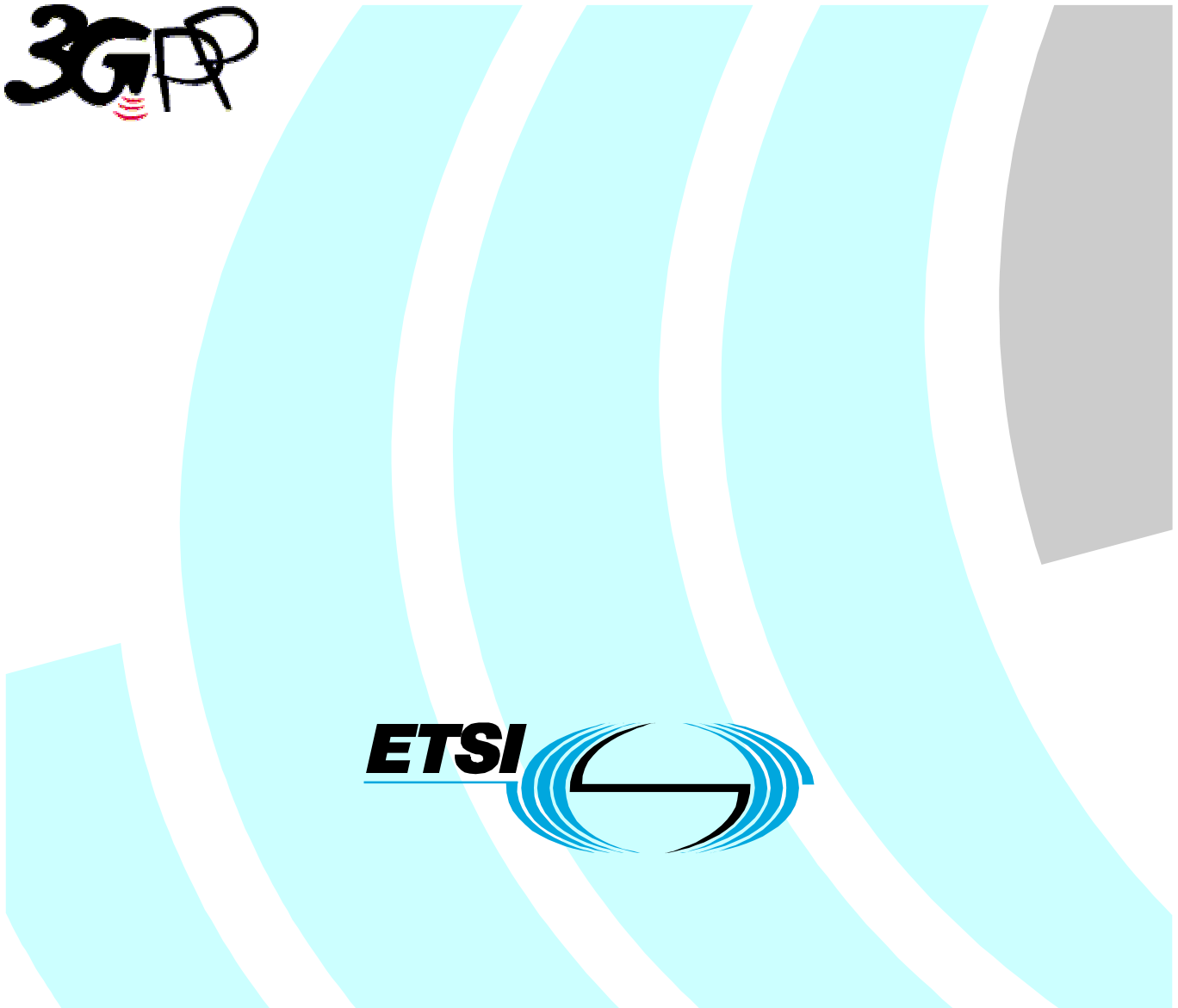
ETSI TS 132 235 V4.0.0 (2001-09)

Technical Specification

Universal Mobile Telecommunications System (UMTS);
Telecommunication management;
Charging management;
Charging data description for application services
(3GPP TS 32.235 version 4.0.0 Release 4)



Reference
DTS/TSGS-0532235Uv4

Keywords
UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
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Foreword

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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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1 Scope

The present document is part of a series of documents specifying charging functionality in UMTS network with application services. The UMTS core network charging principles are specified in document TS 32.200 [2], which provides an umbrella for other charging documents that specify the structure and content of the CDRs and the interface protocol that is used to transfer them to the collecting node. The document structure is defined in figure 1. The CDR content and transport for application services are described in the present document especially for MMS. As the basis and reference for this work is taken the functional description of the MMS specified for stage 1 in TS 22.140[3] and stage 2 in TS 23.140[4].

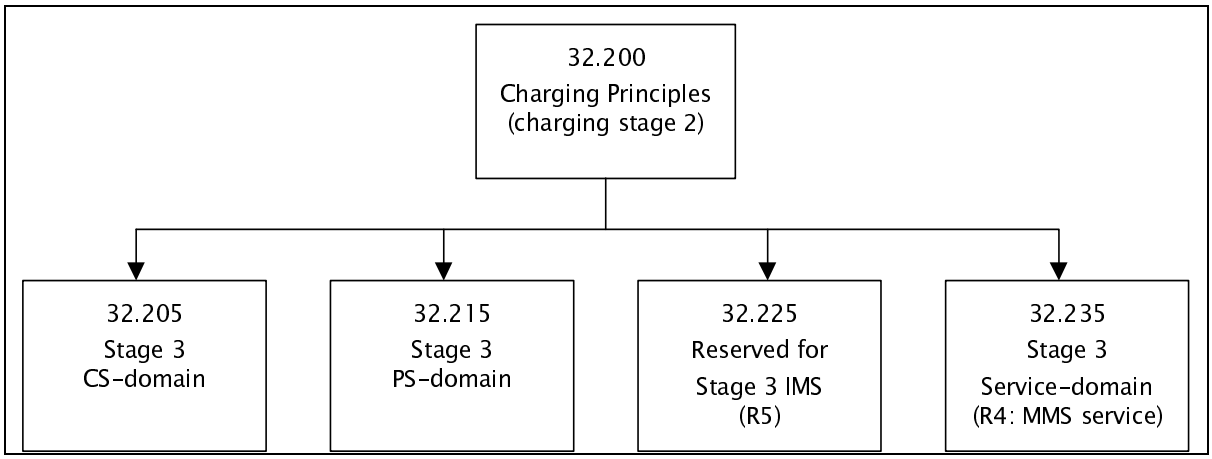

Figure 1 Charging Document Structure

All references, abbreviations, definitions, descriptions, principles and requirements that are common are defined in the 3GPP Vocabulary [1] and specialised to charging in UMTS domains or subsystems are provided in the umbrella document [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] 3GPP TR 23.039: "Interface protocols for the connection of Short Message Service Centres (SSMCs) to Short Message Entities (SMEs)"

[8] "The Unicode Standard", Version 2.0, Unicode Consortium, Addision-Wesley Dev. Press, 1996.

[9] ANSI X3.4-1986: "Information Systems – Coded Character Sets – 7-Bit American National Standard Code for Information Interchange (7-Bit ASCII)"..

[10] ISO-8859-1 (1987): "Information technology - 8-bit single-byte coded graphic character sets; Part 1: Latin alphabet No. 1".

[11] RFC 2279, "UTF-8, a transformation format of ISO 10646".

[12] 3GPP TS 26.090: "Mandatory Speech Codec speech processing functions AMR Speech Codec Speech Transcoding Functions".

[13] Internet draft "RTP payload format and file storage format for AMR and AMR-WB audio"; IETF URL: http://search.ietf.org/internet-drafts/draft-ietf-avt-rtp-amr-07.txt

NOTE: The reference is work in progress in IETF/AVT working group and to be replaced by the appropriate RFC number once the Internet draft is approved within the IETF (IESG approval is scheduled to spring/summer 2001).

[14] MP3, MPEG1-Audio ISO/IEC 11172-3, MPEG2-Audio ISO/IEC 11172-3: "Information technology; Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s; Part 3: Audio".

[15] MIDI SDS, International Midi Association, 5316 West 57th Street, Los Angeles, CA 90056, (415) 321-MIDI.

[16] ISO/IEC TR 13818-5:1997/Amd 1: "1999 Advanced Audio Coding (AAC)".

[17] ITU-T Recommendation T.81 | ISO/IEC 10918-1:1992, "Information Technology - Digital compression and coding of continuous-tone still images: requirements and guidelines".

[18] Graphics Interchange Format (Version 89a), Compuserve, Inc., Columbus, Ohio, 1990.

[19] 3GPP TS 26.234: "Packet-switched Streaming Service (PSS); Protocols and Codecs".

[20] ISO/IEC 14496-2:1999/FDAM4, ISO/IEC JTC1/SC 29/WG11 N3904, Pisa, January, 2001

[21] ITU-T Recommendation H.263 (1998): "Video coding for low bit rate communication".

[22] International Standard ISO/IEC 14496-2 (1999): "Information Technology - Coding of Audio-Visual Objects - Part 2: Visual".

[23] ITU-T Recommendation H.263: "Annex X, Profiles and Levels Definition"

[25] 3GPP TS 32.205: "Charging Data Description for the Circuit Switched (CS) domain".

[26] 3GPP TS 32.215: "Charging Data Description for the Packet Switched (PS) domain".

[27] GSM 12.01: "Digital cellular telecommunication system (Phase 2); Common aspects of GSM Network Management (NM)".

[28] IETF RFC 959: "File Transfer Protocol (FTP)"; October 1985.

[29] IETF RFC 783: "Trivial File Transfer Protocol (TFTP)"; revision 2.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply in addition to those defined in 3GPP TR 21.905 [1] and 3GPP TS 22.140 [3]:

MMSE: a collection of MMS-specific elements under the control of a single administration

MMS Relay/Server: an MMS-specific network entity/application that is under the control of an MMS service provider. An MMS Relay/Server transfers messages, provides operations of the MMS that are specific to or required by the mobile environment and provides (temporary and/or persistent) storage services to the MMS

MMS User Agent: an application residing on a User Equipment, an Mobile Station or an external device that performs MMS-specific operations on a user's behalf. An MMS User Agent is not considered part of an MMSE.

Originator MMS User Agent: an MMS User Agent associated with the sender of an MM

Recipient MMS User Agent: an MMS User Agent associated with the recipient of an MM

3.2 Abbreviations

For the purposes of the present document, the abbreviations defined in 3GPP TR 21.905 [1], 3GPP TS 32.200 [2]and 3GPP TS 23 140 [4] and the following apply:

EM	Element Manager
MIME	Multipurpose Internet Mail Extensions
MM	Multimedia Message
MMS	Multimedia Messaging Service
MMSE	Multimedia Messaging Service Element (can also be Multimedia Messaging Service Environment in other technical specifications)
MMSO	Multimedia Messaging Service Originator
MMSR	Multimedia Messaging Service Recipient

4 Record Description

Two types of CDRs can be generated in the service domain for MMS by the MMS Relay/Servers. As described in TS32.200 [2], these types are: MMSO-CDR and MMSR-CDR. The content of each CDR type is defined in one of the two tables that are part of this clause. For each CDR type the field definition includes the field name, description and category.

Equipment vendors shall be able to provide all of the fields listed in the CDR content table in order to claim compliance with the present document. However, since CDR processing and transport consume network resources, operators may opt to eliminate some of the fields that are not essential for their operation. This operator provisionable reduction is specified by the field category.

A field category can have one of two primary values:

M This field is **M**andatory and shall always be present in the CDR.

C This field shall be present in the CDR only when certain Conditions are met.. These Conditions are specified as part of the field definition.

All other fields are designated as Operator (**O**) provisionable. Note that previously the letter "**O**" represented the word "Optional". Using TMN management functions or specific tools provided by an equipment vendor, operators may choose if they wish to include or omit the field from the CDR. Once omitted, this field is not generated in a CDR. To avoid any potential ambiguity, a CDR generating element MUST be able to provide all these fields. Only an operator can choose whether or not these fields should be generated in their system.

Those fields that the operator wishes to be present are further divided into a mandatory and conditional categories:

O_M This is a field that, if provisioned by the operator to be present, shall always be included in the CDRs. In other words, an O_M parameter that is provisioned to be present is a mandatory parameter.

O_C This is a field that, if provisioned by the operator to be present, shall be included in the CDRs when the required conditions are met. In other words, an O_C parameter that is configured to be present is a conditional parameter.

The MMS Relay/Server shall be able to provide the CDRs at the Billing System interface in the format and encoding described in the present document. Additional CDR formats and contents, generated by the MMS Relay/Server, may be available at the interface to the billing system to meet the requirements of the billing system.

4.1 Service record for originating MMS (MMSO-CDR)

If enabled, an MMSO-CDR mobile originated MMS record shall be produced for each originating MM sent by a mobile user agent via the MMS Relay/Server.

Table 1: Mobile originated MMS record (MMSO-CDR)

Field	Category	Description
Record Type	M	Mobile Originated MMS.
MMS Relay Address	M	The IP address of the MMS Relay/Server of the originated MM.
Message ID	M	The MM identification provided by the MMS Relay/Server.
Reply Message ID	C	The reference MM identification provided by the MMS Relay/Server to correlate to the original MM in case of a Reply-Charging (See "Charge Information" parameter description.).
Originator address	M	The address of the originator MMS user agent of the original MM, i.e. the recipient of the read-reply report.
Recipient(s) address	M	The address(es) of the recipient(s) MMS user agent of the original MM, i.e. the originator of the read-reply report. Multiple addresses are possible. Note: a multiple group may be addressed.
Access Correlation	O_M	A unique identifier delivered by the used access network domain of the originating MMS User Agent.
Content type	M	The content type of the MM content.
Message size	M	The size of the MM.
Message type	M	The category of the MM.
Forwarded Message Indicator	C	If present, this field shall indicate that the original MM was forwarded.
Message class	M	The class selection such as personal, advertisement, information service.
Charge Information	C	The charge indication and charge type.
Submission Time	M	The time at which the MM was submitted from the originator MMS user agent.
Time of Expiry	C	The desired date or duration of time prior to of expiry for the MM or reply-MM if specified by the originator MMS user agent.
Earliest Time Of Delivery	C	This field contains either the earliest time to deliver message or the number of seconds to wait before delivering the message.
Duration Of Transmission	O_M	The time used for transmission of the MM between the user agent and the relay server..
Duration Of Storage	O_M	The storage time of the MM in the MMS Relay/Server.
Delivery Type	O_M	The status code of the delivered MM.
Delivery Result	C	The status of the delivered MM if requested.
Status Code	O_M	This field includes a more detailed technical status of delivering the message
Sequence Number	C	Number of partial record if applicable
Record extensions	O_C	A set of network/manufacturer specific extensions to the record.

4.2 Service record for recipient MMS (MMSR-CDR)

If enabled, an MMSR-CDR mobile recipient MMS record shall be produced for each terminating MM sent by a mobile user agent via the MMS Relay/Server.

Table 2: Mobile recipient MMS record (MMSR-CDR)

Field	Category	Description
Record Type	M	Mobile Recipient MMS.
MMS Relay Address	M	The IP address of the current MMS Relay/Server of the recipient MM.
Message ID	M	The MM identification delivered by the MMS Relay/Server.
Originator address	M	The address of the originator MMS user agent of the original MM, i.e. the recipient of the read-reply report.
Recipient address	M	The address of the recipient MMS user agent of the original MM, i.e. the originator of the read-reply report. Note: a multiple group may be addressed.
Access Correlation	O_M	An unique identifier delivered by the used access network domain of the recipient MMS User Agent.
Content type	M	The content type of the MM content.
Message size	M	The size of the MM.
Message type	M	The category of the MM.
Message class	M	The class selection such as personal, advertisement, information service.
Charge Information	C	The charge indication and charge type.
Delivery Time	M	The time at which the MM was received by the recipient MMS user agent.
Time of Expiry	C	The desired duration of time prior to expiry for the reply-MM if specified by the originator MMS user agent.
Duration Of Transmission	O_M	The time used for transmission of the MM between the user agent and the relay server.
Duration Of Storage	O_M	The storage time of the MM in the MMS Relay/Server.
Delivery Ack Request	C	The indication for the delivery request
Sequence Number	C	Number of partial record if applicable
Record extensions	O_C	A set of network/manufacturer specific extensions to the record.

5 Parameter Description

5.1 Access Correlation

A unique identifier delivered by the used access network domain of the originated/sending or recipient/receiving MMS User Agent. It may be used for correlation of the MMS CDRs with the corresponding MSC server CDRs in CS domain or GSN CDRs in PS domain.

5.2 Charge Information

This field consists of two parts, the charge indicator and the charge type. The charge indicator (charge/no charge) should be defined by the MMS Relay/Server.

The charge types are as follows:

Reply – a definition.

etc.

An originator of the MMS may be take over the charge for the sending of a reply-MM to their submitted MM from the recipient(s). Therefore the originator MMS Relay/Server should mark the MM as no charge (reply-charged). The originator's MMSE could either accept the user's settings for charge type "reply" or not. The originator of an MM may also indicate to take over the charge for the reply MM. In such case the charge type is "reverse".

5.3 Content Type

Multiple media elements shall be combined into a composite single MM using MIME multipart format as defined in RFC 2046 [6]. Content-type maps directly since both are defined as being MIME content types.
The content type of the message from the external server should be mapped to an appropriate MIME type/subtype and attached to the MM. (e.g. SMS via 3GPP TR 23.039[7] -> MM with text/plain).

The media type of a single MM element shall be identified by its appropriate MIME type whereas the media format shall be indicated by its appropriate MIME subtype.

To ensure interoperability with formats widely used (e.g. in the internet community) and to guarantee a minimum support and compatibility between multimedia messaging capable terminals the support of the following formats or codecs is suggested:

1) Text types

Minimum supported set of:

plain text. Any character encoding (charset) that contains a subset of the logical characters in Unicode [8] shall be used (e.g. US-ASCII [9], ISO-8859-1[10], UTF-8[11], Shift_JIS, etc.).

Unrecognised subtypes of "text" shall be treated as subtype "plain" as long as the MIME implementation knows how to handle the charset.

2) Image type

Minimum supported set of:

Baseline JPEG [17].

Suggested format/codec for media type Image:

GIF 89a [18].

3) Audio types

Minimum supported set of:

AMR [12]; organised in the Bitstream Syntax as proposed by the IETF [13].

Suggested formats/codecs for media type Audio:

MP3 [14].

MIDI [15].

AAC [16].

4) Video types

Minimum supported set of:

- ITU T H.263 baseline [21].

Suggested formats/codecs:

MPEG-4 Visual Simple Profile Level 0 [22] and [20].

H.263 profile 3 level 10 [23].

To ensure interoperability for the transport of speech, audio and/or video media associated with an MM, the MP4 file format shall be supported. The usage of the MP4 file format shall follow the technical specifications and the implementation guidelines specified in 3GPP TS 26.234 [19].

NOTE: The present document [19] specifies a mechanism for the registration of AMR and H.263 codestreams to be included in MP4 files.

5) Application type

Any other unrecognised subtype and unrecognised character set, which aren't handled as "text/plain" shall be treated as "application/octet - stream".

5.4 DeliveryAckRequest/Delivery Result

This is the indication in the MMSR-CDR of the recipient MMS User Agent that a delivery report has been requested by the originator MMS User Agent. This field in the MMSO_CDR contains the result of the MM delivery to the recipient.

5.5 Delivery Time

The delivery time field contains the time stamp relevant for the handling of the MM by the recipient MMS Relay/Server (read, deleted without being read, etc.). The time-stamp includes at a minimum: date, hour, minute and second.

5.6 Delivery Type

This field contains an appropriate status value to the delivered MM.

5.7 Duration of Transmission/Storage

These fields contain the relevant time in seconds. The Duration of Transmission is the time from the beginning to the end of the MM transfer between the MMS user agent and the MMS relay server; e.g. for streaming purposes. The Duration of storage is the time interval while the message is temporarily and/or persistently stored in the MMS Relay/Server.

5.8 Earliest Time of Delivery

This field contains either the earliest time to deliver message or the number of seconds to wait before delivering the message.

5.9 Forwarded Message Indicator

This field shall indicate that the original MM was forwarded. If this field is missing the message shall be treated as a regular message.

5.10 Message ID/Reply Message ID

The MMS Relay/Server shall provide an identification for a message, which it routed forward or has accepted for delivery. The MM Message-ID is mapped to a corresponding STD 11 [5] "Message-ID" header. Each MM message must have a globally unique messageID, which is carried in the "Message-ID" header. If a Forwarded Message Indicator is present the Message ID from the original MM must be preserved.

5.11 Message Class

A class of message such as personal, advertisement, information service etc. For more information see TS 23.140[4].

5.12 Message Size

The message size includes the number of octets during the MM transmission.

5.13 Message Type

A type that consists of one of the following four choices: Notification, Message MM, Delivery Report, Read-Reply.

5.14 MMS Relay Address

This field contains the IP address of the MMS Relay/Server, which has generated the CDR.

5.15 Originator Address/Recipient Address

These fields contains the originator/recipient or forwarding/forwarded MMS user agent address. The MMS supports the use of E-Mail addresses (RFC 822) [5], MSISDN (E.164) or IP address.

5.16 Record Extension

The field enables network operators and/or manufacturers to add their own extensions to the standard record definitions.

5.17 Record Type

The field identifies the type of the record, e.g. MMSO-CDR and MMSR-CDR.

5.18 Sequence number

This field contains a running sequence number employed to link the partial records generated for a particular MM transfer over the air interface only.

5.19 Status Code

This field includes a more detailed technical status for delivery of the message and may contain one of the following causes:

- cause for termination, refer TS 32.205[25].
- cause for record closing, refer TS 32.215[26].

The status code is also extended by MMS specific information.

5.20 Submission Time

The submission time field contains the time stamps relevant for the submission of the MM. The time-stamp includes a minimum of date, hour, minute and second.

5.21 Time of Expiry

This field contains the desired date or the number of seconds to expiry of the MM, if specified by the originator MMS User Agent. In case of reply-charging, the time of expiry is the latest time of submission of a reply-MM.

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[25] and TS 32.215 for PS domain[26].

```
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[25]
--


ChargingID, IPAddress, GSNAddress
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[26]
--

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


MMSORecord  ::= SET
{
    recordType                  [0] CallEventRecordType,
    mmsRelayAddress             [1] IPAddress,
    messageID                   [2] OCTET STRING,
    replyMessageID              [3] OCTET STRING,
    originatorAddress           [4] MMSAgentAddress,
    recipientAddress            [5] MMSAgentAddresses,
    accessCorrelation           [6] AccessCorrelation OPTIONAL,
    contentType                 [7] ContentType,
    messageSize                 [8] DataVolume,
    messageType                 [9] MessageType,
    forwardedMessageIndicator   [10] BOOLEAN OPTIONAL,
    messageClass                [11] MessageClass,
    chargeInformation           [12] ChargeInformation OPTIONAL,
    submissionTime              [13] TimeStamp,
    timeOfExpiry                [14] WaitTime OPTIONAL,
    earliestTimeOfDelivery      [15] WaitTime OPTIONAL,
    durationOfTransmission      [16] INTEGER OPTIONAL,
    durationOfStorage           [17] DeltaSeconds OPTIONAL,
    deliveryType                [18] DeliveryType OPTIONAL,
    deliveryResult              [19] BOOLEAN OPTIONAL,
    statusCode                  [20] StatusCode,
    sequenceNumber              [21] INTEGER OPTIONAL,
    recordExtensions            [22] ManagementExtensions OPTIONAL
}

MMSRRecord  ::= SET
{
```

```
    recordType              [0] CallEventRecordType,
    mmsRelayAddress         [1] IPAddress,
    messageID               [2] OCTET STRING,
    originatorAddress       [3] MMSAgentAddress,
    recipientAddress        [4] MMSAgentAddress,
    accessCorrelation       [5] AccessCorrelation OPTIONAL,
    contentType             [6] ContentType,
    messageSize             [7] DataVolume,
    messageType             [8] MessageType,
    messageClass            [9] MessageClass,
    chargeInformation       [10] ChargeInformation OPTIONAL,
    deliveryTime            [11] TimeStamp,
    timeOfExpiry            [12] WaitTime OPTIONAL,
    durationOfTransmission  [13] INTEGER OPTIONAL,
    durationOfStorage       [14] WaitTime OPTIONAL,
    deliveryAckRequest      [15] BOOLEAN OPTIONAL,
    sequenceNumber          [16] INTEGER OPTIONAL,
    recordExtensions        [17] ManagementExtensions OPTIONAL
}


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

AccessCorrelation ::= CHOICE
{
    circuitSwitched     [0] CircuitSwitchedAccess,
    packetSwitched      [1] PacketSwitchedAccess
}

ApplicationType         ::= ENUMERATED
{
    octetstream         (0)
    --
    -- Any other unrecognised subtype and unrecognised charset
    -- shall be treated as "application/octet - stream".
    --
}

AudioType           ::= ENUMERATED
{
    amr             (0),    -- AMR; organised in the Bitstream Syntax
    mp3             (1),    -- MP3
    midi            (2),    -- MIDI
    aac             (3)     -- AAC
}

ChargeInformation   ::= SEQUENCE
{
    chargeindication        [0] ChargeIndicator,
    chargetype              [1] ChargeType
}

ChargeType          ::= ENUMERATED
{
    normal                  (0),
    pre-paid                (1),
    reply                   (2),
    reverse                 (3),
    third-party-financed    (4)
}

CircuitSwitchedAccess ::= SEQUENCE
{
    mSCIdentifier           [0] MscNo,
    callReferenceNumber     [1] CallReference
}

ContentType         ::= SEQUENCE
{
    text-plain          [0] TextType,
    image               [1] ImageType,
    audio               [2] AudioType,
    video               [3] VideoType,
    application         [4] ApplicationType
```

```
}

DataVolume          ::= INTEGER
    --
    -- The volume of data transfered in octets.
    --
DeliveryType        ::= ENUMERATED
{
    retrieved       (0),
    forwarded       (1),
    expired         (2),
    rejected        (3),
    deferred        (4),
    unrecognised    (5)
}

DeltaSeconds        ::= OCTET STRING[8]

ImageType           ::= ENUMERATED
{
    jpeg            (0),    -- Baseline JPEG
    gif             (1)     -- GIF 89a
}

MessageType     ::= ENUMERATED
{
    notification        (0),
    message-MM          (1),
    delivery-report     (2),
    read-reply          (3)
}

MessageClass        ::= ENUMERATED
{
    personal            (0),
    advertisement       (1),
    information-service (2)
}


MMSAgentAddress     ::= SEQUENCE
{
    eMail-address   [0] OCTET STRING,
    mSISDN          [1] MSISDN OPTIONAL,
    iPAddress       [2] IPAddress OPTIONAL
}

MMSAgentAddresses   ::= SET OF MMSAgentAddress
PacketSwitchedAccess ::= SEQUENCE
{
    gSNAddress      [0] GSNAddress,
    chargingID      [1] ChargingID
}

StatusCode  ::= INTEGER
{
    --
    -- cause codes 0 to 15 are defined in TS 32.205[25] as 'CauseForTerm'
    -- (cause for termination) and cause code 16 to 20 are defined
    -- in TS 32.215 [26] as ‘CauseForRecClosing’
    --
    normalRelease               (0),    -- ok
    abnormalRelease             (4),    -- error unspecified
    serviceDenied               (30),
    messageFormatCorrupt        (31),
    sendingAddressUnresolved    (32),
    messageNotFound             (33),
    networkProblem              (34),
    contentNotAccepted          (35),
    unsupportedMessage          (36)
}

TextType            ::= ENUMERATED
{
    plaintext       (0)
    --
    -- Any character encoding (charset) that contains a subset of the logical characters
    -- in Unicode shall be used (e.g. US-ASCII, ISO-8859-1, UTF-8, Shift_JIS, etc.).
```

```
    --
}

VideoType           ::= ENUMERATED
{
    mp4             (0),    -- MP4 file format used
    mpeg4           (1),    -- MPEG 4 (Visual Simple Profile, Level 0)
    h263base        (2),    -- ITU-T H.263 baseline
    h263prof        (3)     -- H.263 profile 3 level 10
}

WaitTime        ::= CHOICE
{
    http-date       [0] TimeStamp,
    delta-seconds   [1] DeltaSeconds
}

END
```

7 Charging Data Record Transfer

The generated MMS-CDR in the MMS Relay/Server shall be transferred to the Billing System by the use of FTAM protocol on X.25 or TCP/IP, or FTP or TFTP over TCP/IP. For further details of the use of FTAM see GSM 12.01 [27] and of the use of FTP see [28] and TFTP see [29].

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2001	S_12	SP-010236	-		Submitted to TSG SA #12 for Information	1.0.0	1.0.1
Sep 2001	S_13	SP-010464	-		Submitted to TSG SA #13 for Approval	2.0.0	4.0.0

History

Document history		
V4.0.0	September 2001	Publication