

1. MAC service definition

1.1 Overview of MAC services

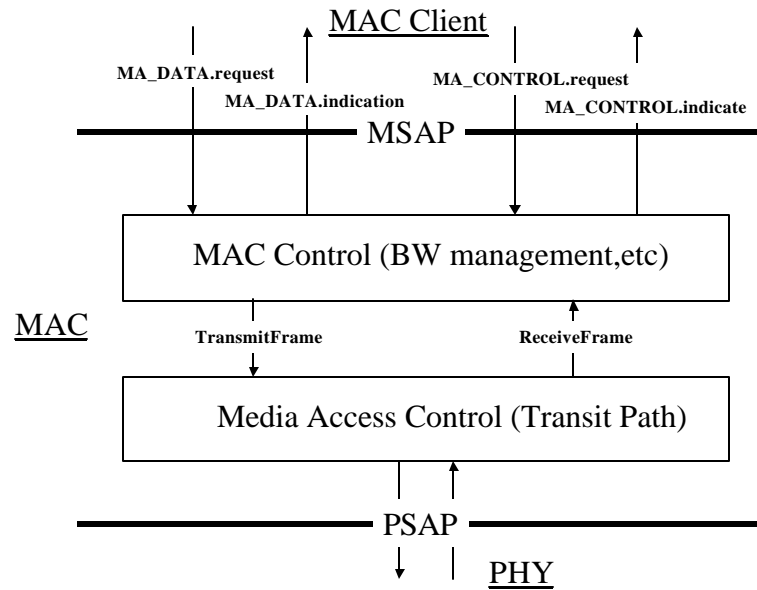


Figure 1.1 MAC Service Primitives

1.2 Detailed service specification

1.2.1 MAC data services

The IEEE 802.17 MAC supports the following service primitives as defined in ISO/IEC 8802-2: 1998:

- MA-UNITDATA.request
- MA-UNITDATA.indication
- MA-CONTROL.request
- MA-CONTROL.indication

The LLC definitions of the primitives and specify parameter value restrictions imposed by IEEE 802.17 are given in **Error! Reference source not found.** through **Error! Reference source not found.**.

1.2.1.1 MA_DATA.request

1.2.1.1.1 Function

This primitive defines the transfer of data from a MAC client entity to a single peer entity or multiple peer entities in the case of group addresses.

1.2.1.1.2 Semantics of the service primitive

The semantics of the primitive are as follows:

```
MA_DATA.request (  
    Protection_request (optional),  
    Ringlet_ID (optional),  
    destination_address,  
    source_address,  
    m_sdu,  
    service_class,  
    customer_id  
)
```

The protection_request identifies that the frame must be placed on an alternate ringlet in the event that its primary ringlet failed. The ringlet_ID specifies the ring on which the frame shall be inserted.

The destination_address parameter may specify either an individual or a group MAC entity address. It must contain sufficient information to create the DA field that is prepended to the frame by the local MAC sublayer entity and any physical information. The source_address parameter, if present, must specify an individual MAC address. If the source_address parameter is omitted, the local MAC sublayer entity will insert a value associated with that entity. The m_sdu parameter specifies the MAC service data unit to be transmitted by the MAC sublayer entity. There is sufficient information associated with m_sdu for the MAC sublayer entity to determine the length of the data unit. The service_class parameter indicates a quality of service requested by the MAC client (see 2.3.1.5).

1.2.1.1.3 When generated

This primitive is generated by the MAC client entity whenever data shall be transferred to a peer entity or entities. This can be in response to a request from higher protocol layers or from data generated internally to the MAC client, such as required by Type 2 LLC service.



1.2.1.1.4 Effect of receipt

The receipt of this primitive will cause the MAC entity to insert all MAC specific fields, including DA, SA, and any fields that are unique to the particular media access method, and pass the properly formed frame to the lower protocol layers for transfer to the peer MAC sublayer entity or entities.

1.2.1.2 MA_DATA.indication

1.2.1.2.1 Function

This primitive defines the transfer of data from the MAC sublayer entity (through the optional MAC Control sublayer, if implemented) to the MAC client entity or entities in the case of group addresses.

1.2.1.2.2 Semantics of the service primitive

The semantics of the primitive are as follows:

```
MA_DATA.indication (  
    destination_address,  
    source_address,  
    m_sdu,  
    service_class,  
    customer_id  
)
```

The destination_address parameter may be either an individual or a group address as specified by the DA field of the incoming frame. The source_address parameter is an individual address as specified by the SA field of the incoming frame. The m_sdu parameter specifies the MAC service data unit as received by the local MAC entity. The reception_status parameter is used to pass status information to the MAC client entity.

1.2.1.2.3 When generated

The MA_DATA.indication is passed from the MAC sublayer entity (through the optional MAC Control sub-layer, if implemented) to the MAC client entity or entities to indicate the arrival of a frame to the local MAC sublayer entity that is destined for the MAC client. Such frames are reported only if they are validly formed, received without error, and their destination address designates the local MAC entity. Frames destined for the optional MAC Control sublayer are not passed to the MAC client if the MAC Control sublayer is implemented.

1.2.1.2.4 Effect of receipt

The effect of receipt of this primitive by the MAC client is unspecified.

1.2.1.3 MA_CONTROL.request

This primitive defines the transfer of control requests from the MAC client to the MAC Control sublayer. Implementation of the MA_CONTROL.request primitive is mandatory if the optional MAC Control sublayer is implemented in a device.

1.2.1.3.1 Function

This primitive defines the transfer of control commands from a MAC client entity to the local MAC Control sublayer entity.

1.2.1.3.2 Semantics of the service primitive

The semantics of the primitive are as follows:

```
MA_CONTROL.request (  
    destination_address,  
    opcode,  
    request_operand_list  
)
```

The destination_address parameter may specify either an individual or a group MAC entity address. It must contain sufficient information to create the DA field that is prepended to the frame by the local MAC sublayer entity. The opcode specifies the control operation requested by the MAC client entity. The request_operand_list is an opcode-specific set of parameters. The valid opcodes and their respective meanings are defined in 1.3.

1.2.1.3.3 When generated

This primitive is generated by a MAC client whenever it wishes to use the services of the optional MAC Control sublayer entity.

1.2.1.3.4 Effect of receipt

The effect of receipt of this primitive by the MAC Control sublayer is opcode-specific. (See 1.3.)



1.2.1.4 MA_CONTROL.indication

1.2.1.4.1 Function

This primitive defines the transfer of control status indications from the MAC Control sublayer to the MAC client. Implementation of the MA_CONTROL.indication primitive is mandatory if the optional MAC Control sublayer is implemented in a device.

1.2.1.4.2 Semantics of the service primitive

The semantics of the primitive are as follows:

```
MA_CONTROL.indication (
    opcode,
    indication_operand_list
)
```

The elements of the indication_operand_list are opcode-specific, and specified in 1.3.

1.2.1.4.3 When generated

The MA_CONTROL.indication is generated by the MAC Control sublayer under conditions specific to each MAC Control operation.

1.2.1.4.4 Effect of receipt

The effect of receipt of this primitive by the MAC client is unspecified.

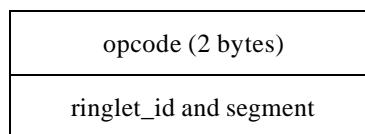
1.3 MAC Control opcode assignments

Opcode (Hexadecimal)	MAC Control function	Value/comment
00-00	Reserved	
00-01	PAUSE	Requests that the client stop transmitting
00-02 through 00-FF	Reserved	
01-00	RCF update	Notifies a newly received RCF

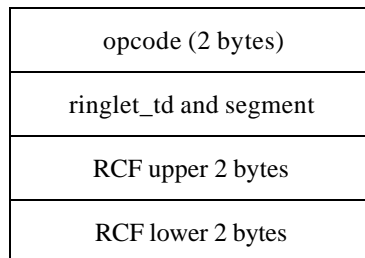
		value
01-01	Protection Event	Notifies a point of failure
01-02	TBD	
01-03 through FF-FF	Reserved	

Figure 1.2 Opcode assignment

1.4 MAC Control PAUSE operation

**Figure 1.3 PAUSE Message format**

1.5 MAC RCF Update operation

**Figure 1.4 RCF Update Message format**