

14.2.11.1 C-SFM-REQ

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

Operation Type	Description
Create	Create a new service flow
Set	Change parameters of existing service flow
Delete	Deletion of an existing service flow

The following sub-sections define the primitive when its operation type is set to a specific operation.

14.2.11.1.1 C-SFM-REQ (Operation_Type==Create)

Function:

When Operation Type is set to Create, this primitive shall be used to initiate a new service flow creation by either an 802.16 entity or NCMS. This primitive shall contain QoS information for the new service flow.

Semantics of the service primitive:

The parameters of the primitives are as follows:

```

C-SFM-REQ
(
  Message_id,
  Operation_Type(Create),
  Action_Type(Null),
  Object_id(MS MAC Address, or BSID, or NCMS),
  Attribute_list:
    Transaction ID
    MS MAC Address

```

Service flow ID
 Service flow descriptor
 Service flow information
 CS parameter information

)

Transaction ID

A unique sequential identifier of the transaction set by the sender

MS MAC Address

48-bit unique identifier used by MS. MS MAC Address is used for user authorization

Service flow ID

Unique identifier to identify a unidirectional service flow, included in the primitive for NCMS initiated service flow creation.

Service flow descriptor

Information regarding the attribute an uplink or downlink service flow

Service flow information

Required QoS information of a service flow include traffic characteristics and a scheduling type such as service class name, QoS parameter set type, maximum sustained traffic rate, maximum traffic burst, minimum reserved traffic rate, minimum tolerable traffic rate, service flow scheduling type, tolerate jitter and maximum latency. In case of MBS flow creation originated by NCMS, the service flow information shall additionally contain **MBSZone**, the connection identifier CID, Logical Channel ID and security association.

CS parameter information

Required CS information for classification and handling of the service flow.

When generated:

- 802.16 entity to NCMS:

This primitive is generated when the 802.16 entity creates a service flow (i.e. a BS receives a DSA-REQ message.).

- NCMS to 802.16 entity:

This primitive is used when the QoS management entity in NCMS triggers the creation of a new service flow.

Effect of receipt:

- 802.16 entity to NCMS:

The QoS management entity in NCMS shall respond to this primitive using C-SFM-RSP(Create). The management entity for service flows checks the validity of the request from the point of view of its own resources. If the request is accepted, the QoS management entity in NCMS creates unique service flow ID for the request.

- NCMS to 802.16 entity:

The 802.16 entity receiving the primitive shall trigger transmitting the DSA-REQ message following the information provided by this primitive.

14.2.11.1.2 C-SFM-REQ (Operation_Type==Set)

Function:

When Operation Type is set to Set, this primitive shall be used to initiate the modification of an existing service flow parameters by either an 802.16 entity or NCMS. This primitive shall contain the new information for the modifying service flow.

Semantics of the service primitive:

The parameters of the primitive are as follows:

C-SFM-REQ

```
(
  Message_id,
  Operation_Type(Set),
  Action_Type(Null),
  Object_id (MS MAC Address, or BSID, or NCMS),
  Attribute_list:
    Transaction ID,
    Service flow ID,
    MS MAC Address,
    Service flow descriptor,
    Service flow information,
    CS parameter information
)
```

Transaction ID

A unique sequential identifier of the transaction set by the sender

Service flow ID

Unique identifier to identify a service flow

MS MAC Address

48-bit unique identifier used by MS. MS MAC Address is used for user authorization

Service flow descriptor

Information regarding the attribute of an uplink or downlink service flow

Service flow information

Required QoS information of a service flow include traffic characteristics and a scheduling type such as service class name, QoS parameter set type, maximum sustained traffic rate, maximum traffic burst, minimum reserved traffic rate, minimum tolerable traffic rate, service flow scheduling type, tolerate jitter and maximum latency. In case of MBS flow set originated by NCMS, the service flow information shall additionally contain **MBSZone**, the connection identifier CID, Logical Channel ID and security association.

CS parameter information

Required IP filter rules of a service flow such as packet classification rule and IPv6 flow label

When generated:

- 802.16 entity to NCMS:

This primitive is generated when the 802.16 entity change the parameters of an existing service flow(BS receives a DSC-REQ message).

- NCMS to 802.16 entity:

This primitive is generated when the QoS management entity in NCMS informs the 802.16 entity of the QoS information modification.

Effect of receipt:

- 802.16 entity to NCMS:

The QoS management entity in NCMS shall respond to this primitive by sending C-SFM-RSP(Set). The management entity for service flows checks the validity of the request from the point of view of its own resources.

- NCMS to 802.16 entity:

The 802.16 entity receiving the primitive shall trigger transmitting the DSC-REQ message following the information provided by this primitive.

14.2.11.1.3 C-SFM-REQ (Operation_Type==Delete)**Function:**

When Operation Type is set to Delete, this primitive shall be used to initiate an existing service flow deletion by either an 802.16 entity or NCMS.

Semantics of the service primitive:

The parameters of the primitive are as follows:

C-SFM-REQ

```
(
  Message_id,
  Operation_Type(Delete),
  Action_Type(Null),
  Object_id(MS MAC Address, or BSID, or NCMS),
  Attribute_list:
    Transaction ID,
    Service flow ID,
)
```

Transaction ID

A unique sequential identifier of the transaction set by the sender

Service flow ID

Unique identifier to identify a service flow.

When generated:

- 802.16 entity to NCMS:

This primitive is generated when the 802.16 entity delete an existing service flow(BS receives a DSD-REQ message).

In the MBS case, this primitive only can be issued from NCMS to 802.16 entity.

- NCMS to 802.16 entity:

This primitive is generated when the QoS management entity in NCMS informs the 802.16 entity of the

deletion of an existing service flow.

Effect of receipt:

- 802.16 entity to NCMS:

The QoS management entity in NCMS shall respond to this primitive by sending C-SFM-RSP(Delete). The management entity for service flows release assigned resources for the service flow ID.

- NCMS to 802.16 entity:

The 802.16 entity receiving the primitive shall transmit the DSD-REQ message including the information provided by this primitive.

14.2.11.2 C-SFM-RSP

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

Operation Type	Description
Create	Create a new service flow
Set	Change parameters of existing service flow
Delete	Deletion of an existing service flow

The following sub-sections define the primitive when its operation type is set to a specific operation.

14.2.11.2.1 C-SFM-RSP (Operation_Type==Create)

Function:

This primitive is used by the 802.16 entity or the QoS management entity in NCMS to respond to the C-SFM-REQ for a service flow creation. Service flow information in this primitive contains approved QoS information if the request is accepted.

Semantics of the service primitive:

The parameters of the primitives are as follows:

C-SFM-RSP

```
(
  Message_id,
  Operation_Type(Create),
  Action_Type(Null),
  Object_id(MS MAC Address, or BSID, or NCMS),
  Attribute_list:
    Transaction ID
    MS MAC Address
    Service flow ID
    Service flow descriptor
    Service flow information
```

CS parameter information
Service flow error parameter information

)

Transaction ID

A unique sequential identifier of the transaction set by the sender

MS MAC Address

48-bit unique identifier used by MS. MS MAC Address is used for user identification

Service flow ID

Unique identifier to identify a service flow

Service flow descriptor

Information regarding the attribute an uplink or downlink service flow

Service flow information

Approved complete QoS information of a service flow such as service class name, QoS parameter set type, maximum sustained traffic rate, maximum traffic burst, minimum reserved traffic rate, minimum tolerable traffic rate, service flow scheduling type, tolerate jitter and maximum latency, target Packet Error Rate. In case of MBS flow creation originated by NCMS, the service flow information shall additionally contain **MBS Zone**, the connection identifier CID, Logical Channel ID and security association.

CS parameter information

Approved packet filter rules of a service flow such as packet classification rule and IPv6 flow label

Service flow error parameter information

Failed reason and every specific failed QoS parameter if a C-SFM-REQ is rejected

When generated:

- 802.16 entity to NCMS:

This primitive is generated when an 802.16 entity receives a DSA-RSP message.

- NCMS to 802.16 entity:

This primitive is generated when the QoS management entity in NCMS responds to C-SFM-REQ(Create) primitive.

Effect of receipt:

- 802.16 entity to NCMS:

This primitive informs the result of the service flow creation to the QoS management entity in NCMS.

- NCMS to 802.16 entity:

This primitive informs the result of the service flow creation to an 802.16 entity. An 802.16 entity receiving the primitive shall transmit DSA-RSP message based on the information provided by this primitive.

14.2.11.2.2 C-SFM-RSP (Operation_Type==Set)

Function:

This primitive is used by the 802.16 entity or the QoS management entity in NCMS to respond to the C-SFM-REQ(Set) for a change in an existing service flow. Service flow information in this primitive contains

approved QoS information if the request is accepted.

Semantics of the service primitive:

The parameters of the primitives are as follows:

C-SFM-RSP

```
(
  Message_id,
  Operation_Type(Set),
  Action_Type(Null),
  Object_id(MS MAC Address, or BSID, or NCMS),
  Attribute_list:
    Transaction ID
    Service flow ID
    Service flow information
    CS parameter information
    Service flow error parameter information
)
```

Transaction ID

A unique sequential identifier of the transaction set by the BS

Service flow ID

Unique identifier to identify a service flow

Service flow information

Approved complete QoS information of a service flow such as service class name, QoS parameter set type, maximum sustained traffic rate, maximum traffic burst, minimum reserved traffic rate, minimum tolerable traffic rate, tolerate jitter and maximum latency. In case of MBS flow set originated by NCMS, the service flow information shall additionally contain **MBSZone**, the connection identifier CID, Logical Channel ID and security association.

CS parameter information

Approved IP filter rules of a service flow such as packet classification rule and IPv6 flow label

Service flow error parameter information

Failed reason and every specific failed QoS parameter if the request is rejected

When generated:

- 802.16 entity to NCMS:

This primitive is generated when an 802.16 entity receives a DSC-RSP message.

- NCMS to 802.16 entity:

This primitive is generated when the QoS management entity in NCMS responds to C-SFM-RSP(Set) primitive.

In the MBS case, this primitive only can be issued from 802.16 entity to NCMS.

Effect of receipt:

- 802.16 entity to NCMS:

This primitive informs the result of the service flow modification to the QoS management entity in NCMS.

- NCMS to 802.16 entity:

This primitive informs the result of the service flow modification to an 802.16 entity. An 802.16 entity receiving the primitive shall transmit DSC-RSP message based on the information provided by this primitive.