

**Source:** SA5 (Telecom Management)

**Title:** 2 Rel-4/5 CR 32.235 (Charging data description for application services) : Correction on charging for roaming MMS subscribers - alignment with 22.140, 29.061 and 29.060

**Document for:** Approval

**Agenda Item:** 7.5.3

| Doc-1st-  | Spec   | CR  | R | Ph    | Subject   | Cat | Ver   | Doc-2nd-  | Workite |
|-----------|--------|-----|---|-------|---|-----|-------|-----------|---------|
| SP-030267 | 32.235 | 015 | - | Rel-4 | Correction on charging for roaming MMS subscribers - alignment with 22.140, 29.061 and 29.060 | F   | 4.5.0 | S5-034338 | OAM-CH  |
| SP-030267 | 32.235 | 016 | - | Rel-5 | Correction on charging for roaming MMS subscribers - alignment with 22.140, 29.061 and 29.060 | A   | 5.2.0 | S5-034339 | OAM-CH  |

## CHANGE REQUEST

⌘ **32.235 CR 015** ⌘ rev **-** ⌘ Current version: **4.5.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

|                        |   |   |   |
|------------------------|---|---|---|
| <b>Title:</b>          | ⌘ | Correction on charging for roaming MMS subscribers - alignment with 22.140, 29.061 and 29.060   |   |
| <b>Source:</b>         | ⌘ | SA5   |   |
| <b>Work item code:</b> | ⌘ | OAM-CH  | <b>Date:</b> ⌘ 13/05/2003   |
| <b>Category:</b>       | ⌘ | <b>F</b>  | <b>Release:</b> ⌘ Rel-4   |
|                        |   | Use <u>one</u> of the following categories:<br><b>F</b> (correction)<br><b>A</b> (corresponds to a correction in an earlier release)<br><b>B</b> (addition of feature),<br><b>C</b> (functional modification of feature)<br><b>D</b> (editorial modification)<br>Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> . | Use <u>one</u> of the following releases:<br><b>2</b> (GSM Phase 2)<br><b>R96</b> (Release 1996)<br><b>R97</b> (Release 1997)<br><b>R98</b> (Release 1998)<br><b>R99</b> (Release 1999)<br><b>Rel-4</b> (Release 4)<br><b>Rel-5</b> (Release 5)<br><b>Rel-6</b> (Release 6) |

|                                      |   |  |
|--------------------------------------|---|--|
| <b>Reason for change:</b>            | ⌘ | In TS 22.140 it is stated that the MMS shall be able to support charging in roaming conditions. In order to comply with this requirement it was necessary to transmit the SGSN Identifier from the SGSN to the GGSN and over the Gi interface so that both the GGSN and the MMS R/S are roaming aware. This mechanism was recently specified in TS 29.061 (via Radius procedures) and in TS 29.060 (GTP protocol). This indication of roaming shall also be reflected in the MMS CDRs by adding the SGSN's MCC and MNC in order to be fully compliant with the requirement of roaming awareness. |
| <b>Summary of change:</b>            | ⌘ | SGSN PLMN identifier (MCC and MNC) is added to all MM1 interface related and to the forwarding function related MMS CDRs.  |
| <b>Consequences if not approved:</b> | ⌘ | It would not be possible to charge properly the MMS usage of a subscriber in case of roaming.  |

|                              |   |   |   |   |  |   |  |   |  |   |
|------------------------------|---|---|---|---|--|---|--|---|--|---|
| <b>Clauses affected:</b>     | ⌘ | 2, 4.2, 5 and 6   |   |   |  |   |  |   |  |   |
| <b>Other specs affected:</b> | ⌘ | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications ⌘<br>Test specifications ⌘<br>O&M Specifications ⌘ Rel-5 32.235 | Y | N |  | X |  | X |  | X |
| Y                            | N |   |   |   |  |   |  |   |  |   |
|                              | X |   |   |   |  |   |  |   |  |   |
|                              | X |   |   |   |  |   |  |   |  |   |
|                              | X |   |   |   |  |   |  |   |  |   |
| <b>Other comments:</b>       | ⌘ | Rel-5 Mirror CR 32.235 attached in S5-034339  |   |   |  |   |  |   |  |   |

**How to create CRs using this form:**

## Change in Clause 2

## 2 References

The following documents contain provisions, which through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 32.200: "Telecommunication management; Charging management; Charging Principles".
- [3] 3GPP TS 22.140: "Service aspects; Stage 1; Multimedia Messaging Service".
- [4] 3GPP TS 23.140: "Multimedia Messaging Service (MMS), Functional Description, Stage 2".
- [5] STD 11 (RFC 822): "Standard for the format of ARPA Internet text messages".
- [6] RFC 2046: "Multipurpose Internet Mail Extensions (MIME); Part Two: Media Types".
- [7] RFC 2045: "Multipurpose Internet Mail Extensions (MIME); Part One : Format of Internet Message Bodies".
- [8] 3GPP TS 32.205: "Charging Data Description for the Circuit Switched (CS) domain".
- [9] 3GPP TS 32.215: "Charging Data Description for the Packet Switched (PS) domain".
- [10] GSM 12.01: "Digital cellular telecommunication system (Phase 2); Common aspects of GSM Network Management (NM)".
- [11] IETF RFC 959: "File Transfer Protocol (FTP)"; October 1985.
- [12] IETF RFC 783: "Trivial File Transfer Protocol (TFTP)"; revision 2.
- [13] IETF RFC 2045 and IANA:<ftp://ftp.isi.edu/in-notes/iana/assignments/media-types/media-types>
- [14] 3GPP TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp Interface".

## End of Change in Clause 2

## Change in Clause 4.2.1

### 4.2.1 MMS records for originator MMS Relay/Server

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## 4.2.1.1 Originator MM1 Submission CDR (O1S-CDR)

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**Table 4.4: Originator MM1 Submission record (O1S-CDR)**

| Field                               | Category       | Description  |
|-------------------------------------|----------------|--|
| Record Type                         | M              | Originator MM1 Submission record.  |
| Originator MMS Relay/Server Address | M              | .IP address or domain name of originator MMS Relay/Server.   |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.   |
| Reply-Charging ID                   | C              | This field is present in the CDR only if the MM is a reply-MM to an original MM. The Reply-Charging ID is the Message ID of the original MM.                                     |
| Originator address                  | M              | The address of the originator MMS User Agent (i.e., of the MMS User Agent that has sent the MM1_submit.REQ).   |
| Recipients address list             | M              | The address(es) of the recipient MMS User Agent(s) of the MM. Multiple addresses are possible if the MM is not a reply MM.   |
| Access Correlation                  | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.  |
| Content type                        | M              | The content type of the MM content.  |
| MM component list                   | M <sub>o</sub> | The list of media components with volume size.   |
| Message size                        | M              | The total size of the MM content.  |
| Message class                       | C <sub>o</sub> | The class selection such as personal, advertisement, information service if specified in the MM1_submit_REQ.   |
| Charge Information                  | M <sub>o</sub> | The charge indication and charge type.   |
| Submission Time                     | C <sub>o</sub> | The time at which the MM was submitted from the originator MMS User Agent if specified in the MM1_submit_REQ.  |
| Time of Expiry                      | C <sub>o</sub> | The desired date of expiry or duration of time prior to expiry for the MM if specified by the originator MMS User Agent.   |
| Earliest Time Of Delivery           | C              | This field contains either the earliest time to deliver the MM or the number of seconds to wait before delivering the MM as specified by the originator MMS User Agent.          |
| Duration Of Transmission            | M <sub>o</sub> | The time used for transmission of the MM between the User Agent and the MMS Relay/Server.  |
| Request Status Code                 | M <sub>o</sub> | The status code of the MM as received in the MM1_submit_REQ  |
| Delivery Report Requested           | M <sub>o</sub> | This field indicates whether a delivery report has been requested by the originator MMS User Agent or not.   |
| Reply Charging                      | C <sub>o</sub> | A request for reply-charging if specified by the originator MMS User Agent.  |
| Reply Deadline                      | C <sub>o</sub> | In case of reply-charging the latest time of submission of replies granted to the recipient(s) as specified by the originator MMS User Agent.                                    |
| Reply Charging Size                 | C <sub>o</sub> | In case of reply-charging the maximum size for reply-MM(s) granted to the recipient(s) as specified by the originator MMS User Agent.  |
| Priority                            | C <sub>o</sub> | The priority (importance) of the message if specified by the originator MMS User Agent.  |
| Sender visibility                   | M <sub>o</sub> | A request to show or hide the sender's identity when the message is delivered to the recipient as specified by the originator MMS User Agent.                                    |
| Read reply requested                | M <sub>o</sub> | A request for read reply report as specified in the MM1_submit.REQ.  |
| Status Text                         | C <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated. This field is only present if the MM submission is rejected. |
| Record Time Stamp                   | M <sub>o</sub> | Time of generation of the CDR.   |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.  |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.  |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.  |

## 4.2.1.2 Originator MM4 Forward Request CDR (O4FRq-CDR)

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Table 4.5: Originator MM4 Forward Request record (O4FRq-CDR)

| Field                               | Category       | Description  |
|-------------------------------------|----------------|--|
| Record Type                         | M              | Originator MM4 Forward Request record.   |
| Originator MMS Relay/Server Address | M              | IP address or domain name of the originator MMS Relay/Server.  |
| Recipient MMS Relay/Server Address  | M              | IP address or domain name of the recipient MMS Relay/Server.   |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.   |
| 3GPP MMS Version                    | M <sub>o</sub> | The MMS version of the originator MMS Relay/Server.  |
| Originator address                  | M              | The address of the originator MMS User Agent of the MM. (If the MM4_forward.REQ is generated as a reaction to an incoming MM1_forward.REQ, this is the address of the originator MMS User agent of the original MM.)         |
| Recipients address list             | M              | The address(es) of the recipient MMS User Agent(s) of the MM as specified in the MM4_forward.REQ that triggered the CDR.   |
| Content type                        | M              | The content type of the MM content.  |
| MM component list                   | M <sub>o</sub> | The list of media components with volume size.   |
| Message size                        | M              | The total size of the MM content.  |
| Message class                       | C              | The class of the MM (e.g., personal, advertisement, information service) if specified by the originator MMS User Agent   |
| Submission Time                     | M              | The time at which the MM was submitted or forwarded as specified in the corresponding MM1_submit.REQ or MM1_forwarding.REQ.  |
| Time of Expiry                      | C              | The desired date of expiry or duration of time prior to expiry for the MM if specified by the originator MMS User Agent.   |
| Delivery Report Requested           | M              | This field indicates whether a delivery report has been requested by the originator MMS User Agent or not.   |
| Priority                            | C              | The priority (importance) of the message if specified by the originator MMS User Agent.  |
| Sender visibility                   | M              | A request to show or hide the sender's identity when the message is delivered to the MM recipient if the originator MMS User Agent has requested her address to be hidden from the recipient.                                |
| Read reply requested                | M              | A request for read reply report if the originator MMS User Agent has requested a read-reply report for the MM.   |
| Acknowledgement Request             | M              | Request for MM4_forward.RES  |
| Forward counter                     | C              | A counter indicating the number of times the particular MM was forwarded.  |
| Forwarding address                  | C              | The address(es) of the forwarding MMS User Agent(s). Multiple addresses are possible. In the multiple address case this is a sequential list of the address(es) of the forwarding MMS User Agents who forwarded the same MM. |
| Record Time Stamp                   | M              | Time of generation of the CDR.   |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.  |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.  |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.  |

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## 4.2.1.5 Originator MM1 Delivery report CDR (O1D-CDR)

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**Table 4.8: Originator MM1 Delivery report record (O1D-CDR)**

| Field                               | Category       | Description   |
|-------------------------------------|----------------|---|
| Record Type                         | M              | Originator MM1 Delivery report record.  |
| Recipient MMS Relay/Server Address  | M <sub>o</sub> | IP address or domain name of the recipient MMS Relay/Server.  |
| Originator MMS Relay/Server Address | M <sub>o</sub> | IP address or domain name of the originator MMS Relay/Server.   |
| Access Correlation                  | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.               |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.  |
| 3GPP MMS Version                    | M <sub>o</sub> | The MMS version of the originator MMS Relay/Server.   |
| Originator address                  | M <sub>o</sub> | The address of the originator MMS User Agent of the MM.   |
| Recipient address                   | M              | The address of the MM recipient of the MM.  |
| MM Status Code                      | M <sub>o</sub> | The status code of the MM as sent in the MM Status information element in the MM1_delivery_report.REQ.          |
| Record Time Stamp                   | M <sub>o</sub> | Time of generation of the CDR   |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.   |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension. |

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## 4.2.1.7 Originator MM1 Read reply originator CDR (O1R-CDR)

If enabled, an Originator MM1 Read reply originator Charging Data Record (O1R-CDR) shall be produced in the originator MMS Relay/Server if and when the originator MMS Relay/Server sends an MM1\_read\_reply\_originator.REQ to the originator MMS User Agent.

**Table 4.10: Originator MM1 Read reply originator record (O1D-CDR)**

| Field                               | Category       | Description   |
|-------------------------------------|----------------|---|
| Record Type                         | M              | Originator MM1 Read reply originator record.  |
| Recipient MMS Relay/Server Address  | M <sub>o</sub> | IP address or domain name of the recipient MMS Relay/Server.  |
| Originator MMS Relay/Server Address | M <sub>o</sub> | IP address or domain name of the originator MMS Relay/Server.   |
| Access Correlation                  | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.               |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.  |
| 3GPP MMS Version                    | M <sub>o</sub> | The MMS version of the originator MMS Relay/Server.   |
| Originator address                  | M <sub>o</sub> | The address of the originator MMS User Agent of the MM.   |
| Recipient address                   | M <sub>o</sub> | The address of the MM recipient of the MM.  |
| Read Status                         | M <sub>o</sub> | The status of the MM as sent in the MM1_read_reply_originator.REQ.  |
| Record Time Stamp                   | M <sub>o</sub> | Time of generation of the CDR   |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.   |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension. |

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| <b>End of Change in Clause 4.2.1</b> |
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**Change in Clause 4.2.2**

## 4.2.2 MMS records for recipient MMS Relay/server

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### 4.2.2.2 Recipient MM1 Notification Request CDR (R1NRq-CDR)

If enabled, a Recipient MM1 Notification Request Charging Data Record (R1NRq-CDR) shall be produced in the recipient MMS Relay/Server if and when the recipient MMS Relay/Server sends an MM1\_notification.REQ to the recipient MMS User Agent.

**Table 4.13: Recipient MM1 Notification Request record (R1NRq -CDR)**

| Field                              | Category       | Description  |
|------------------------------------|----------------|--|
| Record Type                        | M              | Recipient MM1 Notification Request record.   |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.   |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.   |
| Reply Charging ID                  | C              | This field is present in the CDR only if the MM is a reply-MM to an original MM. The Reply-Charging ID is the Message ID of the original MM. |
| Sender address                     | M              | The address of the MMS User Agent as used in the MM1_notification_REQ. This parameter is present in the CDR regardless of address hiding.    |
| Recipient address                  | M              | The address of the MM recipient of the MM.   |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the recipient MMS User Agent.   |
| Message class                      | M              | The class selection such as personal, advertisement, information service; default = personal.  |
| MM component list                  | M <sub>o</sub> | The list of media components with volume size.   |
| Message size                       | M <sub>o</sub> | The total size of the MM content.  |
| Time of Expiry                     | M <sub>o</sub> | The date of expiry or duration of time prior to expiry for the MM.   |
| Message Reference                  | M              | A reference, e.g., URI, for the MM   |
| Delivery Report Requested          | M <sub>o</sub> | This field indicates whether a delivery report is requested or not as specified in the MM1_notification.REQ.                                 |
| Reply Charging                     | C <sub>o</sub> | Information that a reply to this particular original MM is free of charge as specified in the MM1_notification.REQ.                          |
| Reply Deadline                     | C <sub>o</sub> | In case of reply-charging the latest time of submission of a reply granted to the recipient as specified in the MM1_notification.REQ.        |
| Reply Charging-Size                | C <sub>o</sub> | In case of reply-charging the maximum size of a reply-MM granted to the recipient as specified in the MM1_notification.REQ.                  |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.   |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.                          |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR  |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.                                |
| Serving network identity           | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.  |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.                              |

## 4.2.2.3 Recipient MM1 Notification Response CDR (R1NRs-CDR)

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**Table 4.14: Recipient MM1 Notification Response record (R1NRs-CDR)**

| Field                              | Category       | Description  |
|------------------------------------|----------------|--|
| Record Type                        | M              | Recipient MM1 Notification Response record.  |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.   |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.   |
| Recipient address                  | M              | The address of the MM recipient of the MM.   |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the recipient MMS User Agent.                             |
| Report allowed                     | C              | Request to allow or disallow the sending of a delivery report to the MM originator if specified in the MM1_notification_RES. |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.   |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.          |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR  |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.                |
| Serving network identity           | M <sub>o</sub> | <u>SGSN PLMN Identifier (MCC and MNC) used during this record.</u>   |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacturer specific extensions to the record. Conditioned upon the existence of an extension.             |



## 4.2.2.4 Recipient MM1 Retrieve CDR (R1Rt-CDR)

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Table 4.15: Recipient MM1 Retrieve Response record (R1Rt-CDR)

| Field                              | Category       | Description  |
|------------------------------------|----------------|--|
| Record Type                        | M              | Recipient MM1 Retrieve record.   |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.   |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.   |
| Reply Charging ID                  | C              | This field is present in the CDR only if the MM is a reply-MM to an original MM. The Reply-Charging ID is the Message ID of the original MM. |
| Sender address                     | C              | The address of the MMS User Agent as used in the MM1_retrieve.RES. This parameter is present in the CDR regardless of address hiding.        |
| Recipient address                  | M              | The address of the recipient MM User Agent of the MM.  |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.  |
| Message Reference                  | M              | Location of the content of the MM to be retrieved as specified in the MM1_retrieve.REQ.  |
| Content type                       | M              | The content type of the MM content.  |
| MM component list                  | M <sub>o</sub> | The list of media components with volume size.   |
| Message class                      | C <sub>o</sub> | The class of the message (e.g., personal, advertisement, information service) if specified in the MM1_retrieve.RES.                          |
| Submission Time                    | M              | The time at which the MM was submitted or forwarded as specified in the MM1_retrieve.RES.  |
| Message size                       | M <sub>o</sub> | The total size of the MM content.  |
| Delivery report Requested          | M <sub>o</sub> | A request for delivery report as specified in the Delivery Report information element in the MM1_retrieve.RES.                               |
| Priority                           | C <sub>o</sub> | The priority (importance) of the message if specified in the MM1_retrieve.RES.   |
| Read reply Requested               | C <sub>o</sub> | A request for read-reply report if specified in the Read Reply information element in the MM1_retrieve.RES.                                  |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.   |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.                          |
| Reply Deadline                     | C <sub>o</sub> | In case of reply-charging the latest time of submission of a reply granted to the recipient as specified in the MM1_retrieve.RES.            |
| Reply Charging-Size                | C <sub>o</sub> | In case of reply-charging the maximum size of a reply-MM granted to the recipient as specified in the MM1_retrieve.RES.                      |
| Duration Of Transmission           | M <sub>o</sub> | The time used for transmission of the MM between the User Agent and the MMS Relay/Server.  |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR  |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.                                |
| Serving network identity           | M <sub>o</sub> | <u>SGSN PLMN Identifier (MCC and MNC) used during this record.</u>   |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.                              |

## 4.2.2.5 Acknowledgement CDR (R1A-CDR)

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**Table 4.16: Recipient MM1 Acknowledgement record (R1A-CDR)**

| Field                              | Category       | Description   |
|------------------------------------|----------------|---|
| Record Type                        | M              | Recipient MM1 Acknowledgement record.   |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.  |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.  |
| Recipient address                  | M              | The address of the recipient MM User Agent of the MM.   |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.                               |
| Report allowed                     | C              | Request to allow or disallow the sending of a delivery report to the MM originator if specified in the MM1_acknowledgement.RES. |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.  |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.             |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR   |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.                   |
| Serving network identity           | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.                 |

...

## 4.2.2.8 Recipient MM1 Read reply Recipient CDR (R1RR-CDR)

...

**Table 4.19: Recipient MM1 Read reply Recipient record (R1RR-CDR)**

| Field                              | Category       | Description   |
|------------------------------------|----------------|---|
| Record Type                        | M              | Recipient MM1 Read reply Recipient record.  |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.  |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.  |
| Recipient address                  | M              | The address of the recipient MM User Agent of the MM.   |
| Originator address                 | M              | The address of the MM originator of the original MM, i.e., the recipient of the read-reply report.                  |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.                   |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.  |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated. |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR   |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.       |
| Serving network identity           | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.     |

....

|                                      |
|--------------------------------------|
| <b>End of Change in Clause 4.2.2</b> |
|--------------------------------------|

|                               |
|-------------------------------|
| <b>Change in Clause 4.2.3</b> |
|-------------------------------|

### 4.2.3 MMS records for forwarding MMS Relay/Server

#### 4.2.3.1 Forwarding CDR

...

**Table 4.24: MM Forwarding record (F-CDR)**

| Field                               | Category       | Description   |
|-------------------------------------|----------------|---|
| Record Type                         | M              | MM Forwarding record.   |
| Forwarding MMS Relay/Server Address | M              | IP address or domain name of the forwarding MMS Relay/Server.   |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.  |
| Forwarding address                  | M              | One or more addresses of the forwarding MMS User Agent (i.e., of the MMS User Agent that has sent the MM1_forward.REQ).   |
| Recipients address list             | M              | The address(es) of the recipient MMS User Agent(s) of the forwarded MM. Multiple addresses are possible.                  |
| Charge Information                  | M <sub>o</sub> | The charge indication and charge type.  |
| Time of Expiry                      | C <sub>o</sub> | The desired date of expiry or duration of time prior to expiry for the MM if specified by the forwarding MMS User Agent.  |
| Earliest Time Of Delivery           | C <sub>o</sub> | This field contains either the earliest time to deliver the MM or the number of seconds to wait before delivering the MM. |
| Delivery Report Requested           | M <sub>o</sub> | This field indicates whether a delivery report has been requested by the forwarding MMS User Agent or not.                |
| Read reply requested                | M <sub>o</sub> | A request for read reply report as specified in the MM1_forward.REQ.  |
| Message reference                   | M              | A reference, e.g., URI, for the MM as specified in the MM1_forward.REQ.   |
| MM Status Code                      | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.  |
| Status Text                         | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.       |
| Record Time Stamp                   | M <sub>o</sub> | Time of generation of the CDR.  |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.             |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacturer specific extensions to the record. Conditioned upon the existence of an extension.          |

|                                      |
|--------------------------------------|
| <b>End of Change in Clause 4.2.3</b> |
|--------------------------------------|

|                           |
|---------------------------|
| <b>Change in Clause 5</b> |
|---------------------------|

:

### 5.39 Serving network identity

In MM1related CDRs, this field contains a SGSN PLMN Identifier (Mobile Country Code and Mobile Network Code), of the SGSN that was used during the MM1 transaction. In the O4FRq-CDR, this field reflects the PLMN Identifier of the SGSN that was used when the MM1\_forward.REQ was received. In case the SGSN changes during the transaction, only the ID of the SGSN that was used at the beginning of the transaction is included in the CDR.

The MCC and MNC are coded as described for 'Routing Area Identity' in [19].

## 5.3940 Status Text

This field includes a more detailed technical status of the message at the point in time when the CDR is generated..

:

**End of Change in Clause 5**

**Change in Clause 6**

## 6 Charging Data Record Structure

### 6.1 ASN.1 definitions for CDR information

The ASN.1 definitions are based on the charging specific data types within the current 3GPP 32-series, the TS 32.205 for CS domain [8] and TS 32.215 for PS domain [9].

```
TS32235-DataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) umts-Operation-Maintenance (3) ts-32-235 (235)
informationModel (0) asn1Module (2) version1 (1)}
```

```
DEFINITIONS IMPLICIT TAGS ::=
```

```
BEGIN
```

```
-- EXPORTS everything
```

```
IMPORTS
```

```
CallEventRecord, CallEventRecordType, ChargeIndicator, CallDuration, TimeStamp, MSISDN, CallReference, MscNo, ManagementExtensions
FROM TS32205-DataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) umts-Operation-Maintenance (3) ts-32-205 (205)
informationModel (0) asn1Module (2) version1 (1)}
```

```
--
-- see TS 32.205[8]
--
```

```
ChargingID, IPAddress, GSNAddress, LocalSequenceNumber, PLMN-Id
FROM TS32215-DataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) umts-Operation-Maintenance (3) ts-32-215 (215)
informationModel (0) asn1Module (2) version1 (1)}
```

```
--
-- see TS 32.215[9]
--
```

```
-----
--
-- CALL AND EVENT RECORDS
--
-----
```

```
MMO1SRecord ::= SET
```

```
{
    recordType                [0] CallEventRecordType,
    originatorMmsRSAddress    [1] MMSRSAddress,
    messageID                 [2] OCTET STRING,
    replyChargingID           [3] OCTET STRING OPTIONAL,
    originatorAddress          [4] MMSAgentAddress,
    recipientAddresses         [5] MMSAgentAddresses,
    accessCorrelation          [6] AccessCorrelation OPTIONAL,
    contentType               [7] ContentType,
    mmComponentType           [8] MMComponentType OPTIONAL,
    messageSize                [9] DataVolume,
    messageClass               [10] MessageClass OPTIONAL,
    chargeInformation          [11] ChargeInformation OPTIONAL,
```

|                          |                                      |
|--------------------------|--------------------------------------|
| submissionTime           | [12] TimeStamp OPTIONAL,             |
| timeOfExpiry             | [13] WaitTime OPTIONAL,              |
| earliestTimeOfDelivery   | [14] WaitTime OPTIONAL,              |
| durationOfTransmission   | [15] INTEGER OPTIONAL,               |
| requestStatusCode        | [16] RequestStatusCodeType OPTIONAL, |
| deliveryReportRequested  | [17] BOOLEAN OPTIONAL,               |
| replyCharging            | [18] BOOLEAN OPTIONAL,               |
| replyDeadline            | [19] WaitTime OPTIONAL,              |
| replyChargingSize        | [20] DataVolume OPTIONAL,            |
| priority                 | [21] PriorityType OPTIONAL,          |
| senderVisibility         | [22] BOOLEAN OPTIONAL,               |
| readReplyRequested       | [23] BOOLEAN OPTIONAL,               |
| statusText               | [24] StatusTextType,                 |
| recordTimeStamp          | [25] TimeStamp,                      |
| localSequenceNumber      | [26] LocalSequenceNumber OPTIONAL,   |
| recordExtensions         | [27] ManagementExtensions OPTIONAL,  |
| servicingNetworkIdentity | [29] PLMN-Id                         |

}

MMO4FRqRecord ::= SET

|                          |                                     |
|--------------------------|-------------------------------------|
| recordType               | [0] CallEventRecordType,            |
| originatorMmsRSAddress   | [1] MMSRSAddress,                   |
| recipientMmsRSAddress    | [2] MMSRSAddress,                   |
| messageID                | [3] OCTET STRING,                   |
| mms3GPPVersion           | [4] OCTET STRING OPTIONAL,          |
| originatorAddress        | [5] MMSAgentAddress,                |
| recipientAddresses       | [6] MMSAgentAddresses,              |
| contentType              | [7] ContentType,                    |
| mmComponentType          | [8] MMComponentType OPTIONAL,       |
| messageSize              | [9] DataVolume,                     |
| messageClass             | [10] MessageClass OPTIONAL,         |
| submissionTime           | [11] TimeStamp,                     |
| timeOfExpiry             | [12] WaitTime OPTIONAL,             |
| deliveryReportRequested  | [13] BOOLEAN,                       |
| priority                 | [14] PriorityType OPTIONAL,         |
| senderVisibility         | [15] BOOLEAN,                       |
| readReplyRequested       | [16] BOOLEAN,                       |
| acknowledgementRequest   | [17] BOOLEAN,                       |
| forwardCounter           | [18] INTEGER OPTIONAL,              |
| forwardingAddress        | [19] MMSAgentAddresses OPTIONAL,    |
| recordTimeStamp          | [20] TimeStamp,                     |
| localSequenceNumber      | [21] LocalSequenceNumber OPTIONAL,  |
| recordExtensions         | [22] ManagementExtensions OPTIONAL, |
| servicingNetworkIdentity | [23] PLMN-Id                        |

}

MMO4FRsRecord ::= SET

|                        |                                     |
|------------------------|-------------------------------------|
| recordType             | [0] CallEventRecordType,            |
| originatorMmsRSAddress | [1] MMSRSAddress OPTIONAL,          |
| recipientMmsRSAddress  | [2] MMSRSAddress,                   |
| messageID              | [3] OCTET STRING,                   |
| mms3GPPVersion         | [4] OCTET STRING OPTIONAL,          |
| requestStatusCode      | [5] RequestStatusCodeType OPTIONAL, |
| statusText             | [6] StatusTextType OPTIONAL,        |
| recordTimeStamp        | [7] TimeStamp OPTIONAL,             |
| localSequenceNumber    | [8] LocalSequenceNumber OPTIONAL,   |
| recordExtensions       | [9] ManagementExtensions OPTIONAL   |

}

MMO4DRecord ::= SET

|                        |                                    |
|------------------------|------------------------------------|
| recordType             | [0] CallEventRecordType,           |
| recipientMmsRSAddress  | [1] MMSRSAddress OPTIONAL,         |
| originatorMmsRSAddress | [2] MMSRSAddress OPTIONAL,         |
| messageID              | [3] OCTET STRING,                  |
| mms3GPPVersion         | [4] OCTET STRING OPTIONAL,         |
| originatorAddress      | [5] MMSAgentAddress OPTIONAL,      |
| recipientAddress       | [6] MMSAgentAddress,               |
| mmDateAndTime          | [7] TimeStamp,                     |
| acknowledgementRequest | [8] BOOLEAN,                       |
| mmStatusCode           | [9] MMStatusCodeType,              |
| statusText             | [10] StatusTextType OPTIONAL,      |
| recordTimeStamp        | [11] TimeStamp OPTIONAL,           |
| localSequenceNumber    | [12] LocalSequenceNumber OPTIONAL, |
| recordExtensions       | [13] ManagementExtensions OPTIONAL |

```

}

MMO1DRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress OPTIONAL,
    originatorMmsRSAddress    [2] MMSRSAddress OPTIONAL,
    accessCorrelation         [3] AccessCorrelation OPTIONAL,
    messageID                 [4] OCTET STRING,
    mms3GPPVersion           [5] OCTET STRING OPTIONAL,
    originatorAddress         [6] MMSAgentAddress OPTIONAL,
    recipientAddress          [7] MMSAgentAddress,
    mmStatusCode              [8] MMStatusCodeType OPTIONAL,
    recordTimeStamp           [9] TimeStamp OPTIONAL,
    localSequenceNumber       [10] LocalSequenceNumber OPTIONAL,
    recordExtensions          [11] ManagementExtensions OPTIONAL,
    servingNetworkIdentity    [12] PLMN-Id
}

MMO4RRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress OPTIONAL,
    originatorMmsRSAddress    [2] MMSRSAddress OPTIONAL,
    messageID                 [3] OCTET STRING,
    mms3GPPVersion           [4] OCTET STRING OPTIONAL,
    originatorAddress         [5] MMSAgentAddress OPTIONAL,
    recipientAddresses        [6] MMSAgentAddresses OPTIONAL,
    mmDateAndTime             [7] TimeStamp OPTIONAL,
    acknowledgementRequest    [8] BOOLEAN,
    readStatus                [9] MMStatusCodeType OPTIONAL,
    statusText                [10] StatusTextType OPTIONAL,
    recordTimeStamp           [11] TimeStamp OPTIONAL,
    localSequenceNumber       [12] LocalSequenceNumber OPTIONAL,
    recordExtensions          [13] ManagementExtensions OPTIONAL
}

MMO1RRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress OPTIONAL,
    originatorMmsRSAddress    [2] MMSRSAddress OPTIONAL,
    accessCorrelation         [3] AccessCorrelation OPTIONAL,
    messageID                 [4] OCTET STRING,
    mms3GPPVersion           [5] OCTET STRING OPTIONAL,
    originatorAddress         [6] MMSAgentAddress OPTIONAL,
    recipientAddress          [7] MMSAgentAddress OPTIONAL,
    readStatus                [8] MMStatusCodeType OPTIONAL,
    recordTimeStamp           [9] TimeStamp OPTIONAL,
    localSequenceNumber       [10] LocalSequenceNumber OPTIONAL,
    recordExtensions          [11] ManagementExtensions OPTIONAL,
    servingNetworkIdentity    [12] PLMN-Id
}

MMOMDRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    originatorMmsRSAddress    [1] MMSRSAddress OPTIONAL,
    recipientMmsRSAddress     [2] MMSRSAddress OPTIONAL,
    messageID                 [3] OCTET STRING,
    messageSize               [4] DataVolume OPTIONAL,
    mmStatusCode              [5] MMStatusCodeType OPTIONAL,
    statusText                [6] StatusTextType OPTIONAL,
    recordTimeStamp           [7] TimeStamp OPTIONAL,
    localSequenceNumber       [8] LocalSequenceNumber OPTIONAL,
    recordExtensions          [9] ManagementExtensions OPTIONAL
}

MMR4FRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress,
    originatorMmsRSAddress    [2] MMSRSAddress,
    messageID                 [3] OCTET STRING,
    mms3GPPVersion           [4] OCTET STRING OPTIONAL,
    originatorAddress         [5] MMSAgentAddress,
    recipientAddresses        [6] MMSAgentAddresses,

```

|                         |                                    |
|-------------------------|------------------------------------|
| contentType             | [7] ContentType,                   |
| mmComponentType         | [8] MMComponentType OPTIONAL,      |
| messageSize             | [9] DataVolume,                    |
| messageClass            | [10] MessageClass OPTIONAL,        |
| submissionTime          | [11] TimeStamp,                    |
| timeOfExpiry            | [12] WaitTime OPTIONAL,            |
| deliveryReportRequested | [13] BOOLEAN,                      |
| priority                | [14] PriorityType OPTIONAL,        |
| senderVisibility        | [15] BOOLEAN,                      |
| readReplyRequested      | [16] BOOLEAN,                      |
| requestStatusCode       | [17] RequestStatusCodeType,        |
| statusText              | [18] StatusTextType,               |
| acknowledgementRequest  | [19] BOOLEAN,                      |
| forwardCounter          | [20] INTEGER OPTIONAL,             |
| forwardingAddress       | [21] MMSAgentAddresses OPTIONAL,   |
| recordTimeStamp         | [22] TimeStamp,                    |
| localSequenceNumber     | [23] LocalSequenceNumber OPTIONAL, |
| recordExtensions        | [24] ManagementExtensions OPTIONAL |

MMR1NRqRecord ::= SET

|                          |                                     |
|--------------------------|-------------------------------------|
| recordType               | [0] CallEventRecordType,            |
| recipientMmsRSAddress    | [1] MMSRSAddress,                   |
| messageID                | [2] OCTET STRING,                   |
| replyChargingID          | [3] OCTET STRING OPTIONAL,          |
| senderAddress            | [4] MMSAgentAddress,                |
| recipientAddress         | [5] MMSAgentAddress,                |
| accessCorrelation        | [6] AccessCorrelation OPTIONAL,     |
| messageClass             | [7] MessageClass OPTIONAL,          |
| mmComponentType          | [8] MMComponentType OPTIONAL,       |
| messageSize              | [9] DataVolume,                     |
| timeOfExpiry             | [10] WaitTime OPTIONAL,             |
| messageReference         | [11] OCTET STRING,                  |
| deliveryReportRequested  | [12] BOOLEAN OPTIONAL,              |
| replyCharging            | [13] BOOLEAN OPTIONAL,              |
| replyDeadline            | [14] WaitTime OPTIONAL,             |
| replyChargingSize        | [15] DataVolume OPTIONAL,           |
| mmStatusCode             | [16] MMStatusCodeType OPTIONAL,     |
| statusText               | [17] StatusTextType OPTIONAL,       |
| recordTimeStamp          | [18] TimeStamp OPTIONAL,            |
| localSequenceNumber      | [19] LocalSequenceNumber OPTIONAL,  |
| recordExtensions         | [20] ManagementExtensions OPTIONAL, |
| servicingNetworkIdentity | [21] PLMN-Id                        |

MMR1NRsRecord ::= SET

|                          |                                     |
|--------------------------|-------------------------------------|
| recordType               | [0] CallEventRecordType,            |
| recipientMmsRSAddress    | [1] MMSRSAddress,                   |
| messageID                | [2] OCTET STRING,                   |
| recipientAddress         | [3] MMSAgentAddress,                |
| accessCorrelation        | [4] AccessCorrelation OPTIONAL,     |
| reportAllowed            | [5] BOOLEAN OPTIONAL,               |
| mmStatusCode             | [6] MMStatusCodeType OPTIONAL,      |
| statusText               | [7] StatusTextType OPTIONAL,        |
| recordTimeStamp          | [8] TimeStamp OPTIONAL,             |
| localSequenceNumber      | [9] LocalSequenceNumber OPTIONAL,   |
| recordExtensions         | [10] ManagementExtensions OPTIONAL, |
| servicingNetworkIdentity | [11] PLMN-Id                        |

MMR1RtRecord ::= SET

|                       |                                 |
|-----------------------|---------------------------------|
| recordType            | [0] CallEventRecordType,        |
| recipientMmsRSAddress | [1] MMSRSAddress,               |
| messageID             | [2] OCTET STRING,               |
| replyChargingID       | [3] OCTET STRING OPTIONAL,      |
| senderAddress         | [4] MMSAgentAddress OPTIONAL,   |
| recipientAddress      | [5] MMSAgentAddress,            |
| accessCorrelation     | [6] AccessCorrelation OPTIONAL, |
| contentType           | [7] ContentType,                |
| mmComponentType       | [8] MMComponentType OPTIONAL,   |
| messageClass          | [9] MessageClass OPTIONAL,      |
| submissionTime        | [10] TimeStamp,                 |
| messageSize           | [11] DataVolume OPTIONAL,       |

|                         |                                     |
|-------------------------|-------------------------------------|
| deliveryReportRequested | [12] BOOLEAN OPTIONAL,              |
| priority                | [13] PriorityType OPTIONAL,         |
| readReplyRequested      | [14] BOOLEAN OPTIONAL,              |
| mmStatusCode            | [15] MMStatusCodeType OPTIONAL,     |
| statusText              | [16] StatusTextType OPTIONAL,       |
| replyDeadline           | [17] WaitTime OPTIONAL,             |
| replyChargingSize       | [18] DataVolume OPTIONAL,           |
| durationOfTransmission  | [19] INTEGER OPTIONAL,              |
| timeOfExpiry            | [20] WaitTime OPTIONAL,             |
| recordTimeStamp         | [21] TimeStamp OPTIONAL,            |
| localSequenceNumber     | [22] LocalSequenceNumber OPTIONAL,  |
| recordExtensions        | [23] ManagementExtensions OPTIONAL, |
| messageReference        | [24] OCTET STRING,                  |
| _____                   | _____                               |
| _____                   | [25] PLMN-Id                        |

MMR1ARecord ::= SET

|                       |                                     |
|-----------------------|-------------------------------------|
| recordType            | [0] CallEventRecordType,            |
| recipientMmsRSAddress | [1] MMSRSAddress,                   |
| messageID             | [2] OCTET STRING,                   |
| recipientAddress      | [3] MMSAgentAddress,                |
| accessCorrelation     | [4] AccessCorrelation OPTIONAL,     |
| reportAllowed         | [5] BOOLEAN OPTIONAL,               |
| mmStatusCode          | [6] MMStatusCodeType OPTIONAL,      |
| statusText            | [7] StatusTextType OPTIONAL,        |
| recordTimeStamp       | [8] TimeStamp OPTIONAL,             |
| localSequenceNumber   | [9] LocalSequenceNumber OPTIONAL,   |
| recordExtensions      | [10] ManagementExtensions OPTIONAL, |
| _____                 | _____                               |
| _____                 | [11] PLMN-Id                        |

MMR4DRqRecord ::= SET

|                        |                                    |
|------------------------|------------------------------------|
| recordType             | [0] CallEventRecordType,           |
| recipientMmsRSAddress  | [1] MMSRSAddress,                  |
| originatorMmsRSAddress | [2] MMSRSAddress,                  |
| messageID              | [3] OCTET STRING,                  |
| mms3GPPVersion         | [4] OCTET STRING OPTIONAL,         |
| originatorAddress      | [5] MMSAgentAddress,               |
| recipientAddress       | [6] MMSAgentAddress,               |
| mmDateAndTime          | [7] TimeStamp OPTIONAL,            |
| acknowledgementRequest | [8] BOOLEAN,                       |
| mmStatusCode           | [9] MMStatusCodeType OPTIONAL,     |
| statusText             | [10] StatusTextType OPTIONAL,      |
| recordTimeStamp        | [11] TimeStamp OPTIONAL,           |
| localSequenceNumber    | [12] LocalSequenceNumber OPTIONAL, |
| recordExtensions       | [13] ManagementExtensions OPTIONAL |

MMR4DRsRecord ::= SET

|                        |                                     |
|------------------------|-------------------------------------|
| recordType             | [0] CallEventRecordType,            |
| recipientMmsRSAddress  | [1] MMSRSAddress,                   |
| originatorMmsRSAddress | [2] MMSRSAddress,                   |
| messageID              | [3] OCTET STRING,                   |
| mms3GPPVersion         | [4] OCTET STRING OPTIONAL,          |
| requestStatusCode      | [5] RequestStatusCodeType OPTIONAL, |
| statusText             | [6] StatusTextType OPTIONAL,        |
| recordTimeStamp        | [7] TimeStamp OPTIONAL,             |
| localSequenceNumber    | [8] LocalSequenceNumber OPTIONAL,   |
| recordExtensions       | [9] ManagementExtensions OPTIONAL   |

MMR1RRRecord ::= SET

|                       |                                     |
|-----------------------|-------------------------------------|
| recordType            | [0] CallEventRecordType,            |
| recipientMmsRSAddress | [1] MMSRSAddress,                   |
| messageID             | [2] OCTET STRING,                   |
| recipientAddress      | [3] MMSAgentAddress,                |
| originatorAddress     | [4] MMSAgentAddress,                |
| accessCorrelation     | [5] AccessCorrelation OPTIONAL,     |
| mmStatusCode          | [6] MMStatusCodeType OPTIONAL,      |
| statusText            | [7] StatusTextType OPTIONAL,        |
| recordTimeStamp       | [8] TimeStamp OPTIONAL,             |
| localSequenceNumber   | [9] LocalSequenceNumber OPTIONAL,   |
| recordExtensions      | [10] ManagementExtensions OPTIONAL, |



```

| _____servingNetworkIdentity_____ [11] PLMN-Id
| }

MMR4RRqRecord ::= SET
{
    recordType [0] CallEventRecordType,
    recipientMmsRSAddress [1] MMSRSAddress,
    originatorMmsRSAddress [2] MMSRSAddress,
    messageID [3] OCTET STRING,
    mms3GPPVersion [4] OCTET STRING OPTIONAL,
    originatorAddress [5] MMSAgentAddress,
    recipientAddress [6] MMSAgentAddress,
    mmDateAndTime [7] TimeStamp OPTIONAL,
    acknowledgementRequest [8] BOOLEAN,
    mmStatusCode [9] MMStatusCodeType OPTIONAL,
    statusText [10] StatusTextType OPTIONAL,
    recordTimeStamp [11] TimeStamp OPTIONAL,
    localSequenceNumber [12] LocalSequenceNumber OPTIONAL,
    recordExtensions [13] ManagementExtensions OPTIONAL
}

MMR4RRsRecord ::= SET
{
    recordType [0] CallEventRecordType,
    recipientMmsRSAddress [1] MMSRSAddress,
    originatorMmsRSAddress [2] MMSRSAddress,
    messageID [3] OCTET STRING,
    mms3GPPVersion [4] OCTET STRING OPTIONAL,
    requestStatusCode [5] RequestStatusCodeType OPTIONAL,
    statusText [6] StatusTextType OPTIONAL,
    recordTimeStamp [7] TimeStamp OPTIONAL,
    localSequenceNumber [8] LocalSequenceNumber OPTIONAL,
    recordExtensions [9] ManagementExtensions OPTIONAL
}

MMRMDRecord ::= SET
{
    recordType [0] CallEventRecordType,
    originatorMmsRSAddress [1] MMSRSAddress,
    recipientMmsRSAddress [2] MMSRSAddress OPTIONAL,
    messageID [3] OCTET STRING,
    messageSize [4] DataVolume,
    mmStatusCode [5] MMStatusCodeType OPTIONAL,
    statusText [6] StatusTextType OPTIONAL,
    recordTimeStamp [7] TimeStamp OPTIONAL,
    localSequenceNumber [8] LocalSequenceNumber OPTIONAL,
    recordExtensions [9] ManagementExtensions OPTIONAL
}

MMFRecord ::= SET
{
    recordType [0] CallEventRecordType,
    forwardingMmsRSAddress [1] MMSRSAddress,
    messageID [2] OCTET STRING,
    forwardingAddress [3] MMSAgentAddress,
    recipientAddresses [4] MMSAgentAddresses,
    chargeInformation [5] ChargeInformation OPTIONAL,
    timeOfExpiry [6] WaitTime OPTIONAL,
    earliestTimeOfDelivery [7] WaitTime OPTIONAL,
    deliveryReportRequested [8] BOOLEAN OPTIONAL,
    readReplyRequested [9] BOOLEAN OPTIONAL,
    messageReference [10] OCTET STRING,
    mmStatusCode [11] MMStatusCodeType OPTIONAL,
    statusText [12] StatusTextType OPTIONAL,
    recordTimeStamp [13] TimeStamp OPTIONAL,
    localSequenceNumber [14] LocalSequenceNumber OPTIONAL,
    recordExtensions [15] ManagementExtensions OPTIONAL,
    _____servingNetworkIdentity_____ [17] PLMN-Id
}

```

```

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--
-- COMMON DATA TYPES
--
-----

```

...

<unmodified text>

**End of Change in Clause 6**  
**End of document**

## CHANGE REQUEST

⌘ **32235 CR 016** ⌘ rev **-** ⌘ Current version: **5.2.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

|                        |   |  |   |
|------------------------|---|--|---|
| <b>Title:</b>          | ⌘ | Correction on charging for roaming MMS subscribers - alignment with 22.140, 29.061 and 29.060  |   |
| <b>Source:</b>         | ⌘ | S5   |   |
| <b>Work item code:</b> | ⌘ | OAM-CH   | <b>Date:</b> ⌘ 13/05/2003   |
| <b>Category:</b>       | ⌘ | <b>A</b>   | <b>Release:</b> ⌘ Rel-5   |
|                        |   | Use <u>one</u> of the following categories:<br><b>F</b> (correction)<br><b>A</b> (corresponds to a correction in an earlier release)<br><b>B</b> (addition of feature),<br><b>C</b> (functional modification of feature)<br><b>D</b> (editorial modification)<br>Detailed explanations of the above categories can be found in 3GPP TR 21.900. | Use <u>one</u> of the following releases:<br><b>2</b> (GSM Phase 2)<br><b>R96</b> (Release 1996)<br><b>R97</b> (Release 1997)<br><b>R98</b> (Release 1998)<br><b>R99</b> (Release 1999)<br><b>Rel-4</b> (Release 4)<br><b>Rel-5</b> (Release 5)<br><b>Rel-6</b> (Release 6) |

|                                      |   |   |
|--------------------------------------|---|---|
| <b>Reason for change:</b>            | ⌘ | In TS 22.140 it is stated that the MMS shall be able to support charging in roaming conditions. In order to comply with this requirement it was necessary to transmit the SGSN Identifier from the SGSN to the GGSN and over the Gi interface so that both the GGSN and the MMS R/S are roaming aware. This mechanism was recently specified in TS 29.061 (via Radius procedures) and in TS 29.060 (GTP protocol).<br>This indication of roaming shall also be reflected in the MMS CDRs by adding the SGSN's MCC and MNC in order to be fully compliant with the requirement of roaming awareness. |
| <b>Summary of change:</b>            | ⌘ | SGSN PLMN identifier (MCC and MNC) is added to all MM1 interface related CDRs (including MMBox CDRs), and to the forwarding function related MMS CDRs.  |
| <b>Consequences if not approved:</b> | ⌘ | It would not be possible to charge properly the MMS usage of a subscriber in case of roaming.   |

|                              |   |  |   |   |  |   |  |   |  |   |
|------------------------------|---|--|---|---|--|---|--|---|--|---|
| <b>Clauses affected:</b>     | ⌘ | 2, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 5 and 6   |   |   |  |   |  |   |  |   |
| <b>Other specs affected:</b> | ⌘ | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications ⌘<br>Test specifications ⌘<br>O&M Specifications ⌘ | Y | N |  | X |  | X |  | X |
| Y                            | N |  |   |   |  |   |  |   |  |   |
|                              | X |  |   |   |  |   |  |   |  |   |
|                              | X |  |   |   |  |   |  |   |  |   |
|                              | X |  |   |   |  |   |  |   |  |   |
| <b>Other comments:</b>       | ⌘ | This is the Rel-5 Mirror CR 32.235 of Rel-4 CR attached in S5-034338   |   |   |  |   |  |   |  |   |

**How to create CRs using this form:**

**Change in Clause 2**

## 2 References

• ....

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 32.200: "Telecommunication management; Charging management; Charging Principles".
- [3] 3GPP TS 22.140: "Service aspects; Stage 1; Multimedia Messaging Service".
- [4] 3GPP TS 23.140: "Multimedia Messaging Service (MMS), Functional Description, Stage 2".
- [5] STD 11 (RFC 822): "Standard for the format of ARPA Internet text messages".
- [6] RFC 2046: "Multipurpose Internet Mail Extensions (MIME); Part Two: Media Types".
- [7] RFC 2045: "Multipurpose Internet Mail Extensions (MIME); Part One : Format of Internet Message Bodies".
- [8] 3GPP TS 32.205: "Charging Data Description for the Circuit Switched (CS) domain".
- [9] 3GPP TS 32.215: "Charging Data Description for the Packet Switched (PS) domain".
- [10] GSM 12.01: "Digital cellular telecommunication system (Phase 2); Common aspects of GSM Network Management (NM)".
- [11] IETF RFC 959: "File Transfer Protocol (FTP)"; October 1985.
- [12] IETF RFC 783: "Trivial File Transfer Protocol (TFTP)"; revision 2.
- [13] IETF RFC 2045 and IANA:<ftp://ftp.isi.edu/in-notes/iana/assignments/media-types/media-types>
- [14] 3GPP TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp Interface".

**End of Change in Clause 2****Change in Clause 4.2.1**

### 4.2.1 MMS records for originator MMS Relay/Server

...

#### 4.2.1.1 Originator MM1 Submission CDR (O1S-CDR)

...

Table 4.4: Originator MM1 Submission record (O1S-CDR)

| Field                               | Category       | Description  |
|-------------------------------------|----------------|--|
| Record Type                         | M              | Originator MM1 Submission record.  |
| Originator MMS Relay/Server Address | M              | .IP address or domain name of originator MMS Relay/Server.   |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.   |
| Reply-Charging ID                   | C              | This field is present in the CDR only if the MM is a reply-MM to an original MM. The Reply-Charging ID is the Message ID of the original MM.                                     |
| Originator address                  | M              | The address of the originator MMS User Agent (i.e., of the MMS User Agent that has sent the MM1_submit.REQ).   |
| Recipients address list             | M              | The address(es) of the recipient MMS User Agent(s) of the MM. Multiple addresses are possible if the MM is not a reply MM.   |
| Access Correlation                  | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.  |
| Content type                        | M              | The content type of the MM content.  |
| MM component list                   | M <sub>o</sub> | The list of media components with volume size.   |
| Message size                        | M              | The total size of the MM content.  |
| Message class                       | C <sub>o</sub> | The class selection such as personal, advertisement, information service if specified in the MM1_submit_REQ.   |
| Charge Information                  | M <sub>o</sub> | The charge indication and charge type.   |
| Submission Time                     | C <sub>o</sub> | The time at which the MM was submitted from the originator MMS User Agent if specified in the MM1_submit_REQ.  |
| Time of Expiry                      | C <sub>o</sub> | The desired date of expiry or duration of time prior to expiry for the MM if specified by the originator MMS User Agent.   |
| Earliest Time Of Delivery           | C              | This field contains either the earliest time to deliver the MM or the number of seconds to wait before delivering the MM as specified by the originator MMS User Agent.          |
| Duration Of Transmission            | M <sub>o</sub> | The time used for transmission of the MM between the User Agent and the MMS Relay/Server.  |
| Request Status Code                 | M <sub>o</sub> | The status code of the MM as received in the MM1_submit_REQ  |
| Delivery Report Requested           | M <sub>o</sub> | This field indicates whether a delivery report has been requested by the originator MMS User Agent or not.   |
| Reply Charging                      | C <sub>o</sub> | A request for reply-charging if specified by the originator MMS User Agent.  |
| Reply Deadline                      | C <sub>o</sub> | In case of reply-charging the latest time of submission of replies granted to the recipient(s) as specified by the originator MMS User Agent.                                    |
| Reply Charging Size                 | C <sub>o</sub> | In case of reply-charging the maximum size for reply-MM(s) granted to the recipient(s) as specified by the originator MMS User Agent.  |
| Priority                            | C <sub>o</sub> | The priority (importance) of the message if specified by the originator MMS User Agent.  |
| Sender visibility                   | M <sub>o</sub> | A request to show or hide the sender's identity when the message is delivered to the recipient as specified by the originator MMS User Agent.                                    |
| Read reply requested                | M <sub>o</sub> | A request for read reply report as specified in the MM1_submit.REQ.  |
| Status Text                         | C <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated. This field is only present if the MM submission is rejected. |
| Record Time Stamp                   | M <sub>o</sub> | Time of generation of the CDR.   |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.  |
| Serving network identity            | M <sub>o</sub> | <u>SGSN PLMN Identifier (MCC and MNC) used during this record.</u>   |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.  |

## 4.2.1.2 Originator MM4 Forward Request CDR (O4FRq-CDR)

...

Table 4.5: Originator MM4 Forward Request record (O4FRq-CDR)

| Field                               | Category       | Description  |
|-------------------------------------|----------------|--|
| Record Type                         | M              | Originator MM4 Forward Request record.   |
| Originator MMS Relay/Server Address | M              | IP address or domain name of the originator MMS Relay/Server.  |
| Recipient MMS Relay/Server Address  | M              | IP address or domain name of the recipient MMS Relay/Server.   |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.   |
| 3GPP MMS Version                    | M <sub>o</sub> | The MMS version of the originator MMS Relay/Server.  |
| Originator address                  | M              | The address of the originator MMS User Agent of the MM. (If the MM4_forward.REQ is generated as a reaction to an incoming MM1_forward.REQ, this is the address of the originator MMS User agent of the original MM.)         |
| Recipients address list             | M              | The address(es) of the recipient MMS User Agent(s) of the MM as specified in the MM4_forward.REQ that triggered the CDR.   |
| Content type                        | M              | The content type of the MM content.  |
| MM component list                   | M <sub>o</sub> | The list of media components with volume size.   |
| Message size                        | M              | The total size of the MM content.  |
| Message class                       | C              | The class of the MM (e.g., personal, advertisement, information service) if specified by the originator MMS User Agent   |
| Submission Time                     | M              | The time at which the MM was submitted or forwarded as specified in the corresponding MM1_submit.REQ or MM1_forwarding.REQ.  |
| Time of Expiry                      | C              | The desired date of expiry or duration of time prior to expiry for the MM if specified by the originator MMS User Agent.   |
| Delivery Report Requested           | M              | This field indicates whether a delivery report has been requested by the originator MMS User Agent or not.   |
| Priority                            | C              | The priority (importance) of the message if specified by the originator MMS User Agent.  |
| Sender visibility                   | M              | A request to show or hide the sender's identity when the message is delivered to the MM recipient if the originator MMS User Agent has requested her address to be hidden from the recipient.                                |
| Read reply requested                | M              | A request for read reply report if the originator MMS User Agent has requested a read-reply report for the MM.   |
| Acknowledgement Request             | M              | Request for MM4_forward.RES  |
| Forward counter                     | C              | A counter indicating the number of times the particular MM was forwarded.  |
| Forwarding address                  | C              | The address(es) of the forwarding MMS User Agent(s). Multiple addresses are possible. In the multiple address case this is a sequential list of the address(es) of the forwarding MMS User Agents who forwarded the same MM. |
| Record Time Stamp                   | M              | Time of generation of the CDR.   |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.  |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.  |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.  |

...

## 4.2.1.5 Originator MM1 Delivery report CDR (O1D-CDR)

...

**Table 4.8: Originator MM1 Delivery report record (O1D-CDR)**

| Field                               | Category       | Description   |
|-------------------------------------|----------------|---|
| Record Type                         | M              | Originator MM1 Delivery report record.  |
| Recipient MMS Relay/Server Address  | M <sub>o</sub> | IP address or domain name of the recipient MMS Relay/Server.  |
| Originator MMS Relay/Server Address | M <sub>o</sub> | IP address or domain name of the originator MMS Relay/Server.   |
| Access Correlation                  | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.               |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.  |
| 3GPP MMS Version                    | M <sub>o</sub> | The MMS version of the originator MMS Relay/Server.   |
| Originator address                  | M <sub>o</sub> | The address of the originator MMS User Agent of the MM.   |
| Recipient address                   | M              | The address of the MM recipient of the MM.  |
| MM Status Code                      | M <sub>o</sub> | The status code of the MM as sent in the MM Status information element in the MM1_delivery_report.REQ.          |
| Record Time Stamp                   | M <sub>o</sub> | Time of generation of the CDR   |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.   |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension. |

...

## 4.2.1.7 Originator MM1 Read reply originator CDR (O1R-CDR)

...

**Table 4.10: Originator MM1 Read reply originator record (O1D-CDR)**

| Field                               | Category       | Description   |
|-------------------------------------|----------------|---|
| Record Type                         | M              | Originator MM1 Read reply originator record.  |
| Recipient MMS Relay/Server Address  | M <sub>o</sub> | IP address or domain name of the recipient MMS Relay/Server.  |
| Originator MMS Relay/Server Address | M <sub>o</sub> | IP address or domain name of the originator MMS Relay/Server.   |
| Access Correlation                  | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.               |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.  |
| 3GPP MMS Version                    | M <sub>o</sub> | The MMS version of the originator MMS Relay/Server.   |
| Originator address                  | M <sub>o</sub> | The address of the originator MMS User Agent of the MM.   |
| Recipient address                   | M <sub>o</sub> | The address of the MM recipient of the MM.  |
| Read Status                         | M <sub>o</sub> | The status of the MM as sent in the MM1_read_reply originator.REQ.  |
| Record Time Stamp                   | M <sub>o</sub> | Time of generation of the CDR   |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.   |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension. |

...

|                                      |
|--------------------------------------|
| <b>End of Change in Clause 4.2.1</b> |
|--------------------------------------|

|                               |
|-------------------------------|
| <b>Change in Clause 4.2.2</b> |
|-------------------------------|

## 4.2.2 MMS records for recipient MMS Relay/server

...

### 4.2.2.2 Recipient MM1 Notification Request CDR (R1NRq-CDR)

...

**Table 4.13: Recipient MM1 Notification Request record (R1NRq -CDR)**

| Field                              | Category       | Description  |
|------------------------------------|----------------|--|
| Record Type                        | M              | Recipient MM1 Notification Request record.   |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.   |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.   |
| Reply Charging ID                  | C              | This field is present in the CDR only if the MM is a reply-MM to an original MM. The Reply-Charging ID is the Message ID of the original MM. |
| Sender address                     | M              | The address of the MMS User Agent as used in the MM1_notification_REQ. This parameter is present in the CDR regardless of address hiding.    |
| Recipient address                  | M              | The address of the MM recipient of the MM.   |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the recipient MMS User Agent.   |
| Message class                      | M              | The class selection such as personal, advertisement, information service; default = personal.  |
| MM component list                  | M <sub>o</sub> | The list of media components with volume size.   |
| Message size                       | M <sub>o</sub> | The total size of the MM content.  |
| Time of Expiry                     | M <sub>o</sub> | The date of expiry or duration of time prior to expiry for the MM.   |
| Message Reference                  | M              | A reference, e.g., URI, for the MM   |
| Delivery Report Requested          | M <sub>o</sub> | This field indicates whether a delivery report is requested or not as specified in the MM1_notification.REQ.                                 |
| Reply Charging                     | C <sub>o</sub> | Information that a reply to this particular original MM is free of charge as specified in the MM1_notification.REQ.                          |
| Reply Deadline                     | C <sub>o</sub> | In case of reply-charging the latest time of submission of a reply granted to the recipient as specified in the MM1_notification.REQ.        |
| Reply Charging-Size                | C <sub>o</sub> | In case of reply-charging the maximum size of a reply-MM granted to the recipient as specified in the MM1_notification.REQ.                  |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.   |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.                          |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR  |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.                                |
| Serving network identity           | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.  |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.                              |



## 4.2.2.3 Recipient MM1 Notification Response CDR (R1NRs-CDR)

...

**Table 4.14: Recipient MM1 Notification Response record (R1NRs-CDR)**

| Field                              | Category       | Description  |
|------------------------------------|----------------|--|
| Record Type                        | M              | Recipient MM1 Notification Response record.  |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.   |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.   |
| Recipient address                  | M              | The address of the MM recipient of the MM.   |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the recipient MMS User Agent.                             |
| Report allowed                     | C              | Request to allow or disallow the sending of a delivery report to the MM originator if specified in the MM1_notification_RES. |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.   |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.          |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR  |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.                |
| Serving network identity           | M <sub>o</sub> | <u>SGSN PLMN Identifier (MCC and MNC) used during this record.</u>   |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacturer specific extensions to the record. Conditioned upon the existence of an extension.             |

## 4.2.2.4 Recipient MM1 Retrieve CDR (R1Rt-CDR)

...

Table 4.15: Recipient MM1 Retrieve Response record (R1Rt-CDR)

| Field                              | Category       | Description  |
|------------------------------------|----------------|--|
| Record Type                        | M              | Recipient MM1 Retrieve record.   |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.   |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.   |
| Reply Charging ID                  | C              | This field is present in the CDR only if the MM is a reply-MM to an original MM. The Reply-Charging ID is the Message ID of the original MM. |
| Sender address                     | C              | The address of the MMS User Agent as used in the MM1_retrieve.RES. This parameter is present in the CDR regardless of address hiding.        |
| Recipient address                  | M              | The address of the recipient MM User Agent of the MM.  |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.  |
| Message Reference                  | M              | Location of the content of the MM to be retrieved as specified in the MM1_retrieve.REQ.  |
| Content type                       | M              | The content type of the MM content.  |
| MM component list                  | M <sub>o</sub> | The list of media components with volume size.   |
| Message class                      | C <sub>o</sub> | The class of the message (e.g., personal, advertisement, information service) if specified in the MM1_retrieve.RES.                          |
| Submission Time                    | M              | The time at which the MM was submitted or forwarded as specified in the MM1_retrieve.RES.  |
| Message size                       | M <sub>o</sub> | The total size of the MM content.  |
| Delivery report Requested          | M <sub>o</sub> | A request for delivery report as specified in the Delivery Report information element in the MM1_retrieve.RES.                               |
| Priority                           | C <sub>o</sub> | The priority (importance) of the message if specified in the MM1_retrieve.RES.   |
| Read reply Requested               | C <sub>o</sub> | A request for read-reply report if specified in the Read Reply information element in the MM1_retrieve.RES.                                  |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.   |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.                          |
| Reply Deadline                     | C <sub>o</sub> | In case of reply-charging the latest time of submission of a reply granted to the recipient as specified in the MM1_retrieve.RES.            |
| Reply Charging-Size                | C <sub>o</sub> | In case of reply-charging the maximum size of a reply-MM granted to the recipient as specified in the MM1_retrieve.RES.                      |
| Duration Of Transmission           | M <sub>o</sub> | The time used for transmission of the MM between the User Agent and the MMS Relay/Server.  |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR  |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.                                |
| Serving network identity           | M <sub>o</sub> | <u>SGSN PLMN Identifier (MCC and MNC) used during this record.</u>   |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacturer specific extensions to the record. Conditioned upon the existence of an extension.                             |

## 4.2.2.5 Acknowledgement CDR (R1A-CDR)

...

**Table 4.16: Recipient MM1 Acknowledgement record (R1A-CDR)**

| Field                              | Category       | Description   |
|------------------------------------|----------------|---|
| Record Type                        | M              | Recipient MM1 Acknowledgement record.   |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.  |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.  |
| Recipient address                  | M              | The address of the recipient MM User Agent of the MM.   |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.                               |
| Report allowed                     | C              | Request to allow or disallow the sending of a delivery report to the MM originator if specified in the MM1_acknowledgement.RES. |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.  |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.             |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR   |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.                   |
| Serving network identity           | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.                 |

...

## 4.2.2.8 Recipient MM1 Read reply Recipient CDR (R1RR-CDR)

...

**Table 4.19: Recipient MM1 Read reply Recipient record (R1RR-CDR)**

| Field                              | Category       | Description   |
|------------------------------------|----------------|---|
| Record Type                        | M              | Recipient MM1 Read reply Recipient record.  |
| Recipient MMS Relay/Server Address | M              | IP address or domain name of the recipient MMS Relay/Server.  |
| Message ID                         | M              | The MM identification provided by the originator MMS Relay/Server.  |
| Recipient address                  | M              | The address of the recipient MM User Agent of the MM.   |
| Originator address                 | M              | The address of the MM originator of the original MM, i.e., the recipient of the read-reply report.                  |
| Access Correlation                 | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.                   |
| MM Status Code                     | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.  |
| Status Text                        | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated. |
| Record Time Stamp                  | M <sub>o</sub> | Time of generation of the CDR   |
| Local Record Sequence Number       | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.       |
| Serving network identity           | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                  | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.     |

...

|                                      |
|--------------------------------------|
| <b>End of Change in Clause 4.2.2</b> |
|--------------------------------------|

|                               |
|-------------------------------|
| <b>Change in Clause 4.2.3</b> |
|-------------------------------|

### 4.2.3 MMS records for forwarding MMS Relay/Server

#### 4.2.3.1 Forwarding CDR

...

**Table 4.24: MM Forwarding record (F-CDR)**

| Field                               | Category       | Description   |
|-------------------------------------|----------------|---|
| Record Type                         | M              | MM Forwarding record.   |
| Forwarding MMS Relay/Server Address | M              | IP address or domain name of the forwarding MMS Relay/Server.   |
| Message ID                          | M              | The MM identification provided by the originator MMS Relay/Server.  |
| Forwarding address                  | M              | One or more addresses of the forwarding MMS User Agent (i.e., of the MMS User Agent that has sent the MM1_forward.REQ).   |
| Recipients address list             | M              | The address(es) of the recipient MMS User Agent(s) of the forwarded MM. Multiple addresses are possible.                  |
| Charge Information                  | M <sub>o</sub> | The charge indication and charge type.  |
| Time of Expiry                      | C <sub>o</sub> | The desired date of expiry or duration of time prior to expiry for the MM if specified by the forwarding MMS User Agent.  |
| Earliest Time Of Delivery           | C <sub>o</sub> | This field contains either the earliest time to deliver the MM or the number of seconds to wait before delivering the MM. |
| Delivery Report Requested           | M <sub>o</sub> | This field indicates whether a delivery report has been requested by the forwarding MMS User Agent or not.                |
| Read reply requested                | M <sub>o</sub> | A request for read reply report as specified in the MM1_forward.REQ.  |
| Message reference                   | M              | A reference, e.g., URI, for the MM as specified in the MM1_forward.REQ.   |
| MM Status Code                      | M <sub>o</sub> | The status code of the MM at the time when the CDR is generated.  |
| Status Text                         | M <sub>o</sub> | This field includes a more detailed technical status of the message at the point in time when the CDR is generated.       |
| Record Time Stamp                   | M <sub>o</sub> | Time of generation of the CDR.  |
| Local Record Sequence Number        | M <sub>o</sub> | Consecutive record number created by this node. The number is allocated sequentially including all CDR types.             |
| Serving network identity            | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.   |
| Record extensions                   | C <sub>o</sub> | A set of network/manufacture specific extensions to the record. Conditioned upon the existence of an extension.           |

|                                      |
|--------------------------------------|
| <b>End of Change in Clause 4.2.3</b> |
|--------------------------------------|

|                               |
|-------------------------------|
| <b>Change in Clause 4.2.4</b> |
|-------------------------------|

## 4.2.4 Service records for MMS Relay/Server supporting MMBoxes

### 4.2.4.1 MMBox MM1 Store CDR (Bx1S-CDR)

...

**Table 4.24: MMBox MM1 Store record (Bx1S-CDR)**

| Field                           | Category       | Description   |
|---------------------------------|----------------|---|
| Record Type                     | M              | MMBox MM1 Store record  |
| MMS Relay/Server Address        | M              | An address of the MMS Relay/Server.   |
| Managing address                | M              | The address of the managing MMS User Agent (i.e., of the MMS User Agent that has sent the MM1_mmbox_store.REQ).   |
| Access Correlation              | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.   |
| Content type                    | M <sub>o</sub> | The content type of the MM content.   |
| Message size                    | M <sub>o</sub> | The size of the MM.   |
| Message Reference               | M <sub>o</sub> | A reference to the newly stored or updated MM, suitable for subsequent usage (eg: with MM1_retrieve.REQ and MM1_mmbox_delete.REQ).  |
| MM State                        | M <sub>o</sub> | The state of the MM. If not present when the Message Reference is from a notification request, defaults to New. No value is assumed when the Message Reference refers to an already stored MM |
| MM Flags                        | C <sub>o</sub> | If available, the keyword flags of the MM. There are no defaults.   |
| Store status                    | C <sub>o</sub> | The status code of the request to store the MM as received in the MM1_store.RES   |
| Store Status Text               | C <sub>o</sub> | This field includes a more detailed technical description of the store status at the point in time when the CDR is generated. This field is only present if the store status is present       |
| Sequence Number                 | M <sub>o</sub> | Record number.  |
| Time Stamp                      | M <sub>o</sub> | Time of generation of the CDR.  |
| <u>Serving network identity</u> | M <sub>o</sub> | <u>SGSN PLMN Identifier (MCC and MNC) used during this record.</u>  |
| Record extensions               | C <sub>o</sub> | A set of network/manufacturer specific extensions to the record.  |

## 4.2.4.2 MMBBox MM1 View CDR (Bx1V-CDR)

...

Table 4.25: MMBBox MM1 View record (Bx1V-CDR)

| Field                    | Category       | Description  |
|--------------------------|----------------|--|
| Record Type              | M              | MMBox MM1 View record  |
| MMS Relay/Server Address | M              | An address of the MMS Relay/Server.  |
| Managing address         | M              | The address of the managing MMS User Agent (i.e., of the MMS User Agent that has sent the MM1_mmbox_view.REQ).   |
| Access Correlation       | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.  |
| Attributes list          | M <sub>o</sub> | A list of information elements that are to be returned as a group for each MM to be listed in the MM1_mmbox_view.RES. If absent, the default list (i.e. Message ID, Date and time, Sender address, Subject, Message size, MM State, and MM Flags) shall apply.                     |
| Message Selection        | M <sub>o</sub> | A list of MM State or MM Flags keywords (e.g. new or draft) or a list of Message Reference by which MMs within the MMBBox can be selected. If both are absent, a listing of all MMs currently stored within the MMBBox shall be selected.  |
| Start                    | M <sub>o</sub> | A number, indicating the index of the first MM of those selected to have information elements returned in the response. If this is absent, the first item selected is returned.  |
| Limit                    | M <sub>o</sub> | A number indicating the maximum number of selected MMs to their information elements returned in the response. If this is absent, information elements from all remaining MMs are returned.  |
| Totals requested         | M <sub>o</sub> | This field indicates whether the current total number of messages and/or size contained by the MMBBox has been requested by the managing MMS User Agent.   |
| Quotas requested         | M <sub>o</sub> | This field indicates whether the current message and/or size quotas (i.e. the maximum number of messages allowed and/or the maximum size allowed) has been requested by the managing MMS User Agent.   |
| MM listing               | M <sub>o</sub> | The requested listing of the selected MMs, which shall be one or more groups of information elements, one for each MM listed. Each MM group shall include: a Message Reference, and may include additional information elements as well. If absent, no MMs were found or selected. |
| Request Status Code      | M <sub>o</sub> | The status code of the request to view the MM as received in the MM1_view.RES.   |
| Status Text              | C <sub>o</sub> | This field includes the status text as received in the MM1_view.RES corresponding to the Request Status Code. Present only if provided in the MM1_view.RES.  |
| Totals                   | C <sub>o</sub> | The total number of messages and/or octets for the MMBBox, identified with Messages or Octets, respectively, depending upon the presence of Totals in the request.   |
| Quotas                   | C <sub>o</sub> | The quotas of the MMBBox in messages and/or octets identified with Messages or Octets, respectively, depending upon the presence of Quotas in the request.   |
| Sequence Number          | M <sub>o</sub> | Record number.   |
| Time Stamp               | M <sub>o</sub> | Time of generation of the CDR.   |
| Serving network identity | M <sub>o</sub> | SGSN PLMN Identifier (MCC and MNC) used during this record.  |
| Record extensions        | C <sub>o</sub> | A set of network/manufacture specific extensions to the record.  |

## 4.2.4.3 MMBox MM1 Upload CDR (Bx1U-CDR)

...

Table 4.26: MMBox MM1 Upload record (Bx1U-CDR)

| Field                     | Category       | Description  |
|---------------------------|----------------|--|
| Record Type               | M              | MMBox MM1 Upload record  |
| MMS Relay/Server Address  | M              | An address of the MMS Relay/Server.  |
| Managing address          | M              | The address of the managing MMS User Agent (i.e., of the MMS User Agent that sends the MM1_mmbox_upload.REQ).  |
| Access Correlation        | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.  |
| Message class             | C <sub>o</sub> | The class of the MM (e.g., personal, advertisement, information service) if provided by the MMS User Agent.  |
| Upload Time               | M <sub>o</sub> | The time and date at which the MM was uploaded (time stamp).   |
| Time of Expiry            | C <sub>o</sub> | The desired date of expiry or duration of time prior to expiry for the MM if specified by the originator MMS User Agent  |
| Earliest Time Of Delivery | C <sub>o</sub> | This field contains either the earliest time to deliver the MM or the number of seconds to wait before delivering the MM if specified by the originator MMS User Agent |
| Priority                  | C <sub>o</sub> | This field indicates the priority (importance) of the message if specified by the MMS User Agent,  |
| MM State                  | M <sub>o</sub> | The state of the MM. Will default to the Draft state if absent   |
| MM Flags                  | C <sub>o</sub> | If available, the keyword flags of the MM. There are no defaults.  |
| Content type              | M <sub>o</sub> | The content type of the MM content.  |
| Message size              | M <sub>o</sub> | The size of the MM.  |
| Message Reference         | M <sub>o</sub> | A reference to the newly stored MM, suitable for subsequent usage (e.g.: with MM1_retrieve.REQ, MM1_mmbox_delete.REQ, etc.).   |
| Request Status Code       | M <sub>o</sub> | The status code of the request to view the MM as received in the MM1_upload.RES.   |
| Status Text               | C <sub>o</sub> | This field includes the status text as received in the MM1_upload.RES corresponding to the Request Status Code. Present only if provided in the MM1_upload.RES.        |
| Sequence Number           | M <sub>o</sub> | Record number.   |
| Time Stamp                | M <sub>o</sub> | Time of generation of the CDR.   |
| Serving network identity  | M <sub>o</sub> | <u>SGSN PLMN Identifier (MCC and MNC) used during this record.</u>   |
| Record extensions         | C <sub>o</sub> | A set of network/manufacture specific extensions to the record.  |

#### 4.2.4.4 MMBox MM1 Delete CDR (Bx1D-CDR)

...

**Table 4.27: MMBox MM1 Delete record (Bx1D-CDR)**

| Field                    | Category       | Description   |
|--------------------------|----------------|---|
| Record Type              | M              | MMBox MM1 Delete record   |
| MMS Relay/Server Address | M              | An address of the MMS Relay/Server.   |
| Managing address         | M              | The address of the managing MMS User Agent (i.e., of the MMS User Agent that sends the MM1_mmbox_upload.REQ).   |
| Access Correlation       | M <sub>o</sub> | A unique identifier delivered by the used access network domain of the originator MMS User Agent.   |
| Message Reference        | C <sub>o</sub> | A reference to the message in error, if any, to which the following information elements apply  |
| Request Status Code      | M <sub>o</sub> | The status code of the request to view the MM as received in the MM1_delete.RES.  |
| Status Text              | C <sub>o</sub> | This field includes the status text as received in the MM1_delete.RES corresponding to the Request Status Code. Present only if provided in the MM1_delete.RES. |
| Sequence Number          | M <sub>o</sub> | Record number.  |
| Time Stamp               | M <sub>o</sub> | Time of generation of the CDR.  |
| Serving network identity | M <sub>o</sub> | <u>SGSN PLMN Identifier (MCC and MNC) used during this record.</u>  |
| Record extensions        | C <sub>o</sub> | A set of network/manufacture specific extensions to the record.   |

**End of Change in Clause 4.2.4**

**Change in Clause 5**

:

### 5.50 Serving network identity

In MM1related CDRs, this field contains a SGSN PLMN Identifier (Mobile Country Code and Mobile Network Code), of the SGSN that was used during the MM1 transaction. In the O4FRq-CDR, this field reflects the PLMN Identifier of the SGSN that was used when the MM1\_forward.REQ was received. In case the SGSN changes during the transaction, only the ID of the SGSN that was used at the beginning of the transaction is included in the CDR.

The MCC and MNC are coded as described for 'Routing Area Identity' in [19].

#### 5.510 Start

This field contains a number that may be used in the MM1\_mmbox\_view.REQ to index the first MM to be viewed, relative to the selected set of MMs, allowing partial views to be requested

:

**End of Change in Clause 5**

**Change in Clause 6**



## 6 Charging Data Record Structure

### 6.1 ASN.1 definitions for CDR information

The ASN.1 definitions are based on the charging specific data types within the current 3GPP 32-series, the TS 32.205 for CS domain [8] and TS 32.215 for PS domain [9].

TS32235-DataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) umts-Operation-Maintenance (3) ts-32-235 (235) informationModel (0) asn1Module (2) version1 (1)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

CallEventRecord, CallEventRecordType, ChargeIndicator, CallDuration, TimeStamp, MSISDN, CallReference, MscNo, ManagementExtensions  
FROM TS32205-DataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) umts-Operation-Maintenance (3) ts-32-205 (205) informationModel (0) asn1Module (2) version1 (1)}

--  
-- see TS 32.205[8]  
--

ChargingID, IPAddress, GSNAddress, LocalSequenceNumber, PLMN-Id

FROM TS32215-DataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) umts-Operation-Maintenance (3) ts-32-215 (215) informationModel (0) asn1Module (2) version1 (1)}

--  
-- see TS 32.215[9]  
--

-----  
--  
-- CALL AND EVENT RECORDS  
--  
-----

MMO1SRecord ::= SET

|                               |  |  |
|-------------------------------|--|--|
| {                             |  |  |
| recordType                    |  | [0] CallEventRecordType,               |
| originatorMmsRSAddress        |  | [1] MMSRSAddress,                      |
| messageID                     |  | [2] OCTET STRING,                      |
| replyChargingID               |  | [3] OCTET STRING OPTIONAL,             |
| originatorAddress             |  | [4] MMSAgentAddress,                   |
| recipientAddresses            |  | [5] MMSAgentAddresses,                 |
| accessCorrelation             |  | [6] AccessCorrelation OPTIONAL,        |
| contentType                   |  | [7] ContentType,                       |
| mmComponentType               |  | [8] MMComponentType OPTIONAL,          |
| messageSize                   |  | [9] DataVolume,                        |
| messageClass                  |  | [10] MessageClass OPTIONAL,            |
| chargeInformation             |  | [11] ChargeInformation OPTIONAL,       |
| submissionTime                |  | [12] TimeStamp OPTIONAL,               |
| timeOfExpiry                  |  | [13] WaitTime OPTIONAL,                |
| earliestTimeOfDelivery        |  | [14] WaitTime OPTIONAL,                |
| durationOfTransmission        |  | [15] INTEGER OPTIONAL,                 |
| requestStatusCode             |  | [16] RequestStatusCodeType OPTIONAL,   |
| deliveryReportRequested       |  | [17] BOOLEAN OPTIONAL,                 |
| replyCharging                 |  | [18] BOOLEAN OPTIONAL,                 |
| replyDeadline                 |  | [19] WaitTime OPTIONAL,                |
| replyChargingSize             |  | [20] DataVolume OPTIONAL,              |
| priority                      |  | [21] PriorityType OPTIONAL,            |
| senderVisibility              |  | [22] BOOLEAN OPTIONAL,                 |
| readReplyRequested            |  | [23] BOOLEAN OPTIONAL,                 |
| statusText                    |  | [24] StatusTextType,                   |
| recordTimeStamp               |  | [25] TimeStamp,                        |
| localSequenceNumber           |  | [26] LocalSequenceNumber OPTIONAL,     |
| recordExtensions              |  | [27] ManagementExtensions OPTIONAL,    |
| mMBoxStorageInformation       |  | [28] MMBoxStorageInformation OPTIONAL, |
| <u>servingNetworkIdentity</u> |  | [29] <u>PLMN-Id</u>                    |

```

}

MMO4FRqRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    originatorMmsRSAddress    [1] MMSRSAddress,
    recipientMmsRSAddress     [2] MMSRSAddress,
    messageID                 [3] OCTET STRING,
    mms3GPPVersion           [4] OCTET STRING OPTIONAL,
    originatorAddress         [5] MMSAgentAddress,
    recipientAddresses        [6] MMSAgentAddresses,
    contentType               [7] ContentType,
    mmComponentType           [8] MMComponentType OPTIONAL,
    messageSize               [9] DataVolume,
    messageClass              [10] MessageClass OPTIONAL,
    submissionTime            [11] TimeStamp,
    timeOfExpiry              [12] WaitTime OPTIONAL,
    deliveryReportRequested   [13] BOOLEAN,
    priority                   [14] PriorityType OPTIONAL,
    senderVisibility          [15] BOOLEAN,
    readReplyRequested        [16] BOOLEAN,
    acknowledgementRequest    [17] BOOLEAN,
    forwardCounter            [18] INTEGER OPTIONAL,
    forwardingAddress         [19] MMSAgentAddresses OPTIONAL,
    recordTimeStamp           [20] TimeStamp,
    localSequenceNumber       [21] LocalSequenceNumber OPTIONAL,
    recordExtensions          [22] ManagementExtensions OPTIONAL,
    servingNetworkIdentity    [23] PLMN-Id
}

MMO4FRsRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    originatorMmsRSAddress    [1] MMSRSAddress OPTIONAL,
    recipientMmsRSAddress     [2] MMSRSAddress,
    messageID                 [3] OCTET STRING,
    mms3GPPVersion           [4] OCTET STRING OPTIONAL,
    requestStatusCode         [5] RequestStatusCodeType OPTIONAL,
    statusText                 [6] StatusTextType OPTIONAL,
    recordTimeStamp           [7] TimeStamp OPTIONAL,
    localSequenceNumber       [8] LocalSequenceNumber OPTIONAL,
    recordExtensions          [9] ManagementExtensions OPTIONAL
}

MMO4DRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress OPTIONAL,
    originatorMmsRSAddress    [2] MMSRSAddress OPTIONAL,
    messageID                 [3] OCTET STRING,
    mms3GPPVersion           [4] OCTET STRING OPTIONAL,
    originatorAddress         [5] MMSAgentAddress OPTIONAL,
    recipientAddress          [6] MMSAgentAddress,
    mmDateAndTime             [7] TimeStamp,
    acknowledgementRequest    [8] BOOLEAN,
    mmStatusCode              [9] MMStatusCodeType,
    statusText                 [10] StatusTextType OPTIONAL,
    recordTimeStamp           [11] TimeStamp OPTIONAL,
    localSequenceNumber       [12] LocalSequenceNumber OPTIONAL,
    recordExtensions          [13] ManagementExtensions OPTIONAL
}

MMO1DRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress OPTIONAL,
    originatorMmsRSAddress    [2] MMSRSAddress OPTIONAL,
    accessCorrelation         [3] AccessCorrelation OPTIONAL,
    messageID                 [4] OCTET STRING,
    mms3GPPVersion           [5] OCTET STRING OPTIONAL,
    originatorAddress         [6] MMSAgentAddress OPTIONAL,
    recipientAddress          [7] MMSAgentAddress,
    mmStatusCode              [8] MMStatusCodeType OPTIONAL,
    recordTimeStamp           [9] TimeStamp OPTIONAL,
    localSequenceNumber       [10] LocalSequenceNumber OPTIONAL,
    recordExtensions          [11] ManagementExtensions OPTIONAL,
    servingNetworkIdentity    [12] PLMN-Id
}

```

```

}

MMO4RRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress OPTIONAL,
    originatorMmsRSAddress    [2] MMSRSAddress OPTIONAL,
    messageID                 [3] OCTET STRING,
    mms3GPPVersion           [4] OCTET STRING OPTIONAL,
    originatorAddress         [5] MMSAgentAddress OPTIONAL,
    recipientAddresses        [6] MMSAgentAddresses OPTIONAL,
    mmDateAndTime            [7] TimeStamp OPTIONAL,
    acknowledgementRequest    [8] BOOLEAN,
    readStatus                [9] MMSStatusCodeType OPTIONAL,
    statusText                [10] StatusTextType OPTIONAL,
    recordTimeStamp           [11] TimeStamp OPTIONAL,
    localSequenceNumber       [12] LocalSequenceNumber OPTIONAL,
    recordExtensions          [13] ManagementExtensions OPTIONAL
}

MMO1RRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress OPTIONAL,
    originatorMmsRSAddress    [2] MMSRSAddress OPTIONAL,
    accessCorrelation         [3] AccessCorrelation OPTIONAL,
    messageID                 [4] OCTET STRING,
    mms3GPPVersion           [5] OCTET STRING OPTIONAL,
    originatorAddress         [6] MMSAgentAddress OPTIONAL,
    recipientAddress          [7] MMSAgentAddress OPTIONAL,
    readStatus                [8] MMSStatusCodeType OPTIONAL,
    recordTimeStamp           [9] TimeStamp OPTIONAL,
    localSequenceNumber       [10] LocalSequenceNumber OPTIONAL,
    recordExtensions          [11] ManagementExtensions OPTIONAL,
    servingNetworkIdentity    [12] PLMN-Id
}

MMOMDRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    originatorMmsRSAddress    [1] MMSRSAddress OPTIONAL,
    recipientMmsRSAddress     [2] MMSRSAddress OPTIONAL,
    messageID                 [3] OCTET STRING,
    messageSize               [4] DataVolume OPTIONAL,
    mmStatusCode              [5] MMSStatusCodeType OPTIONAL,
    statusText                [6] StatusTextType OPTIONAL,
    recordTimeStamp           [7] TimeStamp OPTIONAL,
    localSequenceNumber       [8] LocalSequenceNumber OPTIONAL,
    recordExtensions          [9] ManagementExtensions OPTIONAL
}

MMR4FRecord ::= SET
{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress,
    originatorMmsRSAddress    [2] MMSRSAddress,
    messageID                 [3] OCTET STRING,
    mms3GPPVersion           [4] OCTET STRING OPTIONAL,
    originatorAddress         [5] MMSAgentAddress,
    recipientAddresses        [6] MMSAgentAddresses,
    contentType               [7] ContentType,
    mmComponentType           [8] MMComponentType OPTIONAL,
    messageSize               [9] DataVolume,
    messageClass              [10] MessageClass OPTIONAL,
    submissionTime            [11] TimeStamp,
    timeOfExpiry              [12] WaitTime OPTIONAL,
    deliveryReportRequested   [13] BOOLEAN,
    priority                  [14] PriorityType OPTIONAL,
    senderVisibility          [15] BOOLEAN,
    readReplyRequested        [16] BOOLEAN,
    requestStatusCode         [17] RequestStatusCodeType,
    statusText                [18] StatusTextType,
    acknowledgementRequest    [19] BOOLEAN,
    forwardCounter            [20] INTEGER OPTIONAL,
    forwardingAddress         [21] MMSAgentAddresses OPTIONAL,
    recordTimeStamp           [22] TimeStamp,
    localSequenceNumber       [23] LocalSequenceNumber OPTIONAL,
}

```

```

    recordExtensions          [24] ManagementExtensions OPTIONAL
}

```

```
MMR1NRqRecord ::= SET
```

```

{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress,
    messageID                 [2] OCTET STRING,
    replyChargingID           [3] OCTET STRING OPTIONAL,
    senderAddress             [4] MMSAgentAddress,
    recipientAddress          [5] MMSAgentAddress,
    accessCorrelation         [6] AccessCorrelation OPTIONAL,
    messageClass              [7] MessageClass OPTIONAL,
    mmComponentType           [8] MMComponentType OPTIONAL,
    messageSize               [9] Data Volume,
    timeOfExpiry              [10] WaitTime OPTIONAL,
    messageReference          [11] OCTET STRING,
    deliveryReportRequested   [12] BOOLEAN OPTIONAL,
    replyCharging             [13] BOOLEAN OPTIONAL,
    replyDeadline             [14] WaitTime OPTIONAL,
    replyChargingSize         [15] Data Volume OPTIONAL,
    mmStatusCode              [16] MMStatusCodeType OPTIONAL,
    statusText                [17] StatusTextType OPTIONAL,
    recordTimeStamp           [18] TimeStamp OPTIONAL,
    localSequenceNumber       [19] LocalSequenceNumber OPTIONAL,
    recordExtensions          [20] ManagementExtensions OPTIONAL,
    servingNetworkIdentity    [21] PLMN-Id
}

```

```
MMR1NRsRecord ::= SET
```

```

{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress,
    messageID                 [2] OCTET STRING,
    recipientAddress          [3] MMSAgentAddress,
    accessCorrelation         [4] AccessCorrelation OPTIONAL,
    reportAllowed             [5] BOOLEAN OPTIONAL,
    mmStatusCode              [6] MMStatusCodeType OPTIONAL,
    statusText                [7] StatusTextType OPTIONAL,
    recordTimeStamp           [8] TimeStamp OPTIONAL,
    localSequenceNumber       [9] LocalSequenceNumber OPTIONAL,
    recordExtensions          [10] ManagementExtensions OPTIONAL,
    servingNetworkIdentity    [11] PLMN-Id
}

```

```
MMR1RtRecord ::= SET
```

```

{
    recordType                [0] CallEventRecordType,
    recipientMmsRSAddress     [1] MMSRSAddress,
    messageID                 [2] OCTET STRING,
    replyChargingID           [3] OCTET STRING OPTIONAL,
    senderAddress             [4] MMSAgentAddress OPTIONAL,
    recipientAddress          [5] MMSAgentAddress,
    accessCorrelation         [6] AccessCorrelation OPTIONAL,
    contentType              [7] ContentType,
    mmComponentType           [8] MMComponentType OPTIONAL,
    messageClass              [9] MessageClass OPTIONAL,
    submissionTime            [10] TimeStamp,
    messageSize               [11] Data Volume OPTIONAL,
    deliveryReportRequested   [12] BOOLEAN OPTIONAL,
    priority                  [13] PriorityType OPTIONAL,
    readReplyRequested        [14] BOOLEAN OPTIONAL,
    mmStatusCode              [15] MMStatusCodeType OPTIONAL,
    statusText                [16] StatusTextType OPTIONAL,
    replyDeadline             [17] WaitTime OPTIONAL,
    replyChargingSize         [18] Data Volume OPTIONAL,
    durationOfTransmission    [19] INTEGER OPTIONAL,
    timeOfExpiry              [20] WaitTime OPTIONAL,
    recordTimeStamp           [21] TimeStamp OPTIONAL,
    localSequenceNumber       [22] LocalSequenceNumber OPTIONAL,
    recordExtensions          [23] ManagementExtensions OPTIONAL,
    messageReference          [24] OCTET STRING,
    servingNetworkIdentity    [25] PLMN-Id
}

```

```
MMR1ARecord ::= SET
```

```

{
  recordType                [0] CallEventRecordType,
  recipientMmsRSAddress     [1] MMSRSAddress,
  messageID                 [2] OCTET STRING,
  recipientAddress         [3] MMSAgentAddress,
  accessCorrelation        [4] AccessCorrelation OPTIONAL,
  reportAllowed             [5] BOOLEAN OPTIONAL,
  mmStatusCode              [6] MMStatusCodeType OPTIONAL,
  statusText                [7] StatusTextType OPTIONAL,
  recordTimeStamp          [8] TimeStamp OPTIONAL,
  localSequenceNumber      [9] LocalSequenceNumber OPTIONAL,
  recordExtensions         [10] ManagementExtensions OPTIONAL,
  servingNetworkIdentity   [11] PLMN-Id
}

```

MMR4DRqRecord ::= SET

```

{
  recordType                [0] CallEventRecordType,
  recipientMmsRSAddress     [1] MMSRSAddress,
  originatorMmsRSAddress   [2] MMSRSAddress,
  messageID                 [3] OCTET STRING,
  mms3GPPVersion           [4] OCTET STRING OPTIONAL,
  originatorAddress        [5] MMSAgentAddress,
  recipientAddress         [6] MMSAgentAddress,
  mmDateAndTime            [7] TimeStamp OPTIONAL,
  acknowledgementRequest   [8] BOOLEAN,
  mmStatusCode              [9] MMStatusCodeType OPTIONAL,
  statusText                [10] StatusTextType OPTIONAL,
  recordTimeStamp          [11] TimeStamp OPTIONAL,
  localSequenceNumber      [12] LocalSequenceNumber OPTIONAL,
  recordExtensions         [13] ManagementExtensions OPTIONAL
}

```

MMR4DRsRecord ::= SET

```

{
  recordType                [0] CallEventRecordType,
  recipientMmsRSAddress     [1] MMSRSAddress,
  originatorMmsRSAddress   [2] MMSRSAddress,
  messageID                 [3] OCTET STRING,
  mms3GPPVersion           [4] OCTET STRING OPTIONAL,
  requestStatusCode        [5] RequestStatusCodeType OPTIONAL,
  statusText                [6] StatusTextType OPTIONAL,
  recordTimeStamp          [7] TimeStamp OPTIONAL,
  localSequenceNumber      [8] LocalSequenceNumber OPTIONAL,
  recordExtensions         [9] ManagementExtensions OPTIONAL
}

```

MMR1RRRecord ::= SET

```

{
  recordType                [0] CallEventRecordType,
  recipientMmsRSAddress     [1] MMSRSAddress,
  messageID                 [2] OCTET STRING,
  recipientAddress         [3] MMSAgentAddress,
  originatorAddress        [4] MMSAgentAddress,
  accessCorrelation        [5] AccessCorrelation OPTIONAL,
  mmStatusCode              [6] MMStatusCodeType OPTIONAL,
  statusText                [7] StatusTextType OPTIONAL,
  recordTimeStamp          [8] TimeStamp OPTIONAL,
  localSequenceNumber      [9] LocalSequenceNumber OPTIONAL,
  recordExtensions         [10] ManagementExtensions OPTIONAL,
  servingNetworkIdentity   [11] PLMN-Id
}

```

MMR4RRqRecord ::= SET

```

{
  recordType                [0] CallEventRecordType,
  recipientMmsRSAddress     [1] MMSRSAddress,
  originatorMmsRSAddress   [2] MMSRSAddress,
  messageID                 [3] OCTET STRING,
  mms3GPPVersion           [4] OCTET STRING OPTIONAL,
  originatorAddress        [5] MMSAgentAddress,
  recipientAddress         [6] MMSAgentAddress,
  mmDateAndTime            [7] TimeStamp OPTIONAL,
  acknowledgementRequest   [8] BOOLEAN,
  mmStatusCode              [9] MMStatusCodeType OPTIONAL,
  statusText                [10] StatusTextType OPTIONAL,
  recordTimeStamp          [11] TimeStamp OPTIONAL,
}

```

```

    localSequenceNumber [12] LocalSequenceNumber OPTIONAL,
    recordExtensions [13] ManagementExtensions OPTIONAL
}

MMR4RRsRecord ::= SET
{
    recordType [0] CallEventRecordType,
    recipientMmsRSAddress [1] MMSRSAddress,
    originatorMmsRSAddress [2] MMSRSAddress,
    messageID [3] OCTET STRING,
    mms3GPPVersion [4] OCTET STRING OPTIONAL,
    requestStatusCode [5] RequestStatusCodeType OPTIONAL,
    statusText [6] StatusTextType OPTIONAL,
    recordTimeStamp [7] TimeStamp OPTIONAL,
    localSequenceNumber [8] LocalSequenceNumber OPTIONAL,
    recordExtensions [9] ManagementExtensions OPTIONAL
}

MMRMDRecord ::= SET
{
    recordType [0] CallEventRecordType,
    originatorMmsRSAddress [1] MMSRSAddress,
    recipientMmsRSAddress [2] MMSRSAddress OPTIONAL,
    messageID [3] OCTET STRING,
    messageSize [4] DataVolume,
    mmStatusCode [5] MMStatusCodeType OPTIONAL,
    statusText [6] StatusTextType OPTIONAL,
    recordTimeStamp [7] TimeStamp OPTIONAL,
    localSequenceNumber [8] LocalSequenceNumber OPTIONAL,
    recordExtensions [9] ManagementExtensions OPTIONAL
}

MMFRecord ::= SET
{
    recordType [0] CallEventRecordType,
    forwardingMmsRSAddress [1] MMSRSAddress,
    messageID [2] OCTET STRING,
    forwardingAddress [3] MMSAgentAddress,
    recipientAddresses [4] MMSAgentAddresses,
    chargeInformation [5] ChargeInformation OPTIONAL,
    timeOfExpiry [6] WaitTime OPTIONAL,
    earliestTimeOfDelivery [7] WaitTime OPTIONAL,
    deliveryReportRequested [8] BOOLEAN OPTIONAL,
    readReplyRequested [9] BOOLEAN OPTIONAL,
    messageReference [10] OCTET STRING,
    mmStatusCode [11] MMStatusCodeType OPTIONAL,
    statusText [12] StatusTextType OPTIONAL,
    recordTimeStamp [13] TimeStamp OPTIONAL,
    localSequenceNumber [14] LocalSequenceNumber OPTIONAL,
    recordExtensions [15] ManagementExtensions OPTIONAL,
    mMBx1StorageInformation [16] MMBx1StorageInformation OPTIONAL,
    servingNetworkIdentity [17] PLMN-Id
}

MMBx1SRecord ::= SET
{
    recordType [0] CallEventRecordType,
    mmsRelayAddress [1] IPAddress,
    managingAddress [2] MMSAgentAddress,
    accessCorrelation [3] AccessCorrelation OPTIONAL,
    contentType [4] ContentType OPTIONAL,
    messageSize [5] DataVolume OPTIONAL,
    messageReference [6] OCTET STRING OPTIONAL,
    mmState [7] OCTET STRING OPTIONAL,
    mmFlags [8] OCTET STRING OPTIONAL,
    storeStatus [9] StoreStatus OPTIONAL,
    storeStatusText [10] StatusTextType OPTIONAL,
    sequenceNumber [11] INTEGER OPTIONAL,
    timeStamp [12] TimeStamp OPTIONAL,
    recordExtensions [13] ManagementExtensions OPTIONAL,
    servingNetworkIdentity [14] PLMN-Id
}

MMBx1VRecord ::= SET
{
    recordType [0] CallEventRecordType,
    mmsRelayAddress [1] IPAddress,

```

|                               |                                      |
|-------------------------------|--------------------------------------|
| managingAddress               | [2] MMSAgentAddress,                 |
| accessCorrelation             | [3] AccessCorrelation OPTIONAL,      |
| attributesList                | [4] AttributesList OPTIONAL,         |
| messageSelection              | [5] MessageSelection OPTIONAL,       |
| start                         | [6] INTEGER OPTIONAL,                |
| limit                         | [7] INTEGER OPTIONAL,                |
| totalsRequested               | [8] BOOLEAN OPTIONAL,                |
| quotasRequested               | [9] BOOLEAN OPTIONAL,                |
| mmListing                     | [10] AttributesList OPTIONAL,        |
| requestStatusCode             | [11] RequestStatusCodeType OPTIONAL, |
| statusText                    | [12] StatusTextType OPTIONAL,        |
| totals                        | [13] Totals OPTIONAL,                |
| quotas                        | [14] Quotas OPTIONAL,                |
| sequenceNumber                | [15] INTEGER OPTIONAL,               |
| timeStamp                     | [16] TimeStamp OPTIONAL,             |
| recordExtensions              | [17] ManagementExtensions OPTIONAL,  |
| <u>servingNetworkIdentity</u> | [18] <u>PLMN-Id</u>                  |

MMBxIURecord ::= SET

|                               |                                      |
|-------------------------------|--------------------------------------|
| recordType                    | [0] CallEventRecordType,             |
| mmsRelayAddress               | [1] IPAddress,                       |
| managingAddress               | [2] MMSAgentAddress,                 |
| accessCorrelation             | [3] AccessCorrelation OPTIONAL,      |
| recipientsAddressList         | [4] MMSAgentAddresses,               |
| messageClass                  | [5] MessageClass OPTIONAL,           |
| uploadTime                    | [6] TimeStamp OPTIONAL,              |
| timeOfExpiry                  | [7] WaitTime OPTIONAL,               |
| earliestTimeOfDelivery        | [8] WaitTime OPTIONAL,               |
| priority                      | [9] Priority OPTIONAL,               |
| mmState                       | [10] OCTET STRING OPTIONAL,          |
| mmFlags                       | [11] OCTET STRING OPTIONAL,          |
| contentType                   | [12] ContentType OPTIONAL,           |
| messageSize                   | [13] DataVolume OPTIONAL,            |
| messageReference              | [14] OCTET STRING OPTIONAL,          |
| requestStatusCode             | [15] RequestStatusCodeType OPTIONAL, |
| statusText                    | [16] StatusTextType OPTIONAL,        |
| sequenceNumber                | [17] INTEGER OPTIONAL,               |
| timeStamp                     | [18] TimeStamp OPTIONAL,             |
| recordExtensions              | [19] ManagementExtensions OPTIONAL,  |
| <u>servingNetworkIdentity</u> | [20] <u>PLMN-Id</u>                  |

MMBxIDRecord ::= SET

|                               |                                     |
|-------------------------------|-------------------------------------|
| recordType                    | [0] CallEventRecordType,            |
| mmsRelayAddress               | [1] IPAddress,                      |
| managingAddress               | [2] MMSAgentAddress,                |
| accessCorrelation             | [3] AccessCorrelation OPTIONAL,     |
| messageReference              | [4] OCTET STRING OPTIONAL,          |
| requestStatusCode             | [5] RequestStatusCodeType OPTIONAL, |
| statusText                    | [6] StatusTextType OPTIONAL,        |
| sequenceNumber                | [7] INTEGER OPTIONAL,               |
| timeStamp                     | [8] TimeStamp OPTIONAL,             |
| recordExtensions              | [9] ManagementExtensions OPTIONAL,  |
| <u>servingNetworkIdentity</u> | [10] <u>PLMN-Id</u>                 |

MM7SRecord ::= SET

|                        |                                  |
|------------------------|----------------------------------|
| recordType             | [0] CallEventRecordType,         |
| originatorMmsRSAddress | [1] MMSRSAddress,                |
| linkedID               | [2] OCTET STRING OPTIONAL,       |
| vaspID                 | [3] OCTET STRING,                |
| vasID                  | [4] OCTET STRING,                |
| messageID              | [5] OCTET STRING,                |
| originatorAddress      | [6] MMSAgentAddress,             |
| recipientAddresses     | [7] MMSAgentAddresses,           |
| serviceCode            | [8] OCTET STRING OPTIONAL,       |
| contentType            | [9] ContentType,                 |
| mmComponentType        | [10] MMComponentType OPTIONAL,   |
| messageSize            | [11] DataVolume,                 |
| messageClass           | [12] MessageClass OPTIONAL,      |
| chargeInformation      | [13] ChargeInformation OPTIONAL, |
| submissionTime         | [14] TimeStamp OPTIONAL,         |
| timeOfExpiry           | [15] WaitTime OPTIONAL,          |

```

earliestTimeOfDelivery      [16] WaitTime OPTIONAL,
deliveryReportRequested     [17] BOOLEAN OPTIONAL,
readReplyRequested         [18] BOOLEAN OPTIONAL,
replyCharging              [19] BOOLEAN OPTIONAL,
replyDeadline              [20] WaitTime OPTIONAL,
replyChargingSize          [21] DataVolume OPTIONAL,
priority                   [22] PriorityType OPTIONAL,
messageDistributionIndicator [23] BOOLEAN OPTIONAL,
requestStatusCode          [24] RequestStatusCodeType OPTIONAL,
statusText                 [25] StatusTextType OPTIONAL,
recordTimeStamp            [26] TimeStamp,
localSequenceNumber        [27] LocalSequenceNumber OPTIONAL,
recordExtensions           [28] ManagementExtensions OPTIONAL,
}

```

```
MM7DRqRecord ::= SET
```

```

{
  recordType                [0] CallEventRecordType,
  recipientMmsRSAddress     [1] MMSRSAddress,
  linkedID                  [2] OCTET STRING OPTIONAL,
  replyChargingID           [3] OCTET STRING OPTIONAL,
  originatorAddress         [4] MMSAgentAddress,
  recipientAddress          [5] MMSAgentAddress,
  mmComponentType           [6] MMComponentType OPTIONAL,
  messageSize               [7] DataVolume,
  contentType               [8] ContentType,
  priority                  [9] PriorityType OPTIONAL,
  recordTimeStamp           [10] TimeStamp OPTIONAL,
  localSequenceNumber       [11] LocalSequenceNumber OPTIONAL,
  recordExtensions          [12] ManagementExtensions OPTIONAL
}

```

```
MM7DRsRecord ::= SET
```

```

{
  recordType                [0] CallEventRecordType,
  recipientMmsRSAddress     [1] MMSRSAddress,
  messageID                 [2] OCTET STRING,
  recipientAddress          [3] MMSAgentAddress,
  serviceCode               [4] OCTET STRING OPTIONAL,
  requestStatusCode         [5] RequestStatusCodeType OPTIONAL,
  statusText                [6] StatusTextType OPTIONAL,
  recordTimeStamp           [7] TimeStamp OPTIONAL,
  localSequenceNumber       [8] LocalSequenceNumber OPTIONAL,
  recordExtensions          [9] ManagementExtensions OPTIONAL
}

```

```
MM7CRecord ::= SET
```

```

{
  recordType                [0] CallEventRecordType,
  originatorMmsRSAddress    [1] MMSRSAddress,
  vaspID                    [2] OCTET STRING,
  vasID                     [3] OCTET STRING,
  messageID                 [4] OCTET STRING,
  originatorAddress         [5] MMSAgentAddress,
  serviceCode               [6] OCTET STRING OPTIONAL,
  requestStatusCode         [7] RequestStatusCodeType OPTIONAL,
  statusText                [8] StatusTextType OPTIONAL,
  recordTimeStamp           [9] TimeStamp OPTIONAL,
  localSequenceNumber       [10] LocalSequenceNumber OPTIONAL,
  recordExtensions          [11] ManagementExtensions OPTIONAL
}

```

```
MM7RRecord ::= SET
```

```

{
  recordType                [0] CallEventRecordType,
  originatorMmsRSAddress    [1] MMSRSAddress,
  vaspID                    [2] OCTET STRING,
  vasID                     [3] OCTET STRING,
  messageID                 [4] OCTET STRING,
  originatorAddress         [5] MMSAgentAddress,
  serviceCode               [6] OCTET STRING OPTIONAL,
  contentType               [7] ContentType,
  submissionTime            [8] TimeStamp OPTIONAL,
  timeOfExpiry              [9] WaitTime OPTIONAL,
  earliestTimeOfDelivery    [10] WaitTime OPTIONAL,
  requestStatusCode         [11] RequestStatusCodeType OPTIONAL,
  statusText                [12] StatusTextType OPTIONAL,
}

```



```

    recordTimeStamp      [13] TimeStamp OPTIONAL,
    localSequenceNumber [14] LocalSequenceNumber OPTIONAL,
    recordExtensions     [15] ManagementExtensions OPTIONAL
}

```

```

MM7DRRqRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recipientMmsRSAddress [1] MMSRSAddress OPTIONAL,
    messageID           [2] OCTET STRING,
    originatorAddress    [3] MMSAgentAddress OPTIONAL,
    recipientAddress     [4] MMSAgentAddress,
    mmDateAndTime       [5] TimeStamp OPTIONAL,
    mmStatusCode         [6] MMSStatusCodeTypeL,
    mmStatusText        [7] StatusTextType OPTIONAL,
    recordTimeStamp      [8] TimeStamp OPTIONAL,
    localSequenceNumber [9] LocalSequenceNumber OPTIONAL,
    recordExtensions     [10] ManagementExtensions OPTIONAL
}

```

```

MM7DRRsRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recipientMmsRSAddress [1] MMSRSAddress OPTIONAL,
    messageID           [2] OCTET STRING,
    originatorAddress    [3] MMSAgentAddress OPTIONAL,
    recipientAddress     [4] MMSAgentAddress,
    requestStatusCode    [5] RequestStatusCodeType OPTIONAL,
    statusText          [6] StatusTextType OPTIONAL,
    recordTimeStamp      [7] TimeStamp OPTIONAL,
    localSequenceNumber [8] LocalSequenceNumber OPTIONAL,
    recordExtensions     [9] ManagementExtensions OPTIONAL
}

```

```

MM7RRqRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recipientMmsRSAddress [1] MMSRSAddress OPTIONAL,
    messageID           [2] OCTET STRING,
    originatorAddress    [3] MMSAgentAddress OPTIONAL,
    recipientAddress     [4] MMSAgentAddress,
    mmDateAndTime       [5] TimeStamp OPTIONAL,
    readStatus          [6] MMSStatusCodeType,
    mmStatusText        [7] StatusTextType OPTIONAL,
    recordTimeStamp      [8] TimeStamp OPTIONAL,
    localSequenceNumber [9] LocalSequenceNumber OPTIONAL,
    recordExtensions     [10] ManagementExtensions OPTIONAL
}

```

```

MM7RRsRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recipientMmsRSAddress [1] MMSRSAddress OPTIONAL,
    messageID           [2] OCTET STRING,
    originatorAddress    [3] MMSAgentAddress OPTIONAL,
    recipientAddress     [4] MMSAgentAddress,
    requestStatusCode    [5] RequestStatusCodeType OPTIONAL,
    statusText          [6] StatusTextType OPTIONAL,
    recordTimeStamp      [7] TimeStamp OPTIONAL,
    localSequenceNumber [8] LocalSequenceNumber OPTIONAL,
    recordExtensions     [9] ManagementExtensions OPTIONAL
}

```

```

-----
--
-- COMMON DATA TYPES
--
-----

```

...

<unmodified text>

**End of Change in Clause 6**  
**End of document**