Source: **SA5 (Telecom Management)**

Title: **Rel-4/5 CR 32.205/32.235 (Service Charging): "Corrections on MMS records ASN.1 definition"**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-	Spec	CR	R	Phase	Subject	Cat	Version	Doc-2nd-	Workitem
SP-020742	32.205	011	-	Rel-4	Corrections on MMS records ASN.1 definition	F	4.2.0	S5-024599	OAM-CH
SP-020742	32.205	012	-	Rel-5	Corrections on MMS records ASN.1 definition	A	5.1.0	S5-024600	OAM-CH
SP-020742	32.235	007	-	Rel-4	Correction of ASN.1 syntax errors	F	4.3.0	S5-024598	OAM-CH
SP-020742	32.235	008	-	Rel-5	Correction of ASN.1 syntax errors	A	5.0.0	S5-024666	OAM-CH

CR-Form-v7

CHANGE REQUEST

| ⌘ | **32.205** CR **011** | ⌘rev | **-** | ⌘ | Current version: | **4.2.0** | ⌘ |

*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 **X**

Title:	⌘	Corrections on MMS records ASN.1 definition

Source:	⌘	SA5

Work item code:⌘	OAM-CH		**Date:** ⌘	22/11/2002

Category:	⌘	**F**	**Release:** ⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
2   *(GSM Phase 2)*
R96   *(Release 1996)*
R97   *(Release 1997)*
R98   *(Release 1998)*
R99   *(Release 1999)*
Rel-4   *(Release 4)*
Rel-5   *(Release 5)*
Rel-6   *(Release 6)*

Reason for change:	⌘	Mismatch between the definition of the "Recipient Retrieve MM1Request" (MMR1RtRq) and "Recipient MM1 Retrieve Response" (MMR1RtRs) CDRs and their encoding. Missing Call Event Record Types for MMS CDRs

Summary of change:⌘		Corrections on the ASN.1 definition of the "CallEventRecordType" and "CallEventRecord".

Consequences if not approved:	⌘	Error in the encoding of the MMS CDR.

Clauses affected:	⌘	6.1

	Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘	
			X	Test specifications	
	X			O&M Specifications	Rel-4/5 32.235

Other comments:	⌘	Rel-5 Mirror in 32205CR012. This CR is linked with the Rel-4/5 32235CR0007/8.

<div style="text-align:center">**Change in Clause 6.1**</div>

6 Charging Data Record Structure

6.1 ASN.1 definitions for CDR information

Within the current 3GPP TS 32-series of specifications the ASN.1 definitions are based on ITU-T Recommendation X.208 [8] which has been superseded by ITU-T Recommendation X.680. This newer version not only includes new features but also removes some that were present in ITU-T Recommendation X.208. It was agreed that where possible, the GPRS work would be based on those ASN.1 features that were common to both. However, where necessary, the new features in ITU-T Recommendation X.680 [7] be used in some places. ITU-T Recommendation X.208 [8] feature that are no longer in ITU-T Recommendation X.680 [7] will not be used.

```
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)}


DEFINITIONS IMPLICIT TAGS   ::=

BEGIN

-- EXPORTS everything

IMPORTS

NumberOfForwarding, CallReferenceNumber
FROM MAP-CH-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-CH-DataTypes (13) version6 (6) }

AddressString, ISDN-AddressString, BasicServiceCode, IMSI, IMEI
FROM MAP-CommonDataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network
(1) modules (3) map-CommonDataTypes (18) version6 (6) }

DestinationRoutingAddress
FROM CAP-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) cap-datatypes (52) version1 (0) }

ServiceKey, DefaultCallHandling, DefaultSMS-Handling
FROM MAP-MS-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-MS-DataTypes (11) version6 (6) }

BearerServiceCode
FROM MAP-BS-Code { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-BS-Code (20) version6 (6) }

TeleserviceCode
FROM MAP-TS-Code { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-TS-Code (19) version2 (2) }

SS-Code
FROM MAP-SS-Code { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-SS-Code (15) version6 (6) }

BasicService
FROM Basic-Service-Elements { ccitt identified-organization (4) etsi (0)
196 basic-service-elements (8) }
--
-- See "Digital Subscriber Signalling System No. one (DSS1) protocol"
-- ETS 300 196
--

ObjectInstance
FROM CMIP-1 {joint-iso-ccitt ms (9) cmip (1) version1 (1) protocol (3)}

ManagementExtension
FROM Attribute-ASN1Module {joint-iso-ccitt ms (9) smi (3) part2 (2) asn1Module (2) 1}

SystemType
```

```
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)}

SGSNPDPRecord, GGSNPDPRecord, SGSNMMRecord, SGSNSMORecord, SGSNSMTRecord, SGSNMTLCSRecord,
SGSNMOLCSRecord, SGSNNILCSRecord
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)}


MMO1SRecord, MMO4FRqRecord, MMO4FRsRecord, MMO4DRecord, MMO1DRecord, MMO4RRecord, MMO1RrRecord,
MMOMDRecord, MMR4FRecord, MMR1NRqRecord, MMR1NRsRecord, MMR1RtRqRecord, MMR1RtRsRecord, MMR1ARecord,
MMR4DRqRecord, MMR4DRsRecord, MMR1RRRecord, MMR4RRqRecord, MMR4RRsRecord, MMRMDRecord, MMFRecord
FROM 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)}

AE-title
FROM ACSE-1 {joint-iso-ccitt association-control (2) abstract-syntax (1) apdus (0) version (1) };
--
-- Note that the syntax of AE-title to be used is from
-- CCITT Rec. X.227 / ISO 8650 corrigendum and not "ANY"
-----------------------------------------------------------------------------
--
--  CALL AND EVENT RECORDS
--
-----------------------------------------------------------------------------

CallEventRecord ::= CHOICE
--
-- Record values 0..19 are 3G curcuit switch specific
--            20..27 are 3G packet switch specific
--            30..50 are application specific
--
{
    moCallRecord            [0] MOCallRecord,
    mtCallRecord            [1] MTCallRecord,
    roamingRecord           [2] RoamingRecord,
    incGatewayRecord        [3] IncGatewayRecord,
    outGatewayRecord        [4] OutGatewayRecord,
    transitRecord           [5] TransitCallRecord,
    moSMSRecord             [6] MOSMSRecord,
    mtSMSRecord             [7] MTSMSRecord,
    moSMSIWRecord           [8] MOSMSIWRecord,
    mtSMSGWRecord           [9] MTSMSGWRecord,
    ssActionRecord          [10] SSActionRecord,
    hlrIntRecord            [11] HLRIntRecord,
    locUpdateHLRRecord      [12] LocUpdateHLRRecord,
    locUpdateVLRRecord      [13] LocUpdateVLRRecord,
    commonEquipRecord       [14] CommonEquipRecord,
    recTypeExtensions       [15] ManagementExtensions,
    termCAMELRecord         [16] TermCAMELRecord,

    sgsnPDPRecord           [20] SGSNPDPRecord,
    ggsnPDPRecord           [21] GGSNPDPRecord,
    sgsnMMRecord            [22] SGSNMMRecord,
    sgsnSMORecord           [23] SGSNSMORecord,
    sgsnSMTRecord           [24] SGSNSMTRecord,
    sgsnLCTRecord           [25] SGSNLCTRecord,
    sgsnLCORecord           [26] SGSNLCORecord,
    sgsnLCNRecord           [27] SGSNLCNRecord,

    mmO1SRecord             [30] MMO1SRecord,
    mmO4FRqRecord           [31] MMO4FRqRecord,
    mmO4FRsRecord           [32] MMO4FRsRecord,
    mmO4DRecord             [33] MMO4DRecord,
    mmO1DRecord             [34] MMO1DRecord,
    mmO4RRecord             [35] MMO4RRecord,
    mmO1RRecord             [36] MMO1RrRecord,
    mmOMDRecord             [37] MMOMDRecord,
    mmR4FRecord             [38] MMR4FRecord,
    mmR1NRqRecord           [39] MMR1NRqRecord,
    mmR1NRsRecord           [40] MMR1NRsRecord,
    mmR1RtRqRecord          [41] MMR1RtRqRecord,
    mmR1RtRsRecord          [42] MMR1RtRsRecord,
    mmR1AFRecord            [43] MMR1ARecord,
    mmR4DRqRecord           [44] MMR4DRqRecord,
    mmR4DRsRecord           [45] MMR4DRsRecord,
    mmR1RRRecord            [46] MMR1RRRecord,
    mmR4RRqRecord           [47] MMR4RRqRecord,
```

```
    mmR4RRsRecord            [48] MMR4RRsRecord,
    mmRMDRecord              [49] MMRMDRecord,
    mmFRecord                [50] MMFRecord
}
```

…

<unmodified text>

…

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

AdditionalChgInfo        ::= SEQUENCE
{
    chargeIndicator      [0] ChargeIndicator OPTIONAL,
    chargeParameters     [1] OCTET STRING OPTIONAL
}

AiurRequested            ::= ENUMERATED
{
    --
    -- See Bearer Capability TS 24.008
    -- (note that value "4" is intentionally missing
    --  because it is not used in TS 24.008)
    --

    aiur09600BitsPerSecond       (1),
    aiur14400BitsPerSecond       (2),
    aiur19200BitsPerSecond       (3),
    aiur28800BitsPerSecond       (5),
    aiur38400BitsPerSecond       (6),
    aiur43200BitsPerSecond       (7),
    aiur57600BitsPerSecond       (8),
    aiur38400BitsPerSecond1      (9),
    aiur38400BitsPerSecond2      (10),
    aiur38400BitsPerSecond3      (11),
    aiur38400BitsPerSecond4      (12)
}

AOCParameters            ::= SEQUENCE
{
    --
    -- See TS 22.024.
    --
    e1                   [1] EParameter OPTIONAL,
    e2                   [2] EParameter OPTIONAL,
    e3                   [3] EParameter OPTIONAL,
    e4                   [4] EParameter OPTIONAL,
    e5                   [5] EParameter OPTIONAL,
    e6                   [6] EParameter OPTIONAL,
    e7                   [7] EParameter OPTIONAL
}

AOCParmChange            ::= SEQUENCE
{
    changeTime           [0] TimeStamp,
    newParameters        [1] AOCParameters
}

BasicServices            ::= SET OF BasicServiceCode

BCDDirectoryNumber       ::= OCTET STRING
    -- This type contains the binary coded decimal representation of
    -- a directory number e.g. calling/called/connected/translated number.
    -- The encoding of the octet string is in accordance with the
    -- the elements "Calling party BCD number", "Called party BCD number"
    -- and "Connected number" defined in TS 24.008.
    -- This encoding includes type of number and number plan information
```

```
        -- together with a BCD encoded digit string.
        -- It may also contain both a presentation and screening indicator
        -- (octet 3a).
        -- For the avoidance of doubt, this field does not include
        -- octets 1 and 2, the element name and length, as this would be
        -- redundant.

CallDuration            ::= INTEGER
        --
        -- The call duration in seconds.
        -- For successful calls this is the chargeable duration.
        -- For call attempts this is the call holding time.
        --

CallEventRecordType     ::= INTEGER
{
    moCallRecord        (0),
    mtCallRecord        (1),
    roamingRecord       (2),
    incGatewayRecord    (3),
    outGatewayRecord    (4),
    transitCallRecord   (5),
    moSMSRecord         (6),
    mtSMSRecord         (7),
    moSMSIWRecord       (8),
    mtSMSGWRecord       (9),
    ssActionRecord      (10),
    hlrIntRecord        (11),
    locUpdateHLRRecord  (12),
    locUpdateVLRRecord  (13),
    commonEquipRecord   (14),
    moTraceRecord       (15),
    mtTraceRecord       (16),
    termCAMELRecord     (17),
--
-- Record values 18..22 are GPRS specific.
-- The contents are defined in TS 32.015
--
    sgsnPDPRecord       (18),
    ggsnPDPRecord       (19),
    sgsnMMRecord        (20),
    sgsnSMORecord       (21),
    sgsnSMTRecord       (22),

--
-- Record values 23..24 are MMS specific.
-- The contents are defined in TS 32.235
--
    mmsORecord          (23),
    mmsTRecord          (24)

--
-- Record values 29..49  are MMS specific.
-- The contents are defined in TS 32.235
--
    mmO1SRecord         (29),
    mmO4FRqRecord       (30),
    mmO4FRsRecord       (31),
    mmO4DRecord         (32),
    mmO1DRecord         (33),
    mmO4RRecord         (34),
    mmO1RRecord         (35),
    mmOMDRecord         (36),
    mmR4FRecord         (37),
    mmR1NRqRecord       (38),
    mmR1NRsRecord       (39),
    mmR1RtRecord        (40),
    mmR1ARecord         (42),
    mmR4DRqRecord       (43),
    mmR4DRsRecord       (44),
    mmR1RRRecord        (45),
    mmR4RRqRecord       (46),
    mmR4RRsRecord       (47),
    mmRMDRecord         (48),
    mmFRecord           (49)
}

...
```

…

<div style="border: 1px solid black; text-align: center;">

End of Change in Clause 6.1
End of Document

</div>

CR-Form-v7

CHANGE REQUEST

| ⌘ | **32.205** CR **012** | ⌘**rev** | **-** | ⌘ | Current version: | **5.1.0** | ⌘ |

*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 ☐**X**

Title:	⌘	Corrections on MMS records ASN.1 definition
Source:	⌘	SA5

Work item code:⌘	OAM-CH	**Date:** ⌘	22/11/2002

Category:	⌘ **A**		**Release:** ⌘	Rel-5

Use one of the following categories:
    F *(correction)*
    A *(corresponds to a correction in an earlier release)*
    B *(addition of feature),*
    C *(functional modification of feature)*
    D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
    2   *(GSM Phase 2)*
    R96   *(Release 1996)*
    R97   *(Release 1997)*
    R98   *(Release 1998)*
    R99   *(Release 1999)*
    Rel-4 *(Release 4)*
    Rel-5 *(Release 5)*
    Rel-6 *(Release 6)*

Reason for change:	⌘	Mismatch between the definition of the MMS CDRs and their encoding.
Summary of change:⌘		Corrections on the ASN.1 definition of the "CallEventRecordType" and addition of the MMBox CDR types.
Consequences if not approved:	⌘	Without these corrections, proper encoding of the MMS CDR would not be possible.

Clauses affected:	⌘	6.1

		Y	**N**		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
		X		O&M Specifications	Rel-4/5 32.235

Other comments:	⌘	Rel-5 Mirror of 32205CR011 & and adds the Rel-5 CDR types for the MMBox Service. This CR is linked with the Rel-4/5 32235CR0007/8.

.

6 Charging Data Record Structure

6.1 ASN.1 definitions for CDR information

Within the current 3GPP TS 32-series of specifications the ASN.1 definitions are based on ITU-T Recommendation X.208 [8] which has been superseded by ITU-T Recommendation X.680. This newer version not only includes new features but also removes some that were present in ITU-T Recommendation X.208. It was agreed that where possible, the GPRS work would be based on those ASN.1 features that were common to both. However, where necessary, the new features in ITU-T Recommendation X.680 [7] be used in some places. ITU-T Recommendation X.208 [8] feature that are no longer in ITU-T Recommendation X.680 [7] will not be used.

```
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)}


DEFINITIONS IMPLICIT TAGS   ::=

BEGIN

-- EXPORTS everything

IMPORTS

NumberOfForwarding, CallReferenceNumber
FROM MAP-CH-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-CH-DataTypes (13) version6 (6) }

AddressString, ISDN-AddressString, BasicServiceCode, IMSI, IMEI, LCSClientExternalID,
LCSClientInternalID
FROM MAP-CommonDataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network
(1) modules (3) map-CommonDataTypes (18) version6 (6) }

DestinationRoutingAddress
FROM CAP-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) cap-datatypes (52) version1 (0) }

ServiceKey, DefaultCallHandling, DefaultSMS-Handling, NotificationToMSUser
FROM MAP-MS-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0)
gsm-Network (1) modules (3) map-MS-DataTypes (11) version6 (6) }

MOLR-Type
FROM SS-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2)
modules (3) ss-DataTypes (2) version7 (7)}

BearerServiceCode
FROM MAP-BS-Code { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-BS-Code (20) version6 (6) }

TeleserviceCode
FROM MAP-TS-Code { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-TS-Code (19) version2 (2) }

SS-Code
FROM MAP-SS-Code { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-SS-Code (15) version6 (6) }

Ext-GeographicalInformation, LCSClientType, LCS-Priority, LocationType
FROM MAP-LCS-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-LCS-DataTypes (25) version7 (7)}

PositionMethodFailure-Diagnostic
FROM MAP-ER-DataTypes { ccitt identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1)
modules (3) map-ER-DataTypes (17) version7 (7)}

BasicService
FROM Basic-Service-Elements { ccitt identified-organization (4) etsi (0)
```

```
196 basic-service-elements (8) }
--
-- See "Digital Subscriber Signalling System No. one (DSS1) protocol"
-- ETS 300 196
--

ObjectInstance
FROM CMIP-1 {joint-iso-ccitt ms (9) cmip (1) version1 (1) protocol (3)}

ManagementExtension
FROM Attribute-ASN1Module {joint-iso-ccitt ms (9) smi (3) part2 (2) asn1Module (2) 1}

SystemType
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)}

SGSNPDPRecord, GGSNPDPRecord, SGSNMMRecord, SGSNSMORecord, SGSNSMTRecord, SGSNMTLCSRecord,
SGSNMOLCSRecord, SGSNNILCSRecord
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)}


MMO1SRecord, MMO4FRqRecord, MMO4FRsRecord, MMO4DRecord, MMO1DRecord, MMO4RRecord, MMO1RrRecord,
MMOMDRecord, MMR4FRecord, MMR1NRqRecord, MMR1NRsRecord, MMR1RtRqRecord, MMR1RtRsRecord, MMR1ARecord,
MMR4DRqRecord, MMR4DRsRecord, MMR1RRRecord, MMR4RRsRecord, MMRMDRecord, MMFRecord,
MMBx1SRecord, MMBx1VRecord, MMBx1URecord, MMBx1DRecord
FROM 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)}

AE-title
FROM ACSE-1 {joint-iso-ccitt association-control (2) abstract-syntax (1) apdus (0) version (1) };
--
-- Note that the syntax of AE-title to be used is from
-- CCITT Rec. X.227 / ISO 8650 corrigendum and not "ANY"
-------------------------------------------------------------------------------
--
--   CALL AND EVENT RECORDS
--
-------------------------------------------------------------------------------

CallEventRecord ::= CHOICE
--
-- Record values 0..19 are 3G curcuit switch specific
--            20..27 are 3G packet switch specific
--            30..54 are application specific
--
{
    moCallRecord              [0] MOCallRecord,
    mtCallRecord              [1] MTCallRecord,
    roamingRecord             [2] RoamingRecord,
    incGatewayRecord          [3] IncGatewayRecord,
    outGatewayRecord          [4] OutGatewayRecord,
    transitRecord             [5] TransitCallRecord,
    moSMSRecord               [6] MOSMSRecord,
    mtSMSRecord               [7] MTSMSRecord,
    moSMSIWRecord             [8] MOSMSIWRecord,
    mtSMSGWRecord             [9] MTSMSGWRecord,
    ssActionRecord            [10] SSActionRecord,
    hlrIntRecord              [11] HLRIntRecord,
    locUpdateHLRRecord        [12] LocUpdateHLRRecord,
    locUpdateVLRRecord        [13] LocUpdateVLRRecord,
    commonEquipRecord         [14] CommonEquipRecord,
    recTypeExtensions         [15] ManagementExtensions,
    termCAMELRecord           [16] TermCAMELRecord,
    mtLCSRecord               [17] MTLCSRecord,
    moLCSRecord               [18] MOLCSRecord,
    niLCSRecord               [19] NILCSRecord,

    sgsnPDPRecord             [20] SGSNPDPRecord,
    ggsnPDPRecord             [21] GGSNPDPRecord,
    sgsnMMRecord              [22] SGSNMMRecord,
    sgsnSMORecord             [23] SGSNSMORecord,
    sgsnSMTRecord             [24] SGSNSMTRecord,
    sgsnLCTRecord             [25] SGSNLCTRecord,

    sgsnLCORecord             [26] SGSNLCORecord,
    sgsnLCNRecord             [27] SGSNLCNRecord,
```

```
        mmO1SRecord              [30] MMO1SRecord,
        mmO4FRqRecord            [31] MMO4FRqRecord,
        mmO4FRsRecord            [32] MMO4FRsRecord,
        mmO4DRecord              [33] MMO4DRecord,
        mmO1DRecord              [34] MMO1DRecord,
        mmO4RRecord              [35] MMO4RRecord,
        mmO1RRecord              [36] MMO1RrRecord,
        mmOMDRecord              [37] MMOMDRecord,
        mmR4FRecord              [38] MMR4FRecord,
        mmR1NRqRecord            [39] MMR1NRqRecord,
        mmR1NRsRecord            [40] MMR1NRsRecord,
        mmR1RtRqRecord           [41] MMR1RtRqRecord,
        mmR1RtRsRecord           [42] MMR1RtRsRecord,
        mmR1AFRecord             [43] MMR1ARecord,
        mmR4DRqRecord            [44] MMR4DRqRecord,
        mmR4DRsRecord            [45] MMR4DRsRecord,
        mmR1RRRecord             [46] MMR1RRRecord,
        mmR4RRqRecord            [47] MMR4RRqRecord,
        mmR4RRsRecord            [48] MMR4RRsRecord,
        mmRMDRecord              [49] MMRMDRecord,
        mmFRecord                [50] MMFRecord,
        mmBx1SRecord             [51] MMBx1SRecord,
        mmBx1VRecord             [52] MMBx1VRecord,
        mmBx1URecord             [53] MMBx1URecord,
        mmBx1DRecord             [54] MMBx1DRecord,
}
```

…

<unmodified text>

…

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

AdditionalChgInfo        ::= SEQUENCE
{
    chargeIndicator      [0] ChargeIndicator OPTIONAL,
    chargeParameters     [1] OCTET STRING OPTIONAL
}

AiurRequested            ::= ENUMERATED
{
    --
    -- See Bearer Capability TS 24.008
    -- (note that value "4" is intentionally missing
    --  because it is not used in TS 24.008)
    --

    aiur09600BitsPerSecond      (1),
    aiur14400BitsPerSecond      (2),
    aiur19200BitsPerSecond      (3),
    aiur28800BitsPerSecond      (5),
    aiur38400BitsPerSecond      (6),
    aiur43200BitsPerSecond      (7),
    aiur57600BitsPerSecond      (8),
    aiur38400BitsPerSecond1     (9),
    aiur38400BitsPerSecond2     (10),
    aiur38400BitsPerSecond3     (11),
    aiur38400BitsPerSecond4     (12)
}

AOCParameters            ::= SEQUENCE
{
    --
    -- See TS 22.024.
    --
    e1                   [1] EParameter OPTIONAL,
    e2                   [2] EParameter OPTIONAL,
```

```
    e3                  [3] EParameter OPTIONAL,
    e4                  [4] EParameter OPTIONAL,
    e5                  [5] EParameter OPTIONAL,
    e6                  [6] EParameter OPTIONAL,
    e7                  [7] EParameter OPTIONAL
}

AOCParmChange           ::= SEQUENCE
{
    changeTime          [0] TimeStamp,
    newParameters       [1] AOCParameters
}

BasicServices           ::= SET OF BasicServiceCode

BCDDirectoryNumber      ::= OCTET STRING
    -- This type contains the binary coded decimal representation of
    -- a directory number e.g. calling/called/connected/translated number.
    -- The encoding of the octet string is in accordance with the
    -- the elements "Calling party BCD number", "Called party BCD number"
    -- and "Connected number" defined in TS 24.008.
    -- This encoding includes type of number and number plan information
    -- together with a BCD encoded digit string.
    -- It may also contain both a presentation and screening indicator
    -- (octet 3a).
    -- For the avoidance of doubt, this field does not include
    -- octets 1 and 2, the element name and length, as this would be
    -- redundant.

CallDuration            ::= INTEGER
    --
    -- The call duration in seconds.
    -- For successful calls this is the chargeable duration.
    -- For call attempts this is the call holding time.
    --

CallEventRecordType     ::= INTEGER
{
    moCallRecord        (0),
    mtCallRecord        (1),
    roamingRecord       (2),
    incGatewayRecord    (3),
    outGatewayRecord    (4),
    transitCallRecord   (5),
    moSMSRecord         (6),
    mtSMSRecord         (7),
    moSMSIWRecord       (8),
    mtSMSGWRecord       (9),
    ssActionRecord      (10),
    hlrIntRecord        (11),
    locUpdateHLRRecord  (12),
    locUpdateVLRRecord  (13),
    commonEquipRecord   (14),
    moTraceRecord       (15),
    mtTraceRecord       (16),
    termCAMELRecord     (17),
--
-- Record values 18..22 are GPRS specific.
-- The contents are defined in TS 32.015
--
    sgsnPDPRecord       (18),
    ggsnPDPRecord       (19),
    sgsnMMRecord        (20),
    sgsnSMORecord       (21),
    sgsnSMTRecord       (22),
--
-- Record values 23..25 are CS-LCS specific.
-- The contents are defined in this specification
--
    mtLCSRecord         (23),
    moLCSRecord         (24),
    niLCSRecord         (25),
--
-- Record values 26..28 are PS-LCS specific.
-- The contents are defined in  TS 32.215
--
    sgsnMtLCSRecord     (26)
    sgsnMoLCSRecord     (27),
```

```
    sgsnNiLCSRecord       (28),
--
--  Record values 29..49 53 are MMS specific.
--  The contents are defined in TS 32.235
--
    mmO1SRecord           (29),
    mmO4FRqRecord         (30),
    mmO4FRsRecord         (31),
    mmO4DRecord           (32),
    mmO1DRecord           (33),
    mmO4RRecord           (34),
    mmO1RRecord           (35),
    mmOMDRecord           (36),
    mmR4FRecord           (37),
    mmR1NRqRecord         (38),
    mmR1NRsRecord         (39),
    mmR1RtRqRecord        (40),
    mmR1RtRsRecord        (41),
    mmR1AFRecord          (42),
    mmR4DRqRecord         (43),
    mmR4DRsRecord         (44),
    mmR1RRRecord          (45),
    mmR4RRqRecord         (46),
    mmR4RRsRecord         (47),
    mmRMDRecord           (48),
    mmFRecord             (49),
    mmBx1SRecord          (50),
    mmBx1VRecord          (51),
    mmBx1URecord          (52),
    mmBx1DRecord          (53)
}
```

…

<unmodified text>

…

End of Change in Clause 6.1
End of Document

CR-Form-v7

CHANGE REQUEST

⌘   **32.235 CR 007**   ⌘**rev** **-** ⌘ Current version: **4.3.0** ⌘

*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 **X**

Title: ⌘	Correction of ASN.1 syntax errors
Source: ⌘	SA5
Work item code: ⌘	OAM-CH **Date:** ⌘ 22/11/2002

Category: ⌘ **F**   **Release:** ⌘ Rel-4

Use one of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (addition of feature),
C (functional modification of feature)
D (editorial modification)
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘	Several syntax errors are contained in the current specification.
Summary of change: ⌘	Correction of the following syntax errors: - ASN.1 identifiers cannot begin with digits, so the cases where this occurred are corrected such that the identifier begins with a letter; - missing commas and colons added; - superfluous commas removed; - ASN.1 data types capitalised where they were erroneously written in small letters.
Consequences if not approved: ⌘	The ASN.1 specification will not be implementable. Proprietary corrections would be needed, resulting in lack of interoperability between different vendors' MMS R/Ss, particularly in interoperator accounting (roaming).

Clauses affected: ⌘	6

	Y	**N**	
Other specs affected: ⌘		X	Other core specifications ⌘
		X	Test specifications
	X		O&M Specifications Rel-4/5 32.205

Other comments: ⌘	Rel-5 Mirror in 32235CR008. This CR is linked with the Rel-4/5 32205CR011/12.

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
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
}

MMO4FRqRecord           ::= SET
{
        recordType                      [0]  CallEventRecordType,
        originatorMmsRSAddress          [1]  MMSRSAddress,
        recipientMmsRSAddress           [2]  MMSRSAddress,
        messageID                       [3]  OCTET STRING,
        mms3GPPVersion3GPPVersion                   [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
}

MMO4FRsRecord           ::= SET
{
        recordType                      [0]  CallEventRecordType,
        originatorMmsRSAddress          [1]  MMSRSAddress OPTIONAL,
        recipientMmsRSAddress           [2]  MMSRSAddress,
        messageID                       [3]  OCTET STRING,
        mms3GPPVersion3GPPVersion                   [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,
        mms3GPPVersion3GPPVersion                   [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,
        mms3GPPVersion3GPPVersion                   [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
```

```
}

MMO4RRecord          ::= SET
{
     recordType                 [0]  CallEventRecordType,
     recipientMmsRSAddress      [1]  MMSRSAddress OPTIONAL,
     originatorMmsRSAddress     [2]  MMSRSAddress OPTIONAL,
     messageID                  [3]  OCTET STRING,
     mms3GPPVersion3GPPVersion              [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
}

MMO1RRrecord          ::= SET
{
     recordType                 [0]  CallEventRecordType,
     recipientMmsRSAddress      [1]  MMSRSAddress OPTIONAL,
     originatorMmsRSAddress     [2]  MMSRSAddress OPTIONAL,
     accessCorrelation          [3]  AccessCorrelation OPTIONAL,
     messageID                  [4]  OCTET STRING,
     mms3GPPVersion3GPPVersion              [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
}

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,
     mms3GPPVersion3GPPVersion              [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
```

```
    }

MMR1N r RqRecord         ::= 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
    }

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
    }

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,
    }

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
}

MMR4DRqRecord          ::= SET
{
        recordType                      [0]  CallEventRecordType,
        recipientMmsRSAddress           [1]  MMSRSAddress,
        originatorMmsRSAddress          [2]  MMSRSAddress,
        messageID                       [3]  OCTET STRING,
        mms3GPPVersion3GPPVersion                 [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,
        mms3GPPVersion3GPPVersion                 [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
}

MMR4RRqRecord          ::= SET
{
        recordType                      [0]  CallEventRecordType,
        recipientMmsRSAddress           [1]  MMSRSAddress,
        originatorMmsRSAddress          [2]  MMSRSAddress,
        messageID                       [3]  OCTET STRING,
        mms3GPPVersion3GPPVersion                 [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,
       mms3GPPVersion3GPPVersion                    [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
}


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


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

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

ChargeType              ::= ENUMERATED
{
       normal                 (0),
       pre-paid               (1),
       reply                  (2)
}

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

```
ContentType                ::= OCTET STRING


DataVolume                 ::= INTEGER
        --
        -- The volume of data transfered in octets.
        --

DeltaSeconds               ::= OCTET STRING (SIZE(8))[8]

MediaComponent—     ::= SEQUENCE
{
        mediaType        [0] OCTET STRING,
        mediaSize        [1] DataVolume
}

MediaComponents       = Set ofSET OF MediaComponent

MessageClass          ::= ENUMERATED
{
        personal              (0),
        advertisement         (1),
        information-service   (2),
        auto                  (3)
}

MMComponentType       ::= SEQUENCE
{
        subject          [0] SubjectComponent,
        media            [1] MediaComponents
}

MMSAgentAddress        ::= SEQUENCE-- usage of SEQUENCE instead of CHOICE allows several address types to be present at the same time
{
        eMail-address    [0] OCTET STRING,
        mSISDN           [1] MSISDN OPTIONAL,
        iPAddress        [2] IPAddress OPTIONAL
}

MMSAgentAddresses  ::= SET OF MMSAgentAddress

MMSRSAddress           ::= SEQUENCE  -- usage of SEQUENCE instead of CHOICE allows both address types to be present at the same time
{
        domainName       [0] OCTET STRING OPTIONAL,
        iPAddress        [2] IPAddress OPTIONAL
}

MMStatusCodeType          ::= ENUMERATED
{
        retrieved                 (0),
        forwarded                 (1),
        expired                   (2),
        rejected                  (3),
        deferred                  (4),
        unrecognised              (5),
        read                      (6),
        deletedWithoutBeingRead   (7)
}

PacketSwitchedAccess ::= SEQUENCE
{
        gSNAddress       [0] GSNAddress,
        chargingID       [1] ChargingID
}

PriorityType       ::= ENUMERATED
{
        low              (0),
        normal           (1),
        high             (2)
}

RequestStatusCodeType       ::= INTEGER
{       --
        -- cause codes 0 to 15 are defined in TS 32.205[8] as 'CauseForTerm'
```

```
     -- (cause for termination) and cause code 16 to 20 are defined
     -- in TS 32.215 [9] as 'CauseForRecClosing'
     --
     normalRelease                    (0),    -- ok
     abnormalRelease                  (4),    -- error unspecified
     serviceDenied                    (30),
     messageFormatCorrupt             (31),
     sendingAddressUnresolved         (32),
     messageNotFound                  (33),
     networkProblem                   (34),
     contentNotAccepted               (35),
     unsupportedMessage               (36)
}

StatusTextType          ::= OCTET STRING

SubjectComponent        ::= SEQUENCE
{
     subjectType  [0] OCTET STRING,
     subjectSize  [1] DataVolume
}

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

END
```

<div style="border:1px solid black; text-align:center">

End of Change in Clause 6
End of Document

</div>

CR-Form-v7

CHANGE REQUEST

⌘	**32.235** CR **008**	⌘rev	**-**	⌘	Current version:	**5.0.0**	⌘

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 ☒

Title:	⌘	Correction of ASN.1 syntax errors
Source:	⌘	SA5

Work item code: ⌘	OAM-CH		***Date:*** ⌘	22/11/2002	

Category: ⌘	**A**		***Release:*** ⌘	Rel-5

Use one of the following categories:
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(addition of feature),*
   C *(functional modification of feature)*
   D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use one of the following releases:
   2   *(GSM Phase 2)*
   R96   *(Release 1996)*
   R97   *(Release 1997)*
   R98   *(Release 1998)*
   R99   *(Release 1999)*
   Rel-4   *(Release 4)*
   Rel-5   *(Release 5)*
   Rel-6   *(Release 6)*

Reason for change: ⌘	Several syntax errors are contained in the current specification.
Summary of change: ⌘	Correction of the following syntax errors: - ASN.1 identifiers cannot begin with digits, so the cases where this occurred are corrected such that the identifier begins with a letter; - missing commas and colons added; - superfluous commas removed; - ASN.1 data types capitalised where they were erroneously written in small letters.
Consequences if not approved: ⌘	The ASN.1 specification will not be implementable. Proprietary corrections would be needed, resulting in lack of interoperability between different vendors' MMS R/Ss, particularly in interoperator accounting (roaming).

Clauses affected:	⌘	6

		Y	**N**	
Other specs affected:	⌘		X	Other core specifications ⌘
			X	Test specifications
		X		O&M Specifications Rel-4 32.235, Rel-4/5 32.205

Other comments:	⌘	Rel-5 Mirror of 32235CR007. This CR is linked with the Rel-4/5 32205CR011/12.

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
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
}

MMO4FRqRecord          ::= SET
{
        recordType                     [0]  CallEventRecordType,
        originatorMmsRSAddress         [1]  MMSRSAddress,
        recipientMmsRSAddress          [2]  MMSRSAddress,
        messageID                      [3]  OCTET STRING,
        mms3GPPVersion3GPPVersion                   [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
}

MMO4FRsRecord          ::= SET
{
        recordType                     [0]  CallEventRecordType,
        originatorMmsRSAddress         [1]  MMSRSAddress OPTIONAL,
        recipientMmsRSAddress          [2]  MMSRSAddress,
        messageID                      [3]  OCTET STRING,
        mms3GPPVersion3GPPVersion                   [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,
        mms3GPPVersion3GPPVersion                   [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,
        mms3GPPVersion3GPPVersion                   [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
```

```
}

MMO4RRecord          ::= SET
{
     recordType                 [0]  CallEventRecordType,
     recipientMmsRSAddress      [1]  MMSRSAddress OPTIONAL,
     originatorMmsRSAddress     [2]  MMSRSAddress OPTIONAL,
     messageID                  [3]  OCTET STRING,
     mms3GPPVersion3GPPVersion                [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
}

MMO1RRrecord           ::= SET
{
     recordType                 [0]  CallEventRecordType,
     recipientMmsRSAddress      [1]  MMSRSAddress OPTIONAL,
     originatorMmsRSAddress     [2]  MMSRSAddress OPTIONAL,
     accessCorrelation          [3]  AccessCorrelation OPTIONAL,
     messageID                  [4]  OCTET STRING,
     mms3GPPVersion3GPPVersion                [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
}

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,
     mms3GPPVersion3GPPVersion                [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
```

```
}

MMR1NrRqRecord         ::= 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
}

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
}

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,
}

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
}


MMR4DRqRecord          ::= SET
{
        recordType                   [0]  CallEventRecordType,
        recipientMmsRSAddress        [1]  MMSRSAddress,
        originatorMmsRSAddress       [2]  MMSRSAddress,
        messageID                    [3]  OCTET STRING,
        mms3GPPVersion3GPPVersion                 [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,
        mms3GPPVersion3GPPVersion                 [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
}


MMR4RRqRecord          ::= SET
{
        recordType                   [0]  CallEventRecordType,
        recipientMmsRSAddress        [1]  MMSRSAddress,
        originatorMmsRSAddress       [2]  MMSRSAddress,
        messageID                    [3]  OCTET STRING,
        mms3GPPVersion3GPPVersion                 [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,
        mms3GPPVersion3GPPVersion                    [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
}


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


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

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

ChargeType                ::= ENUMERATED
{
        normal                    (0),
        pre-paid                  (1),
        reply                     (2)
}

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

```
ContentType              ::= OCTET STRING



DataVolume               ::= INTEGER
        --
        -- The volume of data transfered in octets.
        --

DeltaSeconds             ::= OCTET STRING (SIZE(8))[8]

MediaComponent      ::= SEQUENCE
{
        mediaType      [0] OCTET STRING,
        mediaSize      [1] DataVolume
}

MediaComponents          = Set ofSET OF MediaComponent

MessageClass             ::= ENUMERATED
{
        personal              (0),
        advertisement         (1),
        information-service   (2),
        auto                  (3)
}

MMComponentType          ::= SEQUENCE
{
        subject        [0] SubjectComponent,
        media          [1] MediaComponents
}

MMSAgentAddress          ::= SEQUENCE-- usage of SEQUENCE instead of CHOICE allows several address types to be present at the same time
{
        eMail-address  [0] OCTET STRING,
        mSISDN         [1] MSISDN OPTIONAL,
        iPAddress      [2] IPAddress OPTIONAL
}

MMSAgentAddresses  ::= SET OF MMSAgentAddress

MMSRSAddress             ::= SEQUENCE  -- usage of SEQUENCE instead of CHOICE allows both address types to be present at the same time
{
        domainName     [0] OCTET STRING OPTIONAL,
        iPAddress      [2] IPAddress OPTIONAL
}

MMStatusCodeType         ::= ENUMERATED
{
        retrieved                (0),
        forwarded                (1),
        expired                  (2),
        rejected                 (3),
        deferred                 (4),
        unrecognised             (5),
        read                     (6),
        deletedWithoutBeingRead  (7)
}

PacketSwitchedAccess ::= SEQUENCE
{
        gSNAddress     [0] GSNAddress,
        chargingID     [1] ChargingID
}

PriorityType       ::= ENUMERATED
{
        low            (0),
        normal         (1),
        high           (2)
}

RequestStatusCodeType       ::= INTEGER
{       --
        -- cause codes 0 to 15 are defined in TS 32.205[8] as 'CauseForTerm'
```

```
      -- (cause for termination) and cause code 16 to 20 are defined
      -- in TS 32.215 [9] as 'CauseForRecClosing'
      --
      normalRelease                   (0),   -- ok
      abnormalRelease                 (4),   -- error unspecified
      serviceDenied                   (30),
      messageFormatCorrupt            (31),
      sendingAddressUnresolved        (32),
      messageNotFound                 (33),
      networkProblem                  (34),
      contentNotAccepted              (35),
      unsupportedMessage              (36)
}

StatusTextType          ::= OCTET STRING

SubjectComponent        ::= SEQUENCE
{
      subjectType  [0] OCTET STRING,
      subjectSize  [1] DataVolume
}

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

END
```

End of Change in Clause 6
End of Document