

**Source:** SA5 (Telecom Management)  
**Title:** CR 32200-205 Charging principles - CS domain charging  
**Document for:** Approval  
**Agenda Item:** 7.5.3

Doc-1st-Level	Spec	CR	R	Phase	Subject	Ca	VerCr	Doc-2nd-Level	Workitem
SP-050026	32.200	029	--	Rel-5	Correction of Inter Operator Identification (IOI) Storage – Align with CN4's TS 24.229 (IP multimedia call control protocol based on SIP and Session Description Protocol (SDP); Stage 3)	F	5.7.0	S5-054183	OAM-CH
SP-050026	32.205	028	--	Rel-4	Correction to ASN.1 for data services	F	4.7.0	S5-054171	OAM-CH
SP-050026	32.205	029	--	Rel-5	Correction to ASN.1 for data services	A	5.8.0	S5-054172	OAM-CH

## CHANGE REQUEST

⌘ **32.205 CR 028** ⌘ rev - ⌘ Current version: **4.7.0** ⌘

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

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

<b>Title:</b>	⌘ Correction to ASN.1 for data services		
<b>Source:</b>	⌘ SA5 (gerald.goermer@siemens.com)		
<b>Work item code:</b>	⌘ OAM-CH	<b>Date:</b>	⌘ 28/01/2005
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-4
	<i>Use <u>one</u> of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use <u>one</u> of the following releases:</i> 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)

<b>Reason for change:</b>	⌘ The ASN.1 code definitions for GuaranteedBitRate and MaximumBitRate are wrong and incomplete.
<b>Summary of change:</b>	⌘ The ASN.1 code is corrected and aligned for the GuaranteedBitRate and MaximumBitRate.
<b>Consequences if not approved:</b>	⌘ Charging error for data services.

<b>Clauses affected:</b>	⌘ 6										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	⌘	X	⌘	X	⌘	X	⌘	
Y	N										
⌘	X										
⌘	X										
⌘	X										
<b>Other comments:</b>	⌘ Mirror correction for Rel-5 in S5-054172										

## Change in Clause 6

# 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
```

```
-- Note that use of more recent module versions is allowed as long as the imported parameters are
identical the ones in the module versions specified below.
```

```
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, LCSCClientExternalID,
LCSCClientInternalID
```

```
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, LCSCClientType, 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, UnauthorizedLCSCClient-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, MMO1RReCORD,
MMOMDReCORD, MMR4FReCORD, MMR1NRqReCORD, MMR1NRsReCORD, MMR1RtReCORD, 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 circuit 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,

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] SGSNMTLCSReCORD,

sgsnLCOREcord [26] SGSNMOLCSRecord,  
sgsnLCNRecord [27] SGSNNILCSRecord,

mm01SRecord [30] MMO1SRecord,  
mm04FRqRecord [31] MMO4FRqRecord,  
mm04FRsRecord [32] MMO4FRsRecord,  
mm04DRecord [33] MMO4DRecord,  
mm01DRecord [34] MMO1DRecord,  
mm04RRecord [35] MMO4RRecord,  
mm01RRecord [36] MMO1RRecord,  
mmOMDRecord [37] MMOMDRecord,  
mmR4FRecord [38] MMR4FRecord,  
mmR1NRqRecord [38] MMR1NRqRecord,  
mmR1NRsRecord [40] MMR1NRsRecord,  
mmR1RtRqRecord [41] MMR1RtRecord,  
mmR1AFRecord [43] MMRIARRecord,  
mmR4DRqRecord [44] MMR4DRqRecord,  
mmR4DRsRecord [45] MMR4DRsRecord,  
mmR1RRRRecord [46] MMR1RRRRecord,  
mmR4RRqRecord [47] MMR4RRqRecord,  
mmR4RRsRecord [48] MMR4RRsRecord,  
mmRMDRecord [49] MMRMDRecord,  
mmFRecord [50] MMFRecord

}

MOCallRecord ::= SET

{

recordType [0] CallEventRecordType,  
servedIMSI [1] IMSI OPTIONAL,  
servedIMEI [2] IMEI OPTIONAL,  
servedMSISDN [3] MSISDN OPTIONAL,  
callingNumber [4] CallingNumber OPTIONAL,  
calledNumber [5] CalledNumber OPTIONAL,  
translatedNumber [6] TranslatedNumber OPTIONAL,  
connectedNumber [7] ConnectedNumber OPTIONAL,  
roamingNumber [8] RoamingNumber OPTIONAL,  
recordingEntity [9] RecordingEntity,  
mscIncomingTKGP [10] TrunkGroup OPTIONAL,  
mscOutgoingTKGP [11] TrunkGroup OPTIONAL,  
location [12] LocationAreaAndCell OPTIONAL,  
changeOfLocation [13] SEQUENCE OF LocationChange OPTIONAL,  
basicService [14] BasicServiceCode OPTIONAL,  
transparencyIndicator [15] TransparencyInd OPTIONAL,  
changeOfService [16] SEQUENCE OF ChangeOfService OPTIONAL,  
supplServicesUsed [17] SEQUENCE OF SuppServiceUsed OPTIONAL,  
aocParameters [18] AOCParameters OPTIONAL,  
changeOfAOCParms [19] SEQUENCE OF AOCParmChange OPTIONAL,  
msClassmark [20] Classmark OPTIONAL,  
changeOfClassmark [21] ChangeOfClassmark OPTIONAL,  
seizureTime [22] TimeStamp OPTIONAL,  
answerTime [23] TimeStamp OPTIONAL,  
releaseTime [24] TimeStamp OPTIONAL,  
callDuration [25] CallDuration,  
dataVolume [26] DataVolume OPTIONAL,  
radioChanRequested [27] RadioChanRequested OPTIONAL,  
radioChanUsed [28] TrafficChannel OPTIONAL,  
changeOfRadioChan [29] ChangeOfRadioChannel OPTIONAL,  
causeForTerm [30] CauseForTerm,  
diagnostics [31] Diagnostics OPTIONAL,  
callReference [32] CallReference,  
sequenceNumber [33] INTEGER OPTIONAL,  
additionalChgInfo [34] AdditionalChgInfo OPTIONAL,  
recordExtensions [35] ManagementExtensions OPTIONAL,  
gsm-SCFAddress [36] Gsm-SCFAddress OPTIONAL,  
serviceKey [37] ServiceKey OPTIONAL,  
networkCallReference [38] NetworkCallReference OPTIONAL,  
mSCAddress [39] MSCAddress OPTIONAL,  
cAMELInitCFIndicator [40] CAMELInitCFIndicator OPTIONAL,  
defaultCallHandling [41] DefaultCallHandling OPTIONAL,  
hSCSDChanRequested [42] NumOfHSCSDChanRequested OPTIONAL,  
hSCSDChanAllocated [43] NumOfHSCSDChanAllocated OPTIONAL,  
changeOfHSCSDParms [44] SEQUENCE OF HSCSDParmsChange OPTIONAL,  
fnur [45] Fnur OPTIONAL,  
aiurRequested [46] AiurRequested OPTIONAL,  
chanCodingsAcceptable [47] SEQUENCE OF ChannelCoding OPTIONAL,  
chanCodingUsed [48] ChannelCoding OPTIONAL,  
speechVersionSupported [49] SpeechVersionIdentifier OPTIONAL,  
speechVersionUsed [50] SpeechVersionIdentifier OPTIONAL,

```

numberOfDPEncountered [51] INTEGER OPTIONAL,
levelOfCAMELService [52] LevelOfCAMELService OPTIONAL,
freeFormatData [53] FreeFormatData OPTIONAL,
cAMELCallLegInformation [54] SEQUENCE OF CAMELInformation OPTIONAL,
freeFormatDataAppend [55] BOOLEAN OPTIONAL,
defaultCallHandling-2 [56] DefaultCallHandling OPTIONAL,
gsm-SCFAddress-2 [57] Gsm-SCFAddress OPTIONAL,
serviceKey-2 [58] ServiceKey OPTIONAL,
freeFormatData-2 [59] FreeFormatData OPTIONAL,
freeFormatDataAppend-2 [60] BOOLEAN OPTIONAL,
systemType [61] SystemType OPTIONAL,
rateIndication [62] RateIndication OPTIONAL,
guaranteedBitRate [69] GuaranteedBitRate OPTIONAL,
maximumBitRate [70] MaximumBitRate OPTIONAL
}

```

```

MTCallRecord ::= SET

```

```

{
  recordType [0] CallEventRecordType,
  servedIMSI [1] IMSI,
  servedIMEI [2] IMEI OPTIONAL,
  servedMSISDN [3] CalledNumber OPTIONAL,
  callingNumber [4] CallingNumber OPTIONAL,
  connectedNumber [5] ConnectedNumber OPTIONAL,
  recordingEntity [6] RecordingEntity,
  mscIncomingTKGP [7] TrunkGroup OPTIONAL,
  mscOutgoingTKGP [8] TrunkGroup OPTIONAL,
  location [9] LocationAreaAndCell OPTIONAL,
  changeOfLocation [10] SEQUENCE OF LocationChange OPTIONAL,
  basicService [11] BasicServiceCode OPTIONAL,
  transparencyIndicator [12] TransparencyInd OPTIONAL,
  changeOfService [13] SEQUENCE OF ChangeOfService OPTIONAL,
  supplServicesUsed [14] SEQUENCE OF SuppServiceUsed OPTIONAL,
  aocParameters [15] AOCParameters OPTIONAL,
  changeOfAOCParms [16] SEQUENCE OF AOCParmChange OPTIONAL,
  msClassmark [17] Classmark OPTIONAL,
  changeOfClassmark [18] ChangeOfClassmark OPTIONAL,
  seizureTime [19] TimeStamp OPTIONAL,
  answerTime [20] TimeStamp OPTIONAL,
  releaseTime [21] TimeStamp OPTIONAL,
  callDuration [22] CallDuration,
  dataVolume [23] DataVolume OPTIONAL,
  radioChanRequested [24] RadioChanRequested OPTIONAL,
  radioChanUsed [25] TrafficChannel OPTIONAL,
  changeOfRadioChan [26] ChangeOfRadioChannel OPTIONAL,
  causeForTerm [27] CauseForTerm,
  diagnostics [28] Diagnostics OPTIONAL,
  callReference [29] CallReference,
  sequenceNumber [30] INTEGER OPTIONAL,
  additionalChgInfo [31] AdditionalChgInfo OPTIONAL,
  recordExtensions [32] ManagementExtensions OPTIONAL,
  networkCallReference [33] NetworkCallReference OPTIONAL,
  mSCAddress [34] MSCAddress OPTIONAL,
  hSCSDChanRequested [35] NumOfHSCSDChanRequested OPTIONAL,
  hSCSDChanAllocated [36] NumOfHSCSDChanAllocated OPTIONAL,
  changeOfHSCSDParms [37] SEQUENCE OF HSCSDParmsChange OPTIONAL,
  fnur [38] Fnur OPTIONAL,
  aiurRequested [39] AiurRequested OPTIONAL,
  chanCodingsAcceptable [40] SEQUENCE OF ChannelCoding OPTIONAL,
  chanCodingUsed [41] ChannelCoding OPTIONAL,
  speechVersionSupported [42] SpeechVersionIdentifier OPTIONAL,
  speechVersionUsed [43] SpeechVersionIdentifier OPTIONAL,
  gsm-SCFAddress [44] Gsm-SCFAddress OPTIONAL,
  serviceKey [45] ServiceKey OPTIONAL,
  systemType [61] SystemType OPTIONAL,
  rateIndication [53] RateIndication OPTIONAL,
  guaranteedBitRate [54] GuaranteedBitRate OPTIONAL,
  maximumBitRate [55] MaximumBitRate OPTIONAL
}

```

```

GuaranteedBitRate ::= ENUMERATED

```

```

{
  gBR14400BitsPerSecond (1), BS20 non-transparent
  gBR28800BitsPerSecond (2), -- BS20 non-transparent and transparent,
  -- BS30 transparent and multimedia
  gBR32000BitsPerSecond (3), BS30 multimedia
  gBR33600BitsPerSecond (4), BS30 multimedia
  gBR56000BitsPerSecond (5), BS30 transparent and multimedia
}

```

```
gBR57600BitsPerSecond (6), BS20 non transparent  
gBR64000BitsPerSecond (7) BS30 transparent and multimedia  
}
```

```
MaximumBitRate ::= ENUMERATED
```

```
{  
mBR14400BitsPerSecond (1), BS20 non transparent  
mBR28800BitsPerSecond (2), BS20 non transparent and transparent,  
BS30 transparent and multimedia  
mBR32000BitsPerSecond (3), -- BS30 multimedia  
mBR33600BitsPerSecond (4), -- BS30 multimedia  
mBR56000BitsPerSecond (5), BS30 transparent and multimedia  
mBR57600BitsPerSecond (6), BS20 non transparent  
mBR64000BitsPerSecond (7) BS30 transparent and multimedia  
}
```

```
RoamingRecord ::= SET
```

```
{  
    recordType [0] CallEventRecordType,  
    servedIMSI [1] IMSI,  
    servedMSISDN [2] MSISDN OPTIONAL,  
    callingNumber [3] CallingNumber OPTIONAL,  
    roamingNumber [4] RoamingNumber OPTIONAL,  
    recordingEntity [5] RecordingEntity,  
    mscIncomingTKGP [6] TrunkGroup OPTIONAL,  
    mscOutgoingTKGP [7] TrunkGroup OPTIONAL,  
    basicServiceCode [8] BasicServiceCode OPTIONAL,  
    transparencyIndicator [9] TransparencyInd OPTIONAL,  
    changeOfService [10] SEQUENCE OF ChangeOfService OPTIONAL,  
    supplServicesUsed [11] SEQUENCE OF SuppServiceUsed OPTIONAL,  
    seizureTime [12] TimeStamp OPTIONAL,  
    answerTime [13] TimeStamp OPTIONAL,  
    releaseTime [14] TimeStamp OPTIONAL,  
    callDuration [15] CallDuration,  
    dataVolume [16] DataVolume OPTIONAL,  
    causeForTerm [17] CauseForTerm,  
    diagnostics [18] Diagnostics OPTIONAL,  
    callReference [19] CallReference,  
    sequenceNumber [20] INTEGER OPTIONAL,  
    recordExtensions [21] ManagementExtensions OPTIONAL,  
    networkCallReference [22] NetworkCallReference OPTIONAL,  
    mSCAddress [23] MSCAddress OPTIONAL  
}
```

```
TermCAMELRecord ::= SET
```

```
{  
    recordtype [0] CallEventRecordType,  
    servedIMSI [1] IMSI,  
    servedMSISDN [2] MSISDN OPTIONAL,  
    recordingEntity [3] RecordingEntity,  
    interrogationTime [4] TimeStamp,  
    destinationRoutingAddress [5] DestinationRoutingAddress,  
    gsm-SCFAddress [6] Gsm-SCFAddress,  
    serviceKey [7] ServiceKey,  
    networkCallReference [8] NetworkCallReference OPTIONAL,  
    mSCAddress [9] MSCAddress OPTIONAL,  
    defaultCallHandling [10] DefaultCallHandling OPTIONAL,  
    recordExtensions [11] ManagementExtensions OPTIONAL,  
    calledNumber [12] CalledNumber,  
    callingNumber [13] CallingNumber OPTIONAL,  
    mscIncomingTKGP [14] TrunkGroup OPTIONAL,  
    mscOutgoingTKGP [15] TrunkGroup OPTIONAL,  
    seizureTime [16] TimeStamp OPTIONAL,  
    answerTime [17] TimeStamp OPTIONAL,  
    releaseTime [18] TimeStamp OPTIONAL,  
    callDuration [19] CallDuration,  
    dataVolume [20] DataVolume OPTIONAL,  
    causeForTerm [21] CauseForTerm,  
    diagnostics [22] Diagnostics OPTIONAL,  
    callReference [23] CallReference,  
    sequenceNumber [24] INTEGER OPTIONAL,  
    numberOfDPEncountered [25] INTEGER OPTIONAL,  
    levelOfCAMELService [26] LevelOfCAMELService OPTIONAL,  
    freeFormatData [27] FreeFormatData OPTIONAL,  
    CAMELCallLegInformation [28] SEQUENCE OF CAMELInformation OPTIONAL,  
    freeFormatDataAppend [29] BOOLEAN OPTIONAL,  
    defaultCallHandling-2 [30] DefaultCallHandling OPTIONAL,  
    gsm-SCFAddress-2 [31] Gsm-SCFAddress OPTIONAL,  
}
```

```

    serviceKey-2           [32] ServiceKey OPTIONAL,
    freeFormatData-2      [33] FreeFormatData OPTIONAL,
    freeFormatDataAppend-2 [34] BOOLEAN OPTIONAL,
    mscServerIndication   [35] BOOLEAN OPTIONAL
}

```

```

IncGatewayRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    callingNumber       [1] CallingNumber OPTIONAL,
    calledNumber        [2] CalledNumber,
    recordingEntity     [3] RecordingEntity,
    mscIncomingTKGP    [4] TrunkGroup OPTIONAL,
    mscOutgoingTKGP    [5] TrunkGroup OPTIONAL,
    seizureTime        [6] TimeStamp OPTIONAL,
    answerTime         [7] TimeStamp OPTIONAL,
    releaseTime        [8] TimeStamp OPTIONAL,
    callDuration       [9] CallDuration,
    dataVolume         [10] DataVolume OPTIONAL,
    causeForTerm       [11] CauseForTerm,
    diagnostics        [12] Diagnostics OPTIONAL,
    callReference      [13] CallReference,
    sequenceNumber     [14] INTEGER OPTIONAL,
    recordExtensions   [15] ManagementExtensions OPTIONAL,
    iSDN-BC           [23] ISDN-BC OPTIONAL,
    LLC               [24] LLC OPTIONAL,
    hLC              [25] HLC OPTIONAL
}

```

```

OutGatewayRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    callingNumber       [1] CallingNumber OPTIONAL,
    calledNumber        [2] CalledNumber,
    recordingEntity     [3] RecordingEntity,
    mscIncomingTKGP    [4] TrunkGroup OPTIONAL,
    mscOutgoingTKGP    [5] TrunkGroup OPTIONAL,
    seizureTime        [6] TimeStamp OPTIONAL,
    answerTime         [7] TimeStamp OPTIONAL,
    releaseTime        [8] TimeStamp OPTIONAL,
    callDuration       [9] CallDuration,
    dataVolume         [10] DataVolume OPTIONAL,
    causeForTerm       [11] CauseForTerm,
    diagnostics        [12] Diagnostics OPTIONAL,
    callReference      [13] CallReference,
    sequenceNumber     [14] INTEGER OPTIONAL,
    recordExtensions   [15] ManagementExtensions OPTIONAL
}

```

```

TransitCallRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recordingEntity     [1] RecordingEntity,
    mscIncomingTKGP    [2] TrunkGroup OPTIONAL,
    mscOutgoingTKGP    [3] TrunkGroup OPTIONAL,
    callingNumber       [4] CallingNumber OPTIONAL,
    calledNumber        [5] CalledNumber,
    isdnBasicService   [6] BasicService OPTIONAL,
    seizureTimestamp   [7] TimeStamp OPTIONAL,
    answerTimestamp    [8] TimeStamp OPTIONAL,
    releaseTimestamp   [9] TimeStamp OPTIONAL,
    callDuration       [10] CallDuration,
    dataVolume         [11] DataVolume OPTIONAL,
    causeForTerm       [12] CauseForTerm,
    diagnostics        [13] Diagnostics OPTIONAL,
    callReference      [14] CallReference,
    sequenceNumber     [15] INTEGER OPTIONAL,
    recordExtensions   [16] ManagementExtensions OPTIONAL
}

```

```

MOSMSRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    servedIMSI         [1] IMSI,
    servedIMEI         [2] IMEI OPTIONAL,
    servedMSISDN       [3] MSISDN OPTIONAL,
    msClassmark        [4] Classmark,
    serviceCentre      [5] AddressString,
}

```



```

recordingEntity      [6] RecordingEntity,
location             [7] LocationAreaAndCell OPTIONAL,
messageReference     [8] MessageReference,
originationTime      [9] TimeStamp,
smsResult            [10] SMSResult OPTIONAL,
recordExtensions     [11] ManagementExtensions OPTIONAL,
destinationNumber    [12] SmsTpDestinationNumber OPTIONAL,
CAMELSMSInformation [13] CAMELSMSInformation OPTIONAL,
systemType           [14] SystemType OPTIONAL
}

```

MTSMSRecord ::= SET

```

{
  recordType          [0] CallEventRecordType,
  serviceCentre       [1] AddressString,
  servedIMSI          [2] IMSI,
  servedIMEI          [3] IMEI OPTIONAL,
  servedMSISDN        [4] MSISDN OPTIONAL,
  msClassmark         [5] Classmark,
  recordingEntity     [6] RecordingEntity,
  location            [7] LocationAreaAndCell OPTIONAL,
  deliveryTime        [8] TimeStamp,
  smsResult           [9] SMSResult OPTIONAL,
  recordExtensions    [10] ManagementExtensions OPTIONAL,
  systemType          [11] SystemType OPTIONAL
}

```

MOSMSIWRecord ::= SET

```

{
  recordType          [0] CallEventRecordType,
  serviceCentre       [1] AddressString,
  servedIMSI          [2] IMSI,
  recordingEntity     [3] RecordingEntity,
  eventTime           [4] TimeStamp,
  smsResult           [5] SMSResult OPTIONAL,
  recordExtensions    [6] ManagementExtensions OPTIONAL
}

```

MTSMSGWRecord ::= SET

```

{
  recordType          [0] CallEventRecordType,
  serviceCentre       [1] AddressString,
  servedIMSI          [2] IMSI,
  servedMSISDN        [3] MSISDN OPTIONAL,
  recordingEntity     [4] RecordingEntity,
  eventTime           [5] TimeStamp,
  smsResult           [6] SMSResult OPTIONAL,
  recordExtensions    [7] ManagementExtensions OPTIONAL
}

```

SSActionRecord ::= SET

```

{
  recordType          [0] CallEventRecordType,
  servedIMSI          [1] IMSI,
  servedIMEI          [2] IMEI OPTIONAL,
  servedMSISDN        [3] MSISDN OPTIONAL,
  msClassmark         [4] Classmark,
  recordingEntity     [5] RecordingEntity,
  location            [6] LocationAreaAndCell OPTIONAL,
  basicServices        [7] BasicServices OPTIONAL,
  supplService        [8] SS-Code OPTIONAL,
  ssAction            [9] SSActionType OPTIONAL,
  ssActionTime        [10] TimeStamp,
  ssParameters        [11] SSParameters OPTIONAL,
  ssActionResult      [12] SSActionResult OPTIONAL,
  callReference        [13] CallReference,
  recordExtensions    [14] ManagementExtensions OPTIONAL,
  systemType          [15] SystemType OPTIONAL
}

```

HLRIntRecord ::= SET

```

{
  recordType          [0] CallEventRecordType,
  servedIMSI          [1] IMSI,
  servedMSISDN        [2] MSISDN,
  recordingEntity     [3] RecordingEntity,
  basicService        [4] BasicServiceCode OPTIONAL,
  routingNumber       [5] RoutingNumber,
}

```

```
interrogationTime [6] TimeStamp,
numberOfForwarding [7] NumberOfForwarding OPTIONAL,
interrogationResult [8] HLRIntResult OPTIONAL,
recordExtensions [9] ManagementExtensions OPTIONAL
}
```

```
LocUpdateHLRRecord ::= SET
{
  recordType [0] CallEventRecordType,
  servedIMSI [1] IMSI,
  recordingEntity [2] RecordingEntity,
  oldLocation [3] Visited-Location-info OPTIONAL,
  newLocation [4] Visited-Location-info,
  updateTime [5] TimeStamp,
  updateResult [6] LocUpdResult OPTIONAL,
  recordExtensions [7] ManagementExtensions OPTIONAL
}
```

```
LocUpdateVLRRecord ::= SET
{
  recordType [0] CallEventRecordType,
  servedIMSI [1] IMSI,
  servedMSISDN [2] MSISDN OPTIONAL,
  recordingEntity [3] RecordingEntity,
  oldLocation [4] Location-info OPTIONAL,
  newLocation [5] Location-info,
  msClassmark [6] Classmark,
  updateTime [7] TimeStamp,
  updateResult [8] LocUpdResult OPTIONAL,
  recordExtensions [9] ManagementExtensions OPTIONAL
}
```

```
CommonEquipRecord ::= SET
{
  recordType [0] CallEventRecordType,
  equipmentType [1] EquipmentType,
  equipmentId [2] EquipmentId,
  servedIMSI [3] IMSI,
  servedMSISDN [4] MSISDN OPTIONAL,
  recordingEntity [5] RecordingEntity,
  basicService [6] BasicServiceCode OPTIONAL,
  changeOfService [7] SEQUENCE OF ChangeOfService OPTIONAL,
  supplServicesUsed [8] SEQUENCE OF SuppServiceUsed OPTIONAL,
  seizureTime [9] TimeStamp,
  releaseTime [10] TimeStamp OPTIONAL,
  callDuration [11] CallDuration,
  callReference [12] CallReference,
  sequenceNumber [13] INTEGER OPTIONAL,
  recordExtensions [14] ManagementExtensions OPTIONAL,
  systemType [15] SystemType OPTIONAL,
  rateIndication [16] RateIndication OPTIONAL,
  fnur [17] Fnur OPTIONAL
}
```

```
-----
--
-- OBSERVED IMEI TICKETS
--
-----
```

```
ObservedIMEITicket ::= SET
{
  servedIMEI [0] IMEI,
  imeiStatus [1] IMEIStatus,
  servedIMSI [2] IMSI,
  servedMSISDN [3] MSISDN OPTIONAL,
  recordingEntity [4] RecordingEntity,
  eventTime [5] TimeStamp,
  location [6] LocationAreaAndCell ,
  imeiCheckEvent [7] IMEICheckEvent OPTIONAL,
  callReference [8] CallReference OPTIONAL,
  recordExtensions [9] ManagementExtensions OPTIONAL
}
```

```
-----
--
-- LOCATION SERICE TICKETS
--
-----
```

```

-----
MTLCSRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recordingEntity      [1] RecordingEntity,
    lcsClientType        [2] LCSCClientType,
    lcsClientIdentity    [3] LCSCClientIdentity,
    servedIMSI          [4] IMSI,
    servedMSISDN         [5] MSISDN OPTIONAL,
    locationType         [6] LocationType,
    lcsQos               [7] LCSQoSInfo OPTIONAL,
    lcsPriority           [8] LCS-Priority OPTIONAL,
    mlc-Number           [9] ISDN-AddressString,
    eventTimeStamp       [10] TimeStamp,
    measureDuration      [11] CallDuration OPTIONAL,
    notificationToMSUser [12] NotificationToMSUser OPTIONAL,
    privacyOverride      [13] NULL OPTIONAL,
    location             [14] LocationAreaAndCell OPTIONAL,
    locationEstimate     [15] Ext-GeographicalInformation OPTIONAL,
    positioningData      [16] PositioningData OPTIONAL,
    lcsCause             [17] LCSCause OPTIONAL,
    diagnostics          [18] Diagnostics OPTIONAL,
    systemType           [19] SystemType OPTIONAL,
    recordExtensions     [20] ManagementExtensions OPTIONAL,
    causeForTerm         [21] CauseForTerm
}

```

```

MOLCSRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recordingEntity      [1] RecordingEntity,
    lcsClientType        [2] LCSCClientType OPTIONAL,
    lcsClientIdentity    [3] LCSCClientIdentity OPTIONAL,
    servedIMSI          [4] IMSI,
    servedMSISDN         [5] MSISDN OPTIONAL,
    molr-Type            [6] MOLR-Type,
    lcsQos               [7] LCSQoSInfo OPTIONAL,
    lcsPriority           [8] LCS-Priority OPTIONAL,
    mlc-Number           [9] ISDN-AddressString OPTIONAL,
    eventTimeStamp       [10] TimeStamp,
    measureDuration      [11] CallDuration OPTIONAL,
    location             [12] LocationAreaAndCell OPTIONAL,
    locationEstimate     [13] Ext-GeographicalInformation OPTIONAL,
    positioningData      [14] PositioningData OPTIONAL,
    lcsCause             [15] LCSCause OPTIONAL,
    diagnostics          [16] Diagnostics OPTIONAL,
    systemType           [17] SystemType OPTIONAL,
    recordExtensions     [18] ManagementExtensions OPTIONAL,
    causeForTerm         [19] CauseForTerm
}

```

```

NILCSRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recordingEntity      [1] RecordingEntity,
    lcsClientType        [2] LCSCClientType OPTIONAL,
    lcsClientIdentity    [3] LCSCClientIdentity OPTIONAL,
    servedIMSI          [4] IMSI OPTIONAL,
    servedMSISDN         [5] MSISDN OPTIONAL,
    servedIMEI           [6] IMEI OPTIONAL,
    emsDigits            [7] ISDN-AddressString OPTIONAL,
    emsKey               [8] ISDN-AddressString OPTIONAL,
    lcsQos               [9] LCSQoSInfo OPTIONAL,
    lcsPriority           [10] LCS-Priority OPTIONAL,
    mlc-Number           [11] ISDN-AddressString OPTIONAL,
    eventTimeStamp       [12] TimeStamp,
    measureDuration      [13] CallDuration OPTIONAL,
    location             [14] LocationAreaAndCell OPTIONAL,
    locationEstimate     [15] Ext-GeographicalInformation OPTIONAL,
    positioningData      [16] PositioningData OPTIONAL,
    lcsCause             [17] LCSCause OPTIONAL,
    diagnostics          [18] Diagnostics OPTIONAL,
    systemType           [19] SystemType OPTIONAL,
    recordExtensions     [20] ManagementExtensions OPTIONAL,
    causeForTerm         [21] CauseForTerm
}

```

-----  
--  
-- FTAM / FTP / TFTP FILE CONTENTS  
--  
-----

CallEventDataFile ::= SEQUENCE  
{  
  headerRecord [0] HeaderRecord,  
  callEventRecords [1] SEQUENCE OF CallEventRecord,  
  trailerRecord [2] TrailerRecord,  
  extensions [3] ManagementExtensions  
}

ObservedIMEITicketFile ::= SEQUENCE  
{  
  productionDateTime [0] TimeStamp,  
  observedIMEITickets [1] SEQUENCE OF ObservedIMEITicket,  
  noOfRecords [2] INTEGER,  
  extensions [3] ManagementExtensions  
}

HeaderRecord ::= SEQUENCE  
{  
  productionDateTime [0] TimeStamp,  
  recordingEntity [1] RecordingEntity,  
  extensions [2] ManagementExtensions  
}

TrailerRecord ::= SEQUENCE  
{  
  productionDateTime [0] TimeStamp,  
  recordingEntity [1] RecordingEntity,  
  firstCallDateTime [2] TimeStamp,  
  lastCallDateTime [3] TimeStamp,  
  noOfRecords [4] INTEGER,  
  extensions [5] ManagementExtensions  
}

-----  
--  
-- 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
}

AOCParamChange ::= 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),
    sgsnSMORRecord    (21),
    sgsnSMTRRecord    (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 are MMS specific.
-- The contents are defined in TS 32.235
--
mm01SRecord          (29),
mm04FRqRecord        (30),
mm04FRsRecord        (31),
mm04DRecord          (32),
mm01DRecord          (33),
mm04RRecord          (34),
mm01RRecord          (35),
mmOMDRecord          (36),
mmR4FRecord          (37),
mmR1NRqRecord        (38),
mmR1NRsRecord        (39),
mmR1RtRecord         (40),
mmR1ARRecord         (42),
mmR4DRqRecord        (43),
mmR4DRsRecord        (44),
mmR1RRRecord         (45),
mmR4RRqRecord        (46),
mmR4RRsRecord        (47),
mmRMDRecord          (48),
mmFRecord            (49)
}

CalledNumber          ::= BCDDirectoryNumber

CallingNumber          ::= BCDDirectoryNumber

CallingPartyCategory  ::= Category

CallReference         ::= INTEGER

CallType              ::= INTEGER
{
  mobileOriginated    (0),
  mobileTerminated    (1)
}

CallTypes             ::= SET OF CallType

CAMELDestinationNumber ::= DestinationRoutingAddress

CAMELInformation      ::= SET
{
  CAMELDestinationNumber [1] CAMELDestinationNumber OPTIONAL,
  connectedNumber        [2] ConnectedNumber OPTIONAL,
  roamingNumber          [3] RoamingNumber OPTIONAL,
  mscOutgoingTKGP       [4] TrunkGroup OPTIONAL,
  seizureTime           [5] TimeStamp OPTIONAL,
  answerTime            [6] TimeStamp OPTIONAL,
  releaseTime           [7] TimeStamp OPTIONAL,
  callDuration          [8] CallDuration OPTIONAL,
  dataVolume            [9] DataVolume OPTIONAL,
  CAMELInitCFIndicator  [10] CAMELInitCFIndicator OPTIONAL,
  causeForTerm          [11] CauseForTerm OPTIONAL,
  CAMELModification    [12] ChangedParameters OPTIONAL,
  freeFormatData        [13] FreeFormatData OPTIONAL,
  diagnostics           [14] Diagnostics OPTIONAL,
  freeFormatDataAppend  [15] BOOLEAN OPTIONAL,
  freeFormatData-2     [16] FreeFormatData OPTIONAL,
  freeFormatDataAppend-2 [17] BOOLEAN OPTIONAL
}

CAMELInitCFIndicator ::= ENUMERATED
{
  noCAMELCallForwarding (0),
  CAMELCallForwarding   (1)
}

CAMELModificationParameters ::= SET
{
  --

```

```

-- The list contains only parameters changed due to CAMEL call
-- handling.
--
callingPartyNumber      [0] CallingNumber OPTIONAL,
callingPartyCategory    [1] CallingPartyCategory OPTIONAL,
originalCalledPartyNumber [2] OriginalCalledNumber OPTIONAL,
genericNumbers          [3] GenericNumbers OPTIONAL,
redirectingPartyNumber  [4] RedirectingNumber OPTIONAL,
redirectionCounter      [5] NumberOfForwarding OPTIONAL
}

CAMELSMSInformation ::= SET
{
    gsm-SCFAddress      [1] Gsm-SCFAddress OPTIONAL,
    serviceKey          [2] ServiceKey OPTIONAL,
    defaultSMShandling  [3] DefaultSMS-Handling OPTIONAL,
    freeFormatData      [4] FreeFormatData OPTIONAL,
    callingPartyNumber  [5] CallingNumber OPTIONAL,
    destinationSubscriberNumber [6] SmsTpDestinationNumber OPTIONAL,
    cAMELSMSCAddress    [7] AddressString OPTIONAL,
    smsReferenceNumber  [8] CallReferenceNumber OPTIONAL
}

Category ::= OCTET STRING (SIZE(1))
--
-- The internal structure is defined in CCITT Rec Q.763.
--

CauseForTerm ::= INTEGER
{
    --
    -- Cause codes from 16 up to 31 are defined in GSM12.15 as 'CauseForRecClosing'
    -- (cause for record closing).
    -- There is no direct correlation between these two types.
    -- LCS related causes belong to the MAP error causes acc. TS 29.002.
    --
    normalRelease          (0),
    partialRecord          (1),
    partialRecordCallReestablishment (2),
    unsuccessfulCallAttempt (3),
    stableCallAbnormalTermination (4),
    cAMELInitCallRelease  (5),
    unauthorizedRequestingNetwork (52),
    unauthorizedLCSClient (53),
    positionMethodFailure (54),
    unknownOrUnreachableLCSClient (58)
}

CellId ::= OCTET STRING (SIZE(2))
--
-- Coded according to TS 24.008
--

ChangedParameters ::= SET
{
    changeFlags [0] ChangeFlags,
    changeList  [1] CAMELModificationParameters OPTIONAL
}

ChangeFlags ::= BIT STRING
{
    callingPartyNumberModified (0),
    callingPartyCategoryModified (1),
    originalCalledPartyNumberModified (2),
    genericNumbersModified (3),
    redirectingPartyNumberModified (4),
    redirectionCounterModified (5)
}

ChangeOfClassmark ::= SEQUENCE
{
    classmark [0] Classmark,
    changeTime [1] TimeStamp
}

ChangeOfRadioChannel ::= SEQUENCE
{
    radioChannel [0] TrafficChannel,

```

```

    changeTime      [1] TimeStamp,
    speechVersionUsed [2] SpeechVersionIdentifier OPTIONAL
}

ChangeOfService ::= SEQUENCE
{
    basicService      [0] BasicServiceCode,
    transparencyInd   [1] TransparencyInd OPTIONAL,
    changeTime        [2] TimeStamp,
    rateIndication    [3] RateIndication OPTIONAL,
    fnur              [4] Fnur OPTIONAL
}

ChannelCoding ::= ENUMERATED
{
    tchF4800      (1),
    tchF9600      (2),
    tchF14400     (3)
}

ChargeIndicator ::= INTEGER
{
    noCharge      (0),
    charge        (1)
}

Classmark ::= OCTET STRING
--
-- See Mobile station classmark 2, TS 24.008
--

ConnectedNumber ::= BCDDirectoryNumber

DataVolume ::= INTEGER
--
-- The volume of data transferred in segments of 64 octets.
--

Day ::= INTEGER (1..31)

DayClass ::= ObjectInstance

DayClasses ::= SET OF DayClass

DayDefinition ::= SEQUENCE
{
    day      [0] DayOfTheWeek,
    dayClass [1] ObjectInstance
}

DayDefinitions ::= SET OF DayDefinition

DateDefinition ::= SEQUENCE
{
    month      [0] Month,
    day        [1] Day,
    dayClass   [2] ObjectInstance
}

DateDefinitions ::= SET OF DateDefinition

DayOfTheWeek ::= ENUMERATED
{
    allDays      (0),
    sunday       (1),
    monday       (2),
    tuesday      (3),
    wednesday    (4),
    thursday     (5),
    friday       (6),
    saturday     (7)
}

Diagnostics ::= CHOICE
{
    gsm0408Cause      [0] INTEGER,
    -- See TS 24.008
    gsm0902MapErrorValue [1] INTEGER,

```



```

-- Note: The value to be stored here corresponds to
-- the local values defined in the MAP-Errors and
-- MAP-DialogueInformation modules, for full details
-- see TS 29.002.
ccittQ767Cause          [2] INTEGER,
-- See CCITT Q.767
networkSpecificCause    [3] ManagementExtension,
-- To be defined by network operator
manufacturerSpecificCause [4] ManagementExtension,
-- To be defined by manufacturer
positionMethodFailureCause [5] PositionMethodFailure-Diagnostic,
-- see TS 29.002
unauthorizedLCSCClientCause [6] UnauthorizedLCSCClient-Diagnostic
-- see TS 29.002
}

Destinations             ::= SET OF AE-title

EmergencyCallIndEnable  ::= BOOLEAN

EmergencyCallIndication ::= SEQUENCE
{
    cellId                [0] CellId,
    callerId              [1] IMSIorIMEI
}

EParameter              ::= INTEGER (0..1023)
--
-- Coded according to TS 22.024 and TS 24.080
--

EquipmentId             ::= INTEGER

EquipmentType           ::= INTEGER
{
    conferenceBridge      (0)
}

FileType                ::= INTEGER
{
    callRecords           (1),
    traceRecords          (9),
    observedIMEITicket    (14)
}

Fnur                    ::= ENUMERATED
{
    --
    -- See Bearer Capability TS 24.008
    --
    fnurNotApplicable     (0),
    fnur9600-BitsPerSecond (1),
    fnur14400BitsPerSecond (2),
    fnur19200BitsPerSecond (3),
    fnur28800BitsPerSecond (4),
    fnur38400BitsPerSecond (5),
    fnur48000BitsPerSecond (6),
    fnur56000BitsPerSecond (7),
    fnur64000BitsPerSecond (8),
    fnur33600BitsPerSecond (9),
    fnur32000BitsPerSecond (10),
    fnur31200BitsPerSecond (11)
}

ForwardToNumber         ::= AddressString

FreeFormatData          ::= OCTET STRING (SIZE(1..160))
--
-- Free formatted data as sent in the FCI message
-- See TS 29.078
--

GenericNumber           ::= BCDDirectoryNumber

GenericNumbers          ::= SET OF GenericNumber

Gsm-SCFAddress          ::= ISDN-AddressString
--

```

-- See TS 29.002  
--

GuaranteedBitRate ::= ENUMERATED

```
{  
  gbr14kbps (1), -- ( 14,4 kbit/s) BS20 non-transparent  
  gbr28kbps (2), -- ( 28,8 kbit/s) BS20 non-transparent and transparent  
  -- BS30 transparent and multimedia  
  gbr32kbps (3), -- ( 32,0 kbit/s) BS30 multimedia  
  gbr33kbps (4), -- ( 33,6 kbit/s) BS30 multimedia  
  gbr56kbps (5), -- ( 56,0 kbit/s) BS30 transparent and multimedia  
  gbr57kbps (6), -- ( 57,6 kbit/s) BS20 non-transparent  
  gbr64kbps (7) -- ( 64,0 kbit/s) BS30 transparent and multimedia  
}
```

HLC ::= OCTET STRING

-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the "high layer compatibility" parameter of ITU-T Q.931 [35].

HLRIntResult ::= Diagnostics

HSCSDParamsChange ::= SEQUENCE

```
{  
  changeTime [0] TimeStamp,  
  hSCSDChanAllocated [1] NumOfHSCSDChanAllocated,  
  initiatingParty [2] InitiatingParty OPTIONAL,  
  aiurRequested [3] AiurRequested OPTIONAL,  
  chanCodingUsed [4] ChannelCoding,  
  hSCSDChanRequested [5] NumOfHSCSDChanRequested OPTIONAL  
}
```

IMEICheckEvent ::= INTEGER

```
{  
  mobileOriginatedCall (0),  
  mobileTerminatedCall (1),  
  smsMobileOriginating (2),  
  smsMobileTerminating (3),  
  ssAction (4),  
  locationUpdate (5)  
}
```

IMEIStatus ::= ENUMERATED

```
{  
  greyListedMobileEquipment (0),  
  blackListedMobileEquipment (1),  
  nonWhiteListedMobileEquipment (2)  
}
```

IMSIorIMEI ::= CHOICE

```
{  
  imsi [0] IMSI,  
  imei [1] IMEI  
}
```

InitiatingParty ::= ENUMERATED

```
{  
  network (0),  
  subscriber (1)  
}
```

ISDN-BC ::= OCTET STRING

-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the "bearer capability" parameter of ITU-T Q.931 [35].

LCSCause ::= OCTET STRING (SIZE(1))

--  
-- See LCS Cause Value, 3GPP TS 49.031  
--

LCSCClientIdentity ::= SEQUENCE

```
{  
  lcsClientExternalID [0] LCSCClientExternalID OPTIONAL,  
  lcsClientDialedByMS [1] AddressString OPTIONAL,  
  lcsClientInternalID [2] LCSCClientInternalID OPTIONAL  
}
```

```

LCSQoSInfo          ::= OCTET STRING (SIZE(4))
--
-- See LCS QoS IE, 3GPP TS 49.031
--

LevelOfCAMELService ::= BIT STRING
{
    basic                (0),
    callDurationSupervision (1),
    onlineCharging       (2)
}

LLC                 ::= OCTET STRING

-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the "low layer
compatibility" parameter of ITU-T Q.931 [35].

LocationAreaAndCell ::= SEQUENCE
{
    locationAreaCode [0] LocationAreaCode,
    cellId           [1] CellId
}

LocationAreaCode    ::= OCTET STRING (SIZE(2))
--
-- See TS 24.008
--

LocationChange      ::= SEQUENCE
{
    location          [0] LocationAreaAndCell,
    changeTime       [1] TimeStamp
}

Location-info       ::= SEQUENCE
{
    mscNumber         [1] MscNo OPTIONAL,
    location-area     [2] LocationAreaCode,
    cell-identification [3] CellId OPTIONAL
}

LocUpdResult        ::= Diagnostics

ManagementExtensions ::= SET OF ManagementExtension

MaximumBitRate ::= ENUMERATED
{
    mbr14kbps (1), -- ( 14,4 kbit/s) BS20 non-transparent
    mbr28kbps (2), -- ( 28,8 kbit/s) BS20 non-transparent and transparent
    -- BS30 transparent and multimedia
    mbr32kbps (3), -- ( 32,0 kbit/s) BS30 multimedia
    mbr33kbps (4), -- ( 33,6 kbit/s) BS30 multimedia
    mbr56kbps (5), -- ( 56,0 kbit/s) BS30 transparent and multimedia
    mbr57kbps (6), -- ( 57,6 kbit/s) BS20 non-transparent
    mbr64kbps (7) -- ( 64,0 kbit/s) BS30 transparent and multimedia
}

MCCMNC ::= GraphicString (SIZE(6))
--
-- This type contains the mobile country code (MCC) and the mobile
-- network code (MNC) of a PLMN.
--

MessageReference    ::= OCTET STRING

Month               ::= INTEGER (1..12)

MSCAddress          ::= AddressString

MscNo              ::= ISDN-AddressString
--
-- See TS 23.003
--

MSISDN             ::= ISDN-AddressString
--

```

```

-- See TS 23.003
--

MSPowerClasses          ::= SET OF RFPowerCapability

NetworkCallReference    ::= CallReferenceNumber
--
-- See TS 29.002
--

NetworkSpecificCode     ::= INTEGER
--
-- To be defined by network operator
--

NetworkSpecificServices ::= SET OF NetworkSpecificCode

NumOfHSCSDChanRequested ::= INTEGER

NumOfHSCSDChanAllocated ::= INTEGER

ObservedIMEITicketEnable ::= BOOLEAN

OriginalCalledNumber    ::= BCDDirectoryNumber

OriginDestCombinations ::= SET OF OriginDestCombination

OriginDestCombination  ::= SEQUENCE
{
    origin          [0] INTEGER OPTIONAL,
    destination     [1] INTEGER OPTIONAL
--
-- Note that these values correspond to the contents
-- of the attributes originId and destinationId
-- respectively. At least one of the two must be present.
--
}

PartialRecordTimer      ::= INTEGER

PartialRecordType       ::= ENUMERATED
{
    timeLimit          (0),
    serviceChange      (1),
    locationChange     (2),
    classmarkChange    (3),
    aocParmChange      (4),
    radioChannelChange (5),
    hSCSDParmChange    (6),
    changeOfCAMELDestination (7)
}

PartialRecordTypes      ::= SET OF PartialRecordType

PositioningData ::= OCTET STRING (SIZE(1..33))
--
-- See Positioning Data IE (octet 3..n), 3GPP TS 49.031
--

RadioChannelsRequested  ::= SET OF RadioChanRequested

RadioChanRequested      ::= ENUMERATED
{
--
-- See Bearer Capability TS 24.008
--
    halfRateChannel    (0),
    fullRateChannel    (1),
    dualHalfRatePreferred (2),
    dualFullRatePreferred (3)
}

RateIndication ::= OCTET STRING(SIZE(1))

RecordClassDestination ::= CHOICE
{
    osApplication      [0] AE-title,
    fileType           [1] FileType
}

```

```

}

RecordClassDestinations ::= SET OF RecordClassDestination

RecordingEntity          ::= AddressString

RecordingMethod          ::= ENUMERATED
{
    inCallRecord         (0),
    inSSRecord           (1)
}

RedirectingNumber       ::= BCDDirectoryNumber

RFPowerCapability       ::= INTEGER
--
-- This field contains the RF power capability of the
-- Mobile station
-- classmark 1 and 2 of TS 24.008 expressed as an integer.
--

RoamingNumber           ::= ISDN-AddressString
--
-- See TS 23.003
--

RoutingNumber           ::= CHOICE
{
    roaming               [1] RoamingNumber,
    forwarded              [2] ForwardToNumber
}

Service                 ::= CHOICE
{
    teleservice            [1] TeleserviceCode,
    bearerService          [2] BearerServiceCode,
    supplementaryService    [3] SS-Code,
    networkSpecificService [4] NetworkSpecificCode
}

ServiceDistanceDependencies ::= SET OF ServiceDistanceDependency

ServiceDistanceDependency ::= SEQUENCE
{
    aocService             [0] INTEGER,
    chargingZone           [1] INTEGER OPTIONAL
--
-- Note that these values correspond to the contents
-- of the attributes aocServiceId and zoneId
-- respectively.
--
}

SimpleIntegerName       ::= INTEGER

SimpleStringName        ::= GraphicString

SMSResult               ::= Diagnostics

SmsTpDestinationNumber ::= OCTET STRING
--
-- This type contains the binary coded decimal representation of
-- the SMS address field the encoding of the octet string is in
-- accordance with the definition of address fields in TS 23.040.
-- This encoding includes type of number and numbering plan indication
-- together with the address value range.
--

SpeechVersionIdentifier ::= OCTET STRING (SIZE(1))
--
-- see GSM 08.08
--
-- 000 0001   GSM speech full rate version 1
-- 001 0001   GSM speech full rate version 2   used for enhanced full rate
-- 010 0001   GSM speech full rate version 3   for future use
-- 000 0101   GSM speech half rate version 1
-- 001 0101   GSM speech half rate version 2   for future use
-- 010 0101   GSM speech half rate version 3   for future use

```

```

SSActionResult ::= Diagnostics

SSActionType ::= ENUMERATED
{
    registration (0),
    erasure (1),
    activation (2),
    deactivation (3),
    interrogation (4),
    invocation (5),
    passwordRegistration (6)
}

SSParameters ::= CHOICE
{
    forwardedToNumber [0] ForwardToNumber,
    unstructuredData [1] OCTET STRING
}

SupplServices ::= SET OF SS-Code

SuppServiceUsed ::= SEQUENCE
{
    ssCode [0] SS-Code,
    ssTime [1] TimeStamp OPTIONAL
}

SwitchoverTime ::= SEQUENCE
{
    hour INTEGER (0..23),
    minute INTEGER (0..59),
    second INTEGER (0..59)
}

TariffId ::= INTEGER

TariffPeriod ::= SEQUENCE
{
    switchoverTime [0] SwitchoverTime,
    tariffId [1] INTEGER
    --
    -- Note that the value of tariffId corresponds
    -- to the attribute tariffId.
    --
}

TariffPeriods ::= SET OF TariffPeriod

TariffSystemStatus ::= ENUMERATED
{
    available (0), -- available for modification
    checked (1), -- "frozen" and checked
    standby (2), -- "frozen" awaiting activation
    active (3) -- "frozen" and active
}

TimeStamp ::= OCTET STRING (SIZE(9))
--
-- The contents of this field are a compact form of the UTCTime format
-- containing local time plus an offset to universal time. Binary coded
-- decimal encoding is employed for the digits to reduce the storage and
-- transmission overhead
-- e.g. YYMMDDhhmmssShhmm
-- where
-- YY = Year 00 to 99 BCD encoded
-- MM = Month 01 to 12 BCD encoded
-- DD = Day 01 to 31 BCD encoded
-- hh = hour 00 to 23 BCD encoded
-- mm = minute 00 to 59 BCD encoded
-- ss = second 00 to 59 BCD encoded
-- S = Sign 0 = "+", "-" ASCII encoded
-- hh = hour 00 to 23 BCD encoded
-- mm = minute 00 to 59 BCD encoded
--

TrafficChannel ::= ENUMERATED
{

```

```

    fullRate      (0),
    halfRate     (1)
}

TranslatedNumber ::= BCDDirectoryNumber

TransparencyInd ::= ENUMERATED
{
    transparent (0),
    nonTransparent (1)
}

TrunkGroup ::= CHOICE
{
    tkgpNumber [0] INTEGER,
    tkgpName [1] GraphicString
}

TSChangeover ::= SEQUENCE
{
    newActiveTS [0] INTEGER,
    newStandbyTS [1] INTEGER,
    changeoverTime [2] GeneralizedTime OPTIONAL,
    authkey [3] OCTET STRING OPTIONAL,
    checksum [4] OCTET STRING OPTIONAL,
    versionNumber [5] OCTET STRING OPTIONAL
    --
    -- Note that if the changeover time is not
    -- specified then the change is immediate.
    --
}

TSCheckError ::= SEQUENCE
{
    errorId [0] TSCheckErrorId,
    fail [1] ANY DEFINED BY errorId OPTIONAL
}

TSCheckErrorId ::= CHOICE
{
    globalForm [0] OBJECT IDENTIFIER,
    localForm [1] INTEGER
}

TSCheckResult ::= CHOICE
{
    success [0] NULL,
    fail [1] SET OF TSCheckError
}

TSCopyTariffSystem ::= SEQUENCE
{
    oldTS [0] INTEGER,
    newTS [1] INTEGER
}

TSNextChange ::= CHOICE
{
    noChangeover [0] NULL,
    tsChangeover [1] TSChangeover
}

TypeOfSubscribers ::= ENUMERATED
{
    home (0), -- HPLMN subscribers
    visiting (1), -- roaming subscribers
    all (2)
}

TypeOfTransaction ::= ENUMERATED
{
    successful (0),
    unsuccessful (1),
    all (2)
}

Visited-Location-info ::= SEQUENCE
{

```





## CHANGE REQUEST

⌘ **32.205 CR 029** ⌘ rev - ⌘ Current version: **5.8.0** ⌘

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

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

<b>Title:</b>	⌘ Correction to ASN.1 for data services		
<b>Source:</b>	⌘ SA5 (gerald.goermer@siemens.com)		
<b>Work item code:</b>	⌘ OAM-CH	<b>Date:</b>	⌘ 28/01/2005
<b>Category:</b>	⌘ <b>A</b>	<b>Release:</b>	⌘ Rel-5
	<i>Use <u>one</u> of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use <u>one</u> of the following releases:</i> 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)

<b>Reason for change:</b>	⌘ The ASN.1 code definitions for GuaranteedBitRate and MaximumBitRate are wrong and incomplete.
<b>Summary of change:</b>	⌘ The ASN.1 code is corrected and aligned for the GuaranteedBitRate and MaximumBitRate.
<b>Consequences if not approved:</b>	⌘ Charging error for data services.

<b>Clauses affected:</b>	⌘ 6										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	⌘	X	⌘	X	⌘	X	⌘	
Y	N										
⌘	X										
⌘	X										
⌘	X										
<b>Other comments:</b>	⌘ Rel-5 Mirror CR for S5-054171										

## Change in Clause 6

# 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)}

S-CSCFRecord, P-CSCFRecord, I-CSCFRecord, MRFCRecord, MGCFRecord, BGCFRecord, ASRecord
FROM TS32225-DataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) umts-
Operation-Maintenance (3) ts-32-225 (225) 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, MMO1RReCORD,
MMOMDReCORD, MMR4FReCORD, MMR1NRqReCORD, MMR1NRsReCORD, MMR1RtReCORD, MMR1AReCORD, MMR4DRqReCORD,
MMR4DRsReCORD, MMR1RRReCORD, MMR4RRqReCORD, MMR4RRsReCORD, MMRMDReCORD, MMFReCORD, MMBx1SReCORD,
MMBx1VReCORD, MMBx1UReCORD, MMBx1DReCORD, MM7SReCORD, MM7DRqReCORD, MM7DRsReCORD, MM7CReCORD,
MM7RRReCORD, MM7DRRqReCORD, MM7DRRsReCORD, MM7RRqReCORD, MM7RRsReCORD
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 circuit switch specific
--                20..27 are 3G packet switch specific
--                30..63 are application specific
--                70..76 are IMS 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,

mm01SRecord	[30]	MM01SRecord,
mm04FRqRecord	[31]	MM04FRqRecord,
mm04FRsRecord	[32]	MM04FRsRecord,
mm04DRecord	[33]	MM04DRecord,
mm01DRecord	[34]	MM01DRecord,
mm04RRecord	[35]	MM04RRecord,
mm01RRecord	[36]	MM01RRecord,
mmOMDRecord	[37]	MMOMDRecord,
mmR4FRecord	[38]	MMR4FRecord,
mmR1NRqRecord	[39]	MMR1NRqRecord,
mmR1NRsRecord	[40]	MMR1NRsRecord,
mmR1RtRqRecord	[41]	MMR1RtRqRecord,
mmR1ARecord	[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,
mm7SRecord	[55]	MM7SRecord,
mm7DRqRecord	[56]	MM7DRqRecord,
mm7DRsRecord	[57]	MM7DRsRecord,
mm7CRecord	[58]	MM7CRecord,
mm7RRecord	[59]	MM7RRecord,
mm7DRRqRecord	[60]	MM7DRRqRecord,
mm7DRRsRecord	[61]	MM7DRRsRecord,
mm7RRqRecord	[62]	MM7RRqRecord,
mm7RRsRecord	[63]	MM7RRsRecord,

s-CSCFRecord	[70]	S-SCSFRecord,
p-CSCFRecord	[71]	P-SCSFRecord,
i-CSCFRecord	[72]	I-SCSFRecord,
mRFCRecord	[73]	MRFCRecord,
mGCFRecord	[74]	MGCFRecord,
bGCFRecord	[75]	BGCFRecord,
aSRecord	[76]	ASRecord

}

MOCallRecord ::= SET

{

recordType	[0]	CallEventRecordType,
servedIMSI	[1]	IMSI OPTIONAL,
servedIMEI	[2]	IMEI OPTIONAL,
servedMSISDN	[3]	MSISDN OPTIONAL,
callingNumber	[4]	CallingNumber OPTIONAL,
calledNumber	[5]	CalledNumber OPTIONAL,
translatedNumber	[6]	TranslatedNumber OPTIONAL,
connectedNumber	[7]	ConnectedNumber OPTIONAL,
roamingNumber	[8]	RoamingNumber OPTIONAL,
recordingEntity	[9]	RecordingEntity,
mscIncomingTKGP	[10]	TrunkGroup OPTIONAL,
mscOutgoingTKGP	[11]	TrunkGroup OPTIONAL,
location	[12]	LocationAreaAndCell OPTIONAL,
changeOfLocation	[13]	SEQUENCE OF LocationChange OPTIONAL,
basicService	[14]	BasicServiceCode OPTIONAL,
transparencyIndicator	[15]	TransparencyInd OPTIONAL,
changeOfService	[16]	SEQUENCE OF ChangeOfService OPTIONAL,
supplServicesUsed	[17]	SEQUENCE OF SuppServiceUsed OPTIONAL,
aocParameters	[18]	AOCParameters OPTIONAL,
changeOfAOCParms	[19]	SEQUENCE OF AOCParmChange OPTIONAL,
msClassmark	[20]	Classmark OPTIONAL,
changeOfClassmark	[21]	ChangeOfClassmark OPTIONAL,
seizureTime	[22]	TimeStamp OPTIONAL,
answerTime	[23]	TimeStamp OPTIONAL,
releaseTime	[24]	TimeStamp OPTIONAL,
callDuration	[25]	CallDuration OPTIONAL,
dataVolume	[26]	DataVolume OPTIONAL,

radioChanRequested	[27] RadioChanRequested OPTIONAL,
radioChanUsed	[28] TrafficChannel OPTIONAL,
changeOfRadioChan	[29] ChangeOfRadioChannel OPTIONAL,
causeForTerm	[30] CauseForTerm,
diagnostics	[31] Diagnostics OPTIONAL,
callReference	[32] CallReference,
sequenceNumber	[33] INTEGER OPTIONAL,
additionalChgInfo	[34] AdditionalChgInfo OPTIONAL,
recordExtensions	[35] ManagementExtensions OPTIONAL,
gsm-SCFAddress	[36] Gsm-SCFAddress OPTIONAL,
serviceKey	[37] ServiceKey OPTIONAL,
networkCallReference	[38] NetworkCallReference OPTIONAL,
mSCAddress	[39] MSCAddress OPTIONAL,
cAMELInitCFIndicator	[40] CAMELInitCFIndicator OPTIONAL,
defaultCallHandling	[41] DefaultCallHandling OPTIONAL,
hSCSDChanRequested	[42] NumOfHSCSDChanRequested OPTIONAL,
hSCSDChanAllocated	[43] NumOfHSCSDChanAllocated OPTIONAL,
changeOfHSCSDParms	[44] SEQUENCE OF HSCSDParmsChange OPTIONAL,
fnur	[45] Fnur OPTIONAL,
aiurRequested	[46] AiurRequested OPTIONAL,
chanCodingsAcceptable	[47] SEQUENCE OF ChannelCoding OPTIONAL,
chanCodingUsed	[48] ChannelCoding OPTIONAL,
speechVersionSupported	[49] SpeechVersionIdentifier OPTIONAL,
speechVersionUsed	[50] SpeechVersionIdentifier OPTIONAL,
numberOfDPEncountered	[51] INTEGER OPTIONAL,
levelOfCAMELService	[52] LevelOfCAMELService OPTIONAL,
freeFormatData	[53] FreeFormatData OPTIONAL,
cAMELCallLegInformation	[54] SEQUENCE OF CAMELInformation OPTIONAL,
freeFormatDataAppend	[55] BOOLEAN OPTIONAL,
defaultCallHandling-2	[56] DefaultCallHandling OPTIONAL,
gsm-SCFAddress-2	[57] Gsm-SCFAddress OPTIONAL,
serviceKey-2	[58] ServiceKey OPTIONAL,
freeFormatData-2	[59] FreeFormatData OPTIONAL,
freeFormatDataAppend-2	[60] BOOLEAN OPTIONAL,
systemType	[61] SystemType OPTIONAL,
rateIndication	[62] RateIndication OPTIONAL,
locationRoutNum	[63] LocationRoutingNumber OPTIONAL,
lrnSoInd	[64] LocationRoutingNumberSourceIndicator OPTIONAL,
lrnQueryStatus	[65] LocationRoutingNumberQueryStatus OPTIONAL,
jIPPara	[66] JurisdictionInformationParameter OPTIONAL,
jIPSoInd	[67] JurisdictionInformationParameterSourceIndicator OPTIONAL,
jIPQueryStatus	[68] JurisdictionInformationParameterQueryStatus OPTIONAL,
partialRecordType	[69] PartialRecordType OPTIONAL,
guaranteedBitRate	[70] GuaranteedBitRate OPTIONAL,
maximumBitRate	[71] MaximumBitRate OPTIONAL,

}

MTCallRecord ::= SET

{	
recordType	[0] CallEventRecordType,
servedIMSI	[1] IMSI,
servedIMEI	[2] IMEI OPTIONAL,
servedMSISDN	[3] CalledNumber OPTIONAL,
callingNumber	[4] CallingNumber OPTIONAL,
connectedNumber	[5] ConnectedNumber OPTIONAL,
recordingEntity	[6] RecordingEntity,
mscIncomingTKGP	[7] TrunkGroup OPTIONAL,
mscOutgoingTKGP	[8] TrunkGroup OPTIONAL,
location	[9] LocationAreaAndCell OPTIONAL,
changeOfLocation	[10] SEQUENCE OF LocationChange OPTIONAL,
basicService	[11] BasicServiceCode OPTIONAL,
transparencyIndicator	[12] TransparencyInd OPTIONAL,
changeOfService	[13] SEQUENCE OF ChangeOfService OPTIONAL,
supplServicesUsed	[14] SEQUENCE OF SuppServiceUsed OPTIONAL,
aocParameters	[15] AOCParameters OPTIONAL,
changeOfAOCParms	[16] SEQUENCE OF AOCParmChange OPTIONAL,
msClassmark	[17] Classmark OPTIONAL,
changeOfClassmark	[18] ChangeOfClassmark OPTIONAL,
seizureTime	[19] TimeStamp OPTIONAL,
answerTime	[20] TimeStamp OPTIONAL,
releaseTime	[21] TimeStamp OPTIONAL,
callDuration	[22] CallDuration,
dataVolume	[23] DataVolume OPTIONAL,
radioChanRequested	[24] RadioChanRequested OPTIONAL,
radioChanUsed	[25] TrafficChannel OPTIONAL,
changeOfRadioChan	[26] ChangeOfRadioChannel OPTIONAL,
causeForTerm	[27] CauseForTerm,

```

diagnostics          [28] Diagnostics OPTIONAL,
callReference        [29] CallReference,
sequenceNumber       [30] INTEGER OPTIONAL,
additionalChgInfo    [31] AdditionalChgInfo OPTIONAL,
recordExtensions     [32] ManagementExtensions OPTIONAL,
networkCallReference [33] NetworkCallReference OPTIONAL,
mSCAddress           [34] MSCAddress OPTIONAL,
hSCSDChanRequested  [35] NumOfHSCSDChanRequested OPTIONAL,
hSCSDChanAllocated  [36] NumOfHSCSDChanAllocated OPTIONAL,
changeOfHSCSDParms [37] SEQUENCE OF HSCSDParmsChange OPTIONAL,
fnur                 [38] Fnur OPTIONAL,
aiurRequested        [39] AiurRequested OPTIONAL,
chanCodingsAcceptable [40] SEQUENCE OF ChannelCoding OPTIONAL,
chanCodingUsed       [41] ChannelCoding OPTIONAL,
speechVersionSupported [42] SpeechVersionIdentifier OPTIONAL,
speechVersionUsed    [43] SpeechVersionIdentifier OPTIONAL,
gsm-SCFAddress       [44] Gsm-SCFAddress OPTIONAL,
serviceKey           [45] ServiceKey OPTIONAL,
systemType           [46] SystemType OPTIONAL,
rateIndication       [47] RateIndication OPTIONAL,
locationRoutNum      [48] LocationRoutingNumber OPTIONAL,
lrnSoInd             [49] LocationRoutingNumberSourceIndicator OPTIONAL,
lrnQueryStatus       [50] LocationRoutingNumberQueryStatus OPTIONAL,
jIPPara              [51] JurisdictionInformationParameter OPTIONAL,
jIPSoInd             [52] JurisdictionInformationParameterSourceIndicator OPTIONAL,
jIPQueryStatus       [53] JurisdictionInformationParameterQueryStatus OPTIONAL,
partialRecordType    [54] PartialRecordType OPTIONAL,
guaranteedBitRate    [55] GuaranteedBitRate OPTIONAL,
maximumBitRate       [56] MaximumBitRate OPTIONAL
}

```

RoamingRecord ::= SET

```

{
  recordType          [0] CallEventRecordType,
  servedIMSI          [1] IMSI,
  servedMSISDN        [2] MSISDN OPTIONAL,
  callingNumber        [3] CallingNumber OPTIONAL,
  roamingNumber        [4] RoamingNumber OPTIONAL,
  recordingEntity      [5] RecordingEntity,
  mscIncomingTKGP     [6] TrunkGroup OPTIONAL,
  mscOutgoingTKGP     [7] TrunkGroup OPTIONAL,
  basicService         [8] BasicServiceCode OPTIONAL,
  transparencyIndicator [9] TransparencyInd OPTIONAL,
  changeOfService     [10] SEQUENCE OF ChangeOfService OPTIONAL,
  supplServicesUsed    [11] SEQUENCE OF SuppServiceUsed OPTIONAL,
  seizureTime         [12] TimeStamp OPTIONAL,
  answerTime          [13] TimeStamp OPTIONAL,
  releaseTime         [14] TimeStamp OPTIONAL,
  callDuration         [15] CallDuration,
  dataVolume          [16] DataVolume OPTIONAL,
  causeForTerm        [17] CauseForTerm,
  diagnostics          [18] Diagnostics OPTIONAL,
  callReference        [19] CallReference,
  sequenceNumber       [20] INTEGER OPTIONAL,
  recordExtensions     [21] ManagementExtensions OPTIONAL,
  networkCallReference [22] NetworkCallReference OPTIONAL,
  mSCAddress           [23] MSCAddress OPTIONAL,
  locationRoutNum      [24] LocationRoutingNumber OPTIONAL,
  lrnSoInd             [25] LocationRoutingNumberSourceIndicator OPTIONAL,
  lrnQueryStatus       [26] LocationRoutingNumberQueryStatus OPTIONAL,
  jIPPara              [27] JurisdictionInformationParameter OPTIONAL,
  jIPSoInd             [28] JurisdictionInformationParameterSourceIndicator OPTIONAL,
  jIPQueryStatus       [29] JurisdictionInformationParameterQueryStatus OPTIONAL,
  partialRecordType    [30] PartialRecordType OPTIONAL
}

```

TermCAMELRecord ::= SET

```

{
  recordtype          [0] CallEventRecordType,
  servedIMSI          [1] IMSI,
  servedMSISDN        [2] MSISDN OPTIONAL,
  recordingEntity      [3] RecordingEntity,
  interrogationTime    [4] TimeStamp,
  destinationRoutingAddress [5] DestinationRoutingAddress,
  gsm-SCFAddress       [6] Gsm-SCFAddress,
  serviceKey           [7] ServiceKey,
  networkCallReference [8] NetworkCallReference OPTIONAL,
  mSCAddress           [9] MSCAddress OPTIONAL,
}

```

```

defaultCallHandling      [10] DefaultCallHandling OPTIONAL,
recordExtensions        [11] ManagementExtensions OPTIONAL,
calledNumber            [12] CalledNumber,
callingNumber           [13] CallingNumber OPTIONAL,
mscIncomingTKGP        [14] TrunkGroup OPTIONAL,
mscOutgoingTKGP        [15] TrunkGroup OPTIONAL,
seizureTime             [16] TimeStamp OPTIONAL,
answerTime              [17] TimeStamp OPTIONAL,
releaseTime             [18] TimeStamp OPTIONAL,
callDuration            [19] CallDuration,
dataVolume              [20] DataVolume OPTIONAL,
causeForTerm            [21] CauseForTerm,
diagnostics             [22] Diagnostics OPTIONAL,
callReference           [23] CallReference,
sequenceNumber          [24] INTEGER OPTIONAL,
numberOfDPENcountered  [25] INTEGER OPTIONAL,
levelOfCAMELService     [26] LevelOfCAMELService OPTIONAL,
freeFormatData          [27] FreeFormatData OPTIONAL,
cAMELCallLegInformation [28] SEQUENCE OF CAMELInformation OPTIONAL,
freeFormatDataAppend    [29] BOOLEAN OPTIONAL,
defaultCallHandling-2   [30] DefaultCallHandling OPTIONAL,
gsm-SCFAddress-2       [31] Gsm-SCFAddress OPTIONAL,
serviceKey-2           [32] ServiceKey OPTIONAL,
freeFormatData-2       [33] FreeFormatData OPTIONAL,
freeFormatDataAppend-2 [34] BOOLEAN OPTIONAL,
mscServerIndication     [35] BOOLEAN OPTIONAL,
locationRoutNum         [36] LocationRoutingNumber OPTIONAL,
lrnSoInd                [37] LocationRoutingNumberSourceIndicator OPTIONAL,
lrnQueryStatus          [38] LocationRoutingNumberQueryStatus OPTIONAL,
jIPPara                 [39] JurisdictionInformationParameter OPTIONAL,
jIPSoInd                [40] JurisdictionInformationParameterSourceIndicator OPTIONAL,
jIPQueryStatus          [41] JurisdictionInformationParameterQueryStatus OPTIONAL,
partialRecordType       [42] PartialRecordType OPTIONAL
}

```

```
IncGatewayRecord ::= SET
```

```

{
  recordType           [0] CallEventRecordType,
  callingNumber        [1] CallingNumber OPTIONAL,
  calledNumber         [2] CalledNumber,
  recordingEntity      [3] RecordingEntity,
  mscIncomingTKGP     [4] TrunkGroup OPTIONAL,
  mscOutgoingTKGP     [5] TrunkGroup OPTIONAL,
  seizureTime          [6] TimeStamp OPTIONAL,
  answerTime           [7] TimeStamp OPTIONAL,
  releaseTime          [8] TimeStamp OPTIONAL,
  callDuration         [9] CallDuration,
  dataVolume           [10] DataVolume OPTIONAL,
  causeForTerm         [11] CauseForTerm,
  diagnostics          [12] Diagnostics OPTIONAL,
  callReference        [13] CallReference,
  sequenceNumber       [14] INTEGER OPTIONAL,
  recordExtensions    [15] ManagementExtensions OPTIONAL,
  locationRoutNum     [16] LocationRoutingNumber OPTIONAL,
  lrnSoInd            [17] LocationRoutingNumberSourceIndicator OPTIONAL,
  lrnQueryStatus      [18] LocationRoutingNumberQueryStatus OPTIONAL,
  jIPPara             [19] JurisdictionInformationParameter OPTIONAL,
  jIPSoInd            [20] JurisdictionInformationParameterSourceIndicator OPTIONAL,
  jIPQueryStatus      [21] JurisdictionInformationParameterQueryStatus OPTIONAL,
  partialRecordType   [22] PartialRecordType OPTIONAL,
  iSDN-BC             [23] ISDN-BC OPTIONAL,
  LLC                 [24] LLC OPTIONAL,
  hLC                 [25] HLC OPTIONAL
}

```

```
OutGatewayRecord ::= SET
```

```

{
  recordType           [0] CallEventRecordType,
  callingNumber        [1] CallingNumber OPTIONAL,
  calledNumber         [2] CalledNumber,
  recordingEntity      [3] RecordingEntity,
  mscIncomingTKGP     [4] TrunkGroup OPTIONAL,
  mscOutgoingTKGP     [5] TrunkGroup OPTIONAL,
  seizureTime          [6] TimeStamp OPTIONAL,
  answerTime           [7] TimeStamp OPTIONAL,
  releaseTime          [8] TimeStamp OPTIONAL,
  callDuration         [9] CallDuration,
  dataVolume           [10] DataVolume OPTIONAL,

```

```

    causeForTerm      [11] CauseForTerm,
    diagnostics       [12] Diagnostics OPTIONAL,
    callReference     [13] CallReference,
    sequenceNumber    [14] INTEGER OPTIONAL,
    recordExtensions  [15] ManagementExtensions OPTIONAL,
    locationRoutNum   [16] LocationRoutingNumber OPTIONAL,
    lrnSoInd          [17] LocationRoutingNumberSourceIndicator OPTIONAL,
    lrnQueryStatus    [18] LocationRoutingNumberQueryStatus OPTIONAL,
    jIPPara           [19] JurisdictionInformationParameter OPTIONAL,
    jIPSoInd          [20] JurisdictionInformationParameterSourceIndicator OPTIONAL,
    jIPQueryStatus    [21] JurisdictionInformationParameterQueryStatus OPTIONAL,
    partialRecordType [22] PartialRecordType OPTIONAL
}

TransitCallRecord ::= SET
{
    recordType          [0] CallEventRecordType,
    recordingEntity     [1] RecordingEntity,
    mscIncomingTKGP    [2] TrunkGroup OPTIONAL,
    mscOutgoingTKGP    [3] TrunkGroup OPTIONAL,
    callingNumber       [4] CallingNumber OPTIONAL,
    calledNumber        [5] CalledNumber,
    isdnBasicService   [6] BasicService OPTIONAL,
    seizureTimestamp    [7] TimeStamp OPTIONAL,
    answerTimestamp     [8] TimeStamp OPTIONAL,
    releaseTimestamp    [9] TimeStamp OPTIONAL,
    callDuration        [10] CallDuration,
    dataVolume          [11] DataVolume OPTIONAL,
    causeForTerm        [12] CauseForTerm,
    diagnostics         [13] Diagnostics OPTIONAL,
    callReference       [14] CallReference,
    sequenceNumber      [15] INTEGER OPTIONAL,
    recordExtensions    [16] ManagementExtensions OPTIONAL,
    locationRoutNum     [17] LocationRoutingNumber OPTIONAL,
    lrnSoInd            [18] LocationRoutingNumberSourceIndicator OPTIONAL,
    lrnQueryStatus      [19] LocationRoutingNumberQueryStatus OPTIONAL,
    jIPPara             [20] JurisdictionInformationParameter OPTIONAL,
    jIPSoInd            [21] JurisdictionInformationParameterSourceIndicator OPTIONAL,
    jIPQueryStatus      [22] JurisdictionInformationParameterQueryStatus OPTIONAL,
    partialRecordType   [23] PartialRecordType OPTIONAL
}

MOSMSRecord ::= SET
{
    recordType          [0] CallEventRecordType,
    servedIMSI         [1] IMSI,
    servedIMEI         [2] IMEI OPTIONAL,
    servedMSISDN       [3] MSISDN OPTIONAL,
    msClassmark        [4] Classmark,
    serviceCentre       [5] AddressString,
    recordingEntity     [6] RecordingEntity,
    location            [7] LocationAreaAndCell OPTIONAL,
    messageReference    [8] MessageReference,
    originationTime     [9] TimeStamp,
    smsResult           [10] SMSResult OPTIONAL,
    recordExtensions    [11] ManagementExtensions OPTIONAL,
    destinationNumber   [12] SmsTpDestinationNumber OPTIONAL,
    cAMELSMSInformation [13] CAMELSMSInformation OPTIONAL,
    systemType          [14] SystemType OPTIONAL
}

MTSMSRecord ::= SET
{
    recordType          [0] CallEventRecordType,
    serviceCentre       [1] AddressString,
    servedIMSI         [2] IMSI,
    servedIMEI         [3] IMEI OPTIONAL,
    servedMSISDN       [4] MSISDN OPTIONAL,
    msClassmark        [5] Classmark,
    recordingEntity     [6] RecordingEntity,
    location            [7] LocationAreaAndCell OPTIONAL,
    deliveryTime        [8] TimeStamp,
    smsResult           [9] SMSResult OPTIONAL,
    recordExtensions    [10] ManagementExtensions OPTIONAL,
    systemType          [11] SystemType OPTIONAL,
    cAMELSMSInformation [12] CAMELSMSInformation OPTIONAL
}

```



```

MOSMSIWRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    serviceCentre       [1] AddressString,
    servedIMSI          [2] IMSI,
    recordingEntity     [3] RecordingEntity,
    eventTime           [4] TimeStamp,
    smsResult           [5] SMSResult OPTIONAL,
    recordExtensions    [6] ManagementExtensions OPTIONAL
}

MTSMGWRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    serviceCentre       [1] AddressString,
    servedIMSI          [2] IMSI,
    servedMSISDN       [3] MSISDN OPTIONAL,
    recordingEntity     [4] RecordingEntity,
    eventTime           [5] TimeStamp,
    smsResult           [6] SMSResult OPTIONAL,
    recordExtensions    [7] ManagementExtensions OPTIONAL
}

SSActionRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    servedIMSI          [1] IMSI,
    servedIMEI          [2] IMEI OPTIONAL,
    servedMSISDN       [3] MSISDN OPTIONAL,
    msClassmark        [4] Classmark,
    recordingEntity     [5] RecordingEntity,
    location            [6] LocationAreaAndCell OPTIONAL,
    basicServices       [7] BasicServices OPTIONAL,
    supplService        [8] SS-Code OPTIONAL,
    ssAction            [9] SSActionType OPTIONAL,
    ssActionTime        [10] TimeStamp,
    ssParameters        [11] SSParameters OPTIONAL,
    ssActionResult      [12] SSActionResult OPTIONAL,
    callReference       [13] CallReference,
    recordExtensions    [14] ManagementExtensions OPTIONAL,
    systemType          [15] SystemType OPTIONAL
}

HLRIntRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    servedIMSI          [1] IMSI,
    servedMSISDN       [2] MSISDN,
    recordingEntity     [3] RecordingEntity,
    basicService        [4] BasicServiceCode OPTIONAL,
    routingNumber       [5] RoutingNumber,
    interrogationTime    [6] TimeStamp,
    numberOfForwarding  [7] NumberOfForwarding OPTIONAL,
    interrogationResult  [8] HLRIntResult OPTIONAL,
    recordExtensions    [9] ManagementExtensions OPTIONAL
}

LocUpdateHLRRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    servedIMSI          [1] IMSI,
    recordingEntity     [2] RecordingEntity,
    oldLocation         [3] Visited-Location-info OPTIONAL,
    newLocation         [4] Visited-Location-info,
    updateTime          [5] TimeStamp,
    updateResult        [6] LocUpdResult OPTIONAL,
    recordExtensions    [7] ManagementExtensions OPTIONAL
}

LocUpdateVLRRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    servedIMSI          [1] IMSI,
    servedMSISDN       [2] MSISDN OPTIONAL,
    recordingEntity     [3] RecordingEntity,
    oldLocation         [4] Location-info OPTIONAL,
    newLocation         [5] Location-info,
    msClassmark        [6] Classmark,

```

```

updateTime          [7] TimeStamp,
updateResult        [8] LocUpdResult OPTIONAL,
recordExtensions    [9] ManagementExtensions OPTIONAL
}

```

```

CommonEquipRecord ::= SET
{
  recordType          [0] CallEventRecordType,
  equipmentType       [1] EquipmentType,
  equipmentId         [2] EquipmentId,
  servedIMSI         [3] IMSI,
  servedMSISDN       [4] MSISDN OPTIONAL,
  recordingEntity     [5] RecordingEntity,
  basicService        [6] BasicServiceCode OPTIONAL,
  changeOfService    [7] SEQUENCE OF ChangeOfService OPTIONAL,
  supplServicesUsed  [8] SEQUENCE OF SuppServiceUsed OPTIONAL,
  seizureTime        [9] TimeStamp,
  releaseTime        [10] TimeStamp OPTIONAL,
  callDuration        [11] CallDuration,
  callReference       [12] CallReference,
  sequenceNumber     [13] INTEGER OPTIONAL,
  recordExtensions   [14] ManagementExtensions OPTIONAL,
  systemType         [15] SystemType OPTIONAL,
  rateIndication     [16] RateIndication OPTIONAL,
  fnur               [17] Fnur OPTIONAL,
  partialRecordType  [18] PartialRecordType OPTIONAL
}

```

```

-----
--
-- OBSERVED IMEI TICKETS
--
-----

```

```

ObservedIMEITicket ::= SET
{
  servedIMEI         [0] IMEI,
  imeiStatus         [1] IMEIStatus,
  servedIMSI         [2] IMSI,
  servedMSISDN       [3] MSISDN OPTIONAL,
  recordingEntity     [4] RecordingEntity,
  eventTime          [5] TimeStamp,
  location            [6] LocationAreaAndCell ,
  imeiCheckEvent     [7] IMEICheckEvent OPTIONAL,
  callReference       [8] CallReference OPTIONAL,
  recordExtensions   [9] ManagementExtensions OPTIONAL
}

```

```

-----
--
-- LOCATION SERICE TICKETS
--
-----

```

```

MTLCSRecord ::= SET
{
  recordType          [0] CallEventRecordType,
  recordingEntity     [1] RecordingEntity,
  lcsClientType       [2] LCSClientType,
  lcsClientIdentity   [3] LCSClientIdentity,
  servedIMSI         [4] IMSI,
  servedMSISDN       [5] MSISDN OPTIONAL,
  locationType        [6] LocationType,
  lcsQos              [7] LCSQoSInfo OPTIONAL,
  lcsPriority          [8] LCS-Priority OPTIONAL,
  mlc-Number          [9] ISDN-AddressString,
  eventTimeStamp      [10] TimeStamp,
  measureDuration     [11] CallDuration OPTIONAL,
  notificationToMSUser [12] NotificationToMSUser OPTIONAL,
  privacyOverride     [13] NULL OPTIONAL,
  location            [14] LocationAreaAndCell OPTIONAL,
  locationEstimate    [15] Ext-GeographicalInformation OPTIONAL,
  positioningData     [16] PositioningData OPTIONAL,
  lcsCause            [17] LCSCause OPTIONAL,
  diagnostics         [18] Diagnostics OPTIONAL,
  systemType          [19] SystemType OPTIONAL,
}

```

```

    recordExtensions      [20] ManagementExtensions OPTIONAL,
    causeForTerm         [21] CauseForTerm
}

```

```

MOLCSRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recordingEntity      [1] RecordingEntity,
    lcsClientType        [2] LCSCClientType OPTIONAL,
    lcsClientIdentity    [3] LCSCClientIdentity OPTIONAL,
    servedIMSI           [4] IMSI,
    servedMSISDN         [5] MSISDN OPTIONAL,
    molr-Type            [6] MOLR-Type,
    lcsQos                [7] LCSQoSInfo OPTIONAL,
    lcsPriority           [8] LCS-Priority OPTIONAL,
    mlc-Number           [9] ISDN-AddressString OPTIONAL,
    eventTimeStamp       [10] TimeStamp,
    measureDuration      [11] CallDuration OPTIONAL,
    location              [12] LocationAreaAndCell OPTIONAL,
    locationEstimate     [13] Ext-GeographicalInformation OPTIONAL,
    positioningData      [14] PositioningData OPTIONAL,
    lcsCause              [15] LCSCause OPTIONAL,
    diagnostics          [16] Diagnostics OPTIONAL,
    systemType           [17] SystemType OPTIONAL,
    recordExtensions     [18] ManagementExtensions OPTIONAL,
    causeForTerm         [19] CauseForTerm
}

```

```

NILCSRecord ::= SET
{
    recordType           [0] CallEventRecordType,
    recordingEntity      [1] RecordingEntity,
    lcsClientType        [2] LCSCClientType OPTIONAL,
    lcsClientIdentity    [3] LCSCClientIdentity OPTIONAL,
    servedIMSI           [4] IMSI OPTIONAL,
    servedMSISDN         [5] MSISDN OPTIONAL,
    servedIMEI           [6] IMEI OPTIONAL,
    emsDigits            [7] ISDN-AddressString OPTIONAL,
    emsKey                [8] ISDN-AddressString OPTIONAL,
    lcsQos                [9] LCSQoSInfo OPTIONAL,
    lcsPriority           [10] LCS-Priority OPTIONAL,
    mlc-Number           [11] ISDN-AddressString OPTIONAL,
    eventTimeStamp       [12] TimeStamp,
    measureDuration      [13] CallDuration OPTIONAL,
    location              [14] LocationAreaAndCell OPTIONAL,
    locationEstimate     [15] Ext-GeographicalInformation OPTIONAL,
    positioningData      [16] PositioningData OPTIONAL,
    lcsCause              [17] LCSCause OPTIONAL,
    diagnostics          [18] Diagnostics OPTIONAL,
    systemType           [19] SystemType OPTIONAL,
    recordExtensions     [20] ManagementExtensions OPTIONAL,
    causeForTerm         [21] CauseForTerm
}

```

```

-----
--
-- FTAM / FTP / TFTP FILE CONTENTS
--
-----

```

```

CallEventDataFile ::= SEQUENCE
{
    headerRecord         [0] HeaderRecord,
    callEventRecords     [1] SEQUENCE OF CallEventRecord,
    trailerRecord        [2] TrailerRecord,
    extensions           [3] ManagementExtensions
}

```

```

ObservedIMEITicketFile ::= SEQUENCE
{
    productionDateTime   [0] TimeStamp,
    observedIMEITickets  [1] SEQUENCE OF ObservedIMEITicket,
    noOfRecords          [2] INTEGER,
    extensions           [3] ManagementExtensions
}

```

```

HeaderRecord ::= SEQUENCE
{

```

```
    productionDateTime      [0] TimeStamp,
    recordingEntity        [1] RecordingEntity,
    extensions              [2] ManagementExtensions
}
```

```
TrailerRecord ::= SEQUENCE
{
    productionDateTime      [0] TimeStamp,
    recordingEntity        [1] RecordingEntity,
    firstCallDateTime      [2] TimeStamp,
    lastCallDateTime       [3] TimeStamp,
    noOfRecords            [4] INTEGER,
    extensions              [5] ManagementExtensions
}
```

```
-----
--
-- NP Fields
--
-----
```

```
LocationRoutingNumber ::= OCTET STRING (SIZE (5))
--
-- The format is selected to meet the existing standards for the wireline in Telcordia
-- Belcore GR-1100-CORE, BAF Module 720.
--
```

```
LocationRoutingNumberSourceIndicator ::= INTEGER
{
    lRN-NP-Database        (1),
    switchingSystemData    (2),
    incomingsignaling      (3),
    unknown                 (9)
}
```

```
LocationRoutingNumberQueryStatus ::= INTEGER
{
    successfulQuery        (1),
    noQueryResponseMsg    (2),
    queryProtocolErr       (4),
    queryResponseDataErr  (5),
    queryRejected          (6),
    queryNotPerformed      (9),
    queryUnsuccessful      (99)
}
```

```
JurisdictionInformationParameter ::= OCTET STRING (SIZE (5))
--
-- /* JIP Parameter */
--
```

```
JurisdictionInformationParameterSourceIndicator ::= INTEGER
{
    -- Identical to LocationRoutingNumberSourceIndicator
    --
    lRN-NP-Database        (1),
    switchingSystemData    (2),
    incomingsignaling      (3),
    unknown                 (9)
}
```

```
JurisdictionInformationParameterQueryStatus ::= INTEGER
{
    successfulQuery        (1),
    noQueryResponseMsg    (2),
    queryProtocolErr       (4),
    queryResponseDataErr  (5),
    queryRejected          (6),
    queryNotPerformed      (9),
    queryUnsuccessful      (99)
}
```

```
-----
--
-- 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
}

AOCParamChange        ::= 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),
mtSMsiGWRecord     (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
--
sgsnPDPreRecord    (18),
ggsnPDPreRecord    (19),
sgsnMMRecord       (20),
sgsnSMORRecord     (21),
sgsnSMTRRecord     (22),
--
-- Record values 23..25 are CS-LCS specific.
-- The contents are defined in the present document
--
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..62 are MMS specific.
-- The contents are defined in TS 32.235
--
mm01SRecord        (29),
mm04FRqRecord      (30),
mm04FRsRecord      (31),
mm04DRRecord       (32),
mm01DRRecord       (33),
mm04RRRecord       (34),
mm01RRRecord       (35),
mmOMDRRecord       (36),
mmR4FRRecord       (37),
mmR1NRqRecord      (38),
mmR1NRsRecord      (39),
mmR1RtRecord       (40),
mmR1AFRecord       (42),
mmR4DRqRecord      (43),
mmR4DRsRecord      (44),
mmR1RRRecord       (45),
mmR4RRqRecord      (46),
mmR4RRsRecord      (47),
mmRMDRecord        (48),
mmFRecord          (49),
mmBx1SRecord       (50),
mmBx1VRecord       (51),
mmBx1URecord       (52),
mmBx1DRecord       (53),
mM7SRecord         (54),
mM7DRqRecord       (55),
mM7DRsRecord       (56),
mM7CRecord         (57),
mM7RRRecord        (58),
mM7DRRqRecord      (59),
mM7DRRsRecord      (60),
mM7RRqRecord       (61),
mM7RRsRecord       (62),
--
-- Record values 63..69 are IMS specific.
-- The contents are defined in TS 32.225
--
s-CSCFRecord       (63),
p-CSCFRecord       (64),
i-CSCFRecord       (65),
mRFCRecord         (66),

```

```

    mGCFRecord      (67),
    bGCFRecord      (68),
    aSRecord        (69)
}

CalledNumber       ::= BCDDirectoryNumber

CallingNumber      ::= BCDDirectoryNumber

CallingPartyCategory ::= Category

CallReference      ::= INTEGER

CallType           ::= INTEGER
{
    mobileOriginated (0),
    mobileTerminated (1)
}

CallTypes          ::= SET OF CallType

CAMELDestinationNumber ::= DestinationRoutingAddress

CAMELInformation   ::= SET
{
    CAMELDestinationNumber [1] CAMELDestinationNumber OPTIONAL,
    connectedNumber        [2] ConnectedNumber OPTIONAL,
    roamingNumber          [3] RoamingNumber OPTIONAL,
    mscOutgoingTKGP       [4] TrunkGroup OPTIONAL,
    seizureTime           [5] TimeStamp OPTIONAL,
    answerTime            [6] TimeStamp OPTIONAL,
    releaseTime           [7] TimeStamp OPTIONAL,
    callDuration          [8] CallDuration OPTIONAL,
    dataVolume            [9] DataVolume OPTIONAL,
    CAMELInitCFIndicator  [10] CAMELInitCFIndicator OPTIONAL,
    causeForTerm          [11] CauseForTerm OPTIONAL,
    CAMELModification     [12] ChangedParameters OPTIONAL,
    freeFormatData        [13] FreeFormatData OPTIONAL,
    diagnostics           [14] Diagnostics OPTIONAL,
    freeFormatDataAppend  [15] BOOLEAN OPTIONAL,
    freeFormatData-2      [16] FreeFormatData OPTIONAL,
    freeFormatDataAppend-2 [17] BOOLEAN OPTIONAL,
    translatedNumber      [18] TranslatedNumber OPTIONAL,
    additionalChgInfo     [19] AdditionalChgInfo OPTIONAL,
    defaultCallHandling-2 [20] DefaultCallHandling OPTIONAL,
    gsm-SCFAddress-2     [21] Gsm-SCFAddress OPTIONAL,
    serviceKey-2         [22] ServiceKey OPTIONAL,
    freeFormatDataIncoming-2 [23] FreeFormatData OPTIONAL,
    freeFormatDataAppendInc-2 [24] BOOLEAN OPTIONAL,
    locationRoutNum      [25] LocationRoutingNumber OPTIONAL,
    lrnSoInd             [26] LocationRoutingNumberSourceIndicator OPTIONAL,
    lrnQueryStatus       [27] LocationRoutingNumberQueryStatus OPTIONAL,
    jIPPara              [28] JurisdictionInformationParameter OPTIONAL,
    jIPSoInd             [29] JurisdictionInformationParameterSourceIndicator OPTIONAL,
    jIPQueryStatus       [30] JurisdictionInformationParameterQueryStatus OPTIONAL
}

CAMELInitCFIndicator ::= ENUMERATED
{
    noCAMELCallForwarding (0),
    cAMELCallForwarding   (1)
}

CAMELModificationParameters ::= SET
{
    --
    -- The list contains only parameters changed due to CAMEL call
    -- handling.
    --
    callingPartyNumber      [0] CallingNumber OPTIONAL,
    callingPartyCategory    [1] CallingPartyCategory OPTIONAL,
    originalCalledPartyNumber [2] OriginalCalledNumber OPTIONAL,
    genericNumbers          [3] GenericNumbers OPTIONAL,
    redirectingPartyNumber  [4] RedirectingNumber OPTIONAL,
    redirectionCounter      [5] NumberOfForwarding OPTIONAL
}

CAMELSMSInformation ::= SET

```

```

{
    gsm-SCFAddress          [1] Gsm-SCFAddress OPTIONAL,
    serviceKey              [2] ServiceKey OPTIONAL,
    defaultSMShandling     [3] DefaultSMS-Handling OPTIONAL,
    freeFormatData         [4] FreeFormatData OPTIONAL,
    callingPartyNumber     [5] CallingNumber OPTIONAL,
    destinationSubscriberNumber [6] SmsTpDestinationNumber OPTIONAL,
    cAMELSMSCAddress       [7] AddressString OPTIONAL,
    smsReferenceNumber     [8] CallReferenceNumber OPTIONAL
}

Category ::= OCTET STRING (SIZE(1))
--
-- The internal structure is defined in ITU-T Recommendation Q.763.
--

CauseForTerm ::= INTEGER
{
    --
    -- Cause codes from 16 up to 31 are defined in GSM12.15 as 'CauseForRecClosing'
    -- (cause for record closing).
    -- There is no direct correlation between these two types.
    -- LCS related causes belong to the MAP error causes acc. TS 29.002.
    --
    normalRelease           (0),
    partialRecord          (1),
    partialRecordCallReestablishment (2),
    unsuccessfulCallAttempt (3),
    stableCallAbnormalTermination (4),
    cAMELInitCallRelease   (5),
    cAMELCPHCallConfigurationChange (6),
    unauthorizedRequestingNetwork (52),
    unauthorizedLCSCClient (53),
    positionMethodFailure  (54),
    unknownOrUnreachableLCSCClient (58)
}

CellId ::= OCTET STRING (SIZE(2))
--
-- Coded according to TS 24.008
--

ChangedParameters ::= SET
{
    changeFlags [0] ChangeFlags,
    changeList  [1] CAMELModificationParameters OPTIONAL
}

ChangeFlags ::= BIT STRING
{
    callingPartyNumberModified (0),
    callingPartyCategoryModified (1),
    originalCalledPartyNumberModified (2),
    genericNumbersModified (3),
    redirectingPartyNumberModified (4),
    redirectionCounterModified (5)
}

ChangeOfClassmark ::= SEQUENCE
{
    classmark [0] Classmark,
    changeTime [1] TimeStamp
}

ChangeOfRadioChannel ::= SEQUENCE
{
    radioChannel [0] TrafficChannel,
    changeTime [1] TimeStamp,
    speechVersionUsed [2] SpeechVersionIdentifier OPTIONAL
}

ChangeOfService ::= SEQUENCE
{
    basicService [0] BasicServiceCode,
    transparencyInd [1] TransparencyInd OPTIONAL,
    changeTime [2] TimeStamp,
    rateIndication [3] RateIndication OPTIONAL,
    fnur [4] Fnur OPTIONAL
}

```



```

ChannelCoding                ::= ENUMERATED
{
    tchF4800                    (1),
    tchF9600                    (2),
    tchF14400                   (3)
}

ChargeIndicator              ::= INTEGER
{
    noCharge                    (0),
    charge                      (1)
}

Classmark                    ::= OCTET STRING
--
-- See Mobile station classmark 2, TS 24.008
--

ConnectedNumber              ::= BCDDirectoryNumber

DataVolume                   ::= INTEGER
--
-- The volume of data transferred in segments of 64 octets.
--

Day                          ::= INTEGER (1..31)

DayClass                     ::= ObjectInstance

DayClasses                   ::= SET OF DayClass

DayDefinition                ::= SEQUENCE
{
    day                        [0] DayOfTheWeek,
    dayClass                   [1] ObjectInstance
}

DayDefinitions               ::= SET OF DayDefinition

DateDefinition               ::= SEQUENCE
{
    month                      [0] Month,
    day                        [1] Day,
    dayClass                   [2] ObjectInstance
}

DateDefinitions              ::= SET OF DateDefinition

DayOfTheWeek                 ::= ENUMERATED
{
    allDays                    (0),
    sunday                     (1),
    monday                     (2),
    tuesday                    (3),
    wednesday                  (4),
    thursday                   (5),
    friday                     (6),
    saturday                   (7)
}

Diagnostics                  ::= CHOICE
{
    gsm0408Cause                [0] INTEGER,
    -- See TS 24.008
    gsm0902MapErrorValue        [1] INTEGER,
    -- Note: The value to be stored here corresponds to
    -- the local values defined in the MAP-Errors and
    -- MAP-DialogueInformation modules, for full details
    -- see TS 29.002.
    ccittQ767Cause              [2] INTEGER,
    -- See CCITT Q.767
    networkSpecificCause        [3] ManagementExtension,
    -- To be defined by network operator
    manufacturerSpecificCause   [4] ManagementExtension,
    -- To be defined by manufacturer
    positionMethodFailureCause   [5] PositionMethodFailure-Diagnostic,
    -- see TS 29.002
}

```

```

    unauthorizedLCSCClientCause [6] UnauthorizedLCSCClient-Diagnostic
    -- see TS 29.002
}

Destinations ::= SET OF AE-title

EmergencyCallIndEnable ::= BOOLEAN

EmergencyCallIndication ::= SEQUENCE
{
    cellId [0] CellId,
    callerId [1] IMSIorIMEI
}

EParameter ::= INTEGER (0..1023)
--
-- Coded according to TS 22.024 and TS 24.080
--

EquipmentId ::= INTEGER

EquipmentType ::= INTEGER
{
    conferenceBridge (0)
}

FileType ::= INTEGER
{
    callRecords (1),
    traceRecords (9),
    observedIMEITicket (14)
}

Fnur ::= ENUMERATED
{
    --
    -- See Bearer Capability TS 24.008
    --
    fnurNotApplicable (0),
    fnur9600-BitsPerSecond (1),
    fnur14400BitsPerSecond (2),
    fnur19200BitsPerSecond (3),
    fnur28800BitsPerSecond (4),
    fnur38400BitsPerSecond (5),
    fnur48000BitsPerSecond (6),
    fnur56000BitsPerSecond (7),
    fnur64000BitsPerSecond (8),
    fnur33600BitsPerSecond (9),
    fnur32000BitsPerSecond (10),
    fnur31200BitsPerSecond (11)
}

ForwardToNumber ::= AddressString

FreeFormatData ::= OCTET STRING (SIZE(1..160))
--
-- Free formatted data as sent in the FCI message
-- See TS 29.078
--

GenericNumber ::= BCDDirectoryNumber

GenericNumbers ::= SET OF GenericNumber

Gsm-SCFAddress ::= ISDN-AddressString
--
-- See TS 29.002
--

GuaranteedBitRate ::= ENUMERATED
{
    gbr14kbps \(1\), -- \( 14,4 kbit/s\) BS20 non-transparent
    gbr28kbps \(2\), -- \( 28,8 kbit/s\) BS20 non-transparent and transparent,
    -- BS30 transparent and multimedia
    gbr32kbps \(3\), -- \( 32,0 kbit/s\) BS30 multimedia
    gbr33kbps \(4\), -- \( 33,6 kbit/s\) BS30 multimedia
    gbr56kbps \(5\), -- \( 56,0 kbit/s\) BS30 transparent and multimedia
    gbr57kbps \(6\), -- \( 57,6 kbit/s\) BS20 non-transparent
    gbr64kbps \(7\) -- \( 64,0 kbit/s\) BS30 transparent and multimedia
}

```

```

GBR14400BitsPerSecond (1), BS20 non transparent
GBR28800BitsPerSecond (2), BS20 non transparent and transparent,
BS30 transparent and multimedia
GBR32000BitsPerSecond (3), BS30 multimedia
GBR33600BitsPerSecond (4), BS30 multimedia
GBR56000BitsPerSecond (5), BS30 transparent and multimedia
GBR57600BitsPerSecond (6), BS20 non transparent
GBR64000BitsPerSecond (7), BS30 transparent and multimedia
}

```

```
HLC ::= OCTET STRING
```

```
-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the "high layer compatibility" parameter of ITU-T Q.931 [35].
```

```
HLRIntResult ::= Diagnostics
```

```
HSCSDParamsChange ::= SEQUENCE
```

```
{
  changeTime [0] TimeStamp,
  hSCSDChanAllocated [1] NumOfHSCSDChanAllocated,
  initiatingParty [2] InitiatingParty OPTIONAL,
  aiurRequested [3] AiurRequested OPTIONAL,
  chanCodingUsed [4] ChannelCoding,
  hSCSDChanRequested [5] NumOfHSCSDChanRequested OPTIONAL
}
```

```
IMEICheckEvent ::= INTEGER
```

```
{
  mobileOriginatedCall (0),
  mobileTerminatedCall (1),
  smsMobileOriginating (2),
  smsMobileTerminating (3),
  ssAction (4),
  locationUpdate (5)
}
```

```
IMEIStatus ::= ENUMERATED
```

```
{
  greyListedMobileEquipment (0),
  blackListedMobileEquipment (1),
  nonWhiteListedMobileEquipment (2)
}
```

```
IMSIorIMEI ::= CHOICE
```

```
{
  imsi [0] IMSI,
  imei [1] IMEI
}
```

```
InitiatingParty ::= ENUMERATED
```

```
{
  network (0),
  subscriber (1)
}
```

```
ISDN-BC ::= OCTET STRING
```

```
-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the "bearer capability" parameter of ITU-T Q.931 [35].
```

```
LCSCause ::= OCTET STRING (SIZE(1))
```

```
--
-- See LCS Cause Value, 3GPP TS 49.031
--
```

```
LCSCClientIdentity ::= SEQUENCE
```

```
{
  lcsClientExternalID [0] LCSCClientExternalID OPTIONAL,
  lcsClientDialedByMS [1] AddressString OPTIONAL,
  lcsClientInternalID [2] LCSCClientInternalID OPTIONAL
}
```

```
LCSQoSInfo ::= OCTET STRING (SIZE(4))
```

```
--
-- See LCS QoS IE, 3GPP TS 49.031
--
```

```

LevelOfCAMELService ::= BIT STRING
{
    basic                (0),
    callDurationSupervision (1),
    onlineCharging       (2),
    callPartyHandling    (3)
}

LLC ::= OCTET STRING

-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the "low layer
compatibility" parameter of ITU-T Q.931 [35].

LocationAreaAndCell ::= SEQUENCE
{
    locationAreaCode [0] LocationAreaCode,
    cellId           [1] CellId
}

LocationAreaCode ::= OCTET STRING (SIZE(2))
--
-- See TS 24.008
--

LocationChange ::= SEQUENCE
{
    location      [0] LocationAreaAndCell,
    changeTime   [1] TimeStamp
}

Location-info ::= SEQUENCE
{
    mscNumber      [1] MscNo OPTIONAL,
    location-area  [2] LocationAreaCode,
    cell-identification [3] CellId OPTIONAL
}

LocUpdResult ::= Diagnostics

ManagementExtensions ::= SET OF ManagementExtension

MaximumBitRate ::= ENUMERATED
{
    mbr14kbps (1), -- ( 14,4 kbit/s) BS20 non-transparent
    mbr28kbps (2), -- ( 28,8 kbit/s) BS20 non-transparent and transparent
    -- BS30 transparent and multimedia
    mbr32kbps (3), -- ( 32,0 kbit/s) BS30 multimedia
    mbr33kbps (4), -- ( 33,6 kbit/s) BS30 multimedia
    mbr56kbps (5), -- ( 56,0 kbit/s) BS30 transparent and multimedia
    mbr57kbps (6), -- ( 57,6 kbit/s) BS20 non-transparent
    mbr64kbps (7)  -- ( 64,0 kbit/s) BS30 transparent and multimedia
    MBR14400BitsPerSecond (1), -- BS20 non-transparent
    MBR28800BitsPerSecond (2), -- BS20 non-transparent and transparent,
    -- BS30 transparent and multimedia
    MBR32000BitsPerSecond (3), -- BS30 multimedia
    MBR33600BitsPerSecond (4), -- BS30 multimedia
    MBR56000BitsPerSecond (5), -- BS30 transparent and multimedia
    MBR57600BitsPerSecond (6)  -- BS20 non-transparent
}

MCCMNC ::= GraphicString (SIZE(6))
--
-- This type contains the mobile country code (MCC) and the mobile
-- network code (MNC) of a PLMN.
--

MessageReference ::= OCTET STRING

Month ::= INTEGER (1..12)

MSCAddress ::= AddressString

MscNo ::= ISDN-AddressString
--
-- See TS 23.003

```

```

--
MSISDN ::= ISDN-AddressString
--
-- See TS 23.003
--

MSPowerClasses ::= SET OF RFPowerCapability

NetworkCallReference ::= CallReferenceNumber --
-- See TS 29.002
--

NetworkSpecificCode ::= INTEGER
--
-- To be defined by network operator
--

NetworkSpecificServices ::= SET OF NetworkSpecificCode

NumOfHSCSDChanRequested ::= INTEGER

NumOfHSCSDChanAllocated ::= INTEGER

ObservedIMEITicketEnable ::= BOOLEAN

OriginalCalledNumber ::= BCDDirectoryNumber

OriginDestCombinations ::= SET OF OriginDestCombination

OriginDestCombination ::= SEQUENCE
{
    origin [0] INTEGER OPTIONAL,
    destination [1] INTEGER OPTIONAL
--
-- Note that these values correspond to the contents
-- of the attributes originId and destinationId
-- respectively. At least one of the two must be present.
--
}

PartialRecordTimer ::= INTEGER

PartialRecordType ::= ENUMERATED
{
    timeLimit (0),
    serviceChange (1),
    locationChange (2),
    classmarkChange (3),
    aocParmChange (4),
    radioChannelChange (5),
    hSCSDParmChange (6),
    changeOfCAMELDestination (7)
}

PositioningData ::= OCTET STRING
--
-- the octet string contains either "geranPositioningData" or "utranPositioningData"
-- according to the value of the "systemType" included in the LCS CDR. "geranPositioningData"
-- and "utranPositioningData" are encoded as specified in TS 29.002 [5]
--

RadioChannelsRequested ::= SET OF RadioChanRequested

RadioChanRequested ::= ENUMERATED
{
--
-- See Bearer Capability TS 24.008
--
    halfRateChannel (0),
    fullRateChannel (1),
    dualHalfRatePreferred (2),
    dualFullRatePreferred (3)
}

RateIndication ::= OCTET STRING(SIZE(1))

RecordClassDestination ::= CHOICE
{

```

```

    osApplication      [0] AE-title,
    fileType           [1] FileType
}

RecordClassDestinations ::= SET OF RecordClassDestination

RecordingEntity        ::= AddressString

RecordingMethod        ::= ENUMERATED
{
    inCallRecord       (0),
    inSSRecord         (1)
}

RedirectingNumber      ::= BCDDirectoryNumber

RFPowerCapability      ::= INTEGER
--
-- This field contains the RF power capability of the
-- Mobile station
-- classmark 1 and 2 of TS 24.008 expressed as an integer.
--

RoamingNumber          ::= ISDN-AddressString
--
-- See TS 23.003
--

RoutingNumber          ::= CHOICE
{
    roaming             [1] RoamingNumber,
    forwarded           [2] ForwardToNumber
}

Service                ::= CHOICE
{
    teleservice         [1] TeleserviceCode,
    bearerService       [2] BearerServiceCode,
    supplementaryService [3] SS-Code,
    networkSpecificService [4] NetworkSpecificCode
}

ServiceDistanceDependencies ::= SET OF ServiceDistanceDependency

ServiceDistanceDependency ::= SEQUENCE
{
    aocService          [0] INTEGER,
    chargingZone        [1] INTEGER OPTIONAL
--
-- Note that these values correspond to the contents
-- of the attributes aocServiceId and zoneId
-- respectively.
--
}

SimpleIntegerName      ::= INTEGER

SimpleStringName       ::= GraphicString

SMSResult              ::= Diagnostics

SmsTpDestinationNumber ::= OCTET STRING
--
-- This type contains the binary coded decimal representation of
-- the SMS address field the encoding of the octet string is in
-- accordance with the definition of address fields in TS 23.040.
-- This encoding includes type of number and numbering plan indication
-- together with the address value range.
--

SpeechVersionIdentifier ::= OCTET STRING (SIZE(1))
--
-- see GSM 08.08
--
-- 000 0001   GSM speech full rate version 1
-- 001 0001   GSM speech full rate version 2   used for enhanced full rate
-- 010 0001   GSM speech full rate version 3   for future use
-- 000 0101   GSM speech half rate version 1

```

```

-- 001 0101 GSM speech half rate version 2 for future use
-- 010 0101 GSM speech half rate version 3 for future use
--
SSActionResult ::= Diagnostics

SSActionType ::= ENUMERATED
{
  registration (0),
  erasure (1),
  activation (2),
  deactivation (3),
  interrogation (4),
  invocation (5),
  passwordRegistration (6)
}

SSParameters ::= CHOICE
{
  forwardedToNumber [0] ForwardToNumber,
  unstructuredData [1] OCTET STRING
}

SupplServices ::= SET OF SS-Code

SuppServiceUsed ::= SEQUENCE
{
  ssCode [0] SS-Code,
  ssTime [1] TimeStamp OPTIONAL
}

SwitchoverTime ::= SEQUENCE
{
  hour INTEGER (0..23),
  minute INTEGER (0..59),
  second INTEGER (0..59)
}

TariffId ::= INTEGER

TariffPeriod ::= SEQUENCE
{
  switchoverTime [0] SwitchoverTime,
  tariffId [1] INTEGER
  --
  -- Note that the value of tariffId corresponds
  -- to the attribute tariffId.
  --
}

TariffPeriods ::= SET OF TariffPeriod

TariffSystemStatus ::= ENUMERATED
{
  available (0), -- available for modification
  checked (1), -- "frozen" and checked
  standby (2), -- "frozen" awaiting activation
  active (3) -- "frozen" and active
}

TimeStamp ::= OCTET STRING (SIZE(9))
--
-- The contents of this field are a compact form of the UTCTime format
-- containing local time plus an offset to universal time. Binary coded
-- decimal encoding is employed for the digits to reduce the storage and
-- transmission overhead
-- e.g. YYMMDDhhmmssShhmm
-- where
-- YY = Year 00 to 99 BCD encoded
-- MM = Month 01 to 12 BCD encoded
-- DD = Day 01 to 31 BCD encoded
-- hh = hour 00 to 23 BCD encoded
-- mm = minute 00 to 59 BCD encoded
-- ss = second 00 to 59 BCD encoded
-- S = Sign 0 = "+", "-" ASCII encoded
-- hh = hour 00 to 23 BCD encoded
-- mm = minute 00 to 59 BCD encoded
--

```

```

TrafficChannel ::= ENUMERATED
{
    fullRate (0),
    halfRate (1)
}

TranslatedNumber ::= BCDDirectoryNumber

TransparencyInd ::= ENUMERATED
{
    transparent (0),
    nonTransparent (1)
}

TrunkGroup ::= CHOICE
{
    tkgpNumber [0] INTEGER,
    tkgpName [1] GraphicString
}

TSChangeover ::= SEQUENCE
{
    newActiveTS [0] INTEGER,
    newStandbyTS [1] INTEGER,
    changeoverTime [2] GeneralizedTime OPTIONAL,
    authkey [3] OCTET STRING OPTIONAL,
    checksum [4] OCTET STRING OPTIONAL,
    versionNumber [5] OCTET STRING OPTIONAL
    --
    -- Note that if the changeover time is not
    -- specified then the change is immediate.
    --
}

TSCheckError ::= SEQUENCE
{
    errorId [0] TSCheckErrorId,
    fail [1] ANY DEFINED BY errorId OPTIONAL
}

TSCheckErrorId ::= CHOICE
{
    globalForm [0] OBJECT IDENTIFIER,
    localForm [1] INTEGER
}

TSCheckResult ::= CHOICE
{
    success [0] NULL,
    fail [1] SET OF TSCheckError
}

TSCopyTariffSystem ::= SEQUENCE
{
    oldTS [0] INTEGER,
    newTS [1] INTEGER
}

TSNextChange ::= CHOICE
{
    noChangeover [0] NULL,
    tsChangeover [1] TSChangeover
}

TypeOfSubscribers ::= ENUMERATED
{
    home (0), -- HPLMN subscribers
    visiting (1), -- roaming subscribers
    all (2)
}

TypeOfTransaction ::= ENUMERATED
{
    successful (0),
    unsuccessful (1),
    all (2)
}

```



```

Visited-Location-info          ::= SEQUENCE
{
    mscNumber                   [1] MscNo,
    vlrNumber                   [2] VlrNo
}

VlrNo                          ::= ISDN-AddressString
--
-- See TS 23.003
--

END

```

**End of Change in clause 6**  
**End of Document**

## Annex A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Mar 2001	S_11	SP-010025	--	--	Replaces Release 99 of 3GPP 32.005, which will be discontinued from Release 4 onwards.	-	1.0.0
Jun 2001	S_12	SP-010236	--	--	Re-submitted to SA#12 for Information	1.1.0	1.1.1
Sep 2001	S_13	SP-010464	--	--	Submitted to TSG SA #13 for Approval	2.0.0	4.0.0
Mar 2002	S_15	SP-020022	001	--	Addition of CAMEL phase 3 extensions in SMS-MO CDR	4.0.0	4.1.0
Mar 2002	S_15	SP-020035	002	--	Addition of Charging Data Record definition for Location Service in CS domain	4.1.0	5.0.0
Mar 2002	S_15	SP-020025	003	--	Addition of CAMEL phase 4 extensions in SMS-MT CDRs	4.1.0	5.0.0
Jun 2002	S_16	SP-020285	005	--	Corrections of parameter CallEventRecord	5.0.0	5.1.0
Dec 2002	S_18	SP-020734	007	--	Corrections on parameter Destination Number	5.1.0	5.2.0
Dec 2002	S_18	SP-020736	009	--	Corrections on LCS error cause definitions	5.1.0	5.2.0
Dec 2002	S_18	SP-020737	010	--	Charging for Mobile Number Portability (MNP) - Alignment with 23.066	5.1.0	5.2.0
Dec 2002	S_18	SP-020808	012	1	Corrections on MMS records ASN.1 definition and addition of the MMBBox CDR types	5.1.0	5.2.0
Mar 2003	S_19	SP-030054	014	--	CDR correction for data services over lu-interface - alignment with SA1's 22.002	5.2.0	5.3.0
Mar 2003	S_19	SP-030056	015	--	Corrections to ASN.1 Syntax associated with Wireless Number Portability (WNP)	5.2.0	5.3.0
Jun 2003	S_20	SP-030269	016	--	Correction of record contents regarding Partial Record Type	5.3.0	5.4.0
Jun 2003	S_20	SP-030269	017	--	Correction on MMS records ASN.1 definition	5.3.0	5.4.0
Jun 2003	S_20	SP-030269	018	--	Correction on IMS record definitions	5.3.0	5.4.0
Dec 2003	S_22	SP-030765	022	1	Add inter-network accounting in the GMSC (only if CN#22 approved CN3 CR 29.007)	5.4.0	5.5.0
Dec 2003	S_22	SP-030620	023	--	Correction to Level of CAMEL Service	5.4.0	5.5.0
Mar 2004	S_23	SP-040139	025	--	Correction to ASN.1 Charging Data Record (CDR) - Alignment with R99 32.005	5.5.0	5.6.0
Jun 2004	S_24	SP-040275	026	--	Add Charging Data Description for CAMEL CPH - Align with CN2's 23.078	5.6.0	5.7.0
Sep 2004	S_25	SP-040548	027	--	Inclusion of UTRAN positioning data parameter – Align with 29.002 CR 710	5.7.0	5.8.0

## CHANGE REQUEST

⌘ **32.200 CR 029** ⌘ rev **-** ⌘ Current version: **5.7.0** ⌘

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

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

<b>Title:</b>	⌘ Correction of Inter Operator Identification (IOI) Storage – Align with CN4's TS 24.229 (IP multimedia call control protocol based on SIP and Session Description Protocol (SDP); Stage 3)		
<b>Source:</b>	⌘ SA5 (alain.bibas@francetelecom.com)		
<b>Work item code:</b>	⌘ OAM-CH	<b>Date:</b>	⌘ 28/01/2005
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use one of the following releases:</i> <b>Ph2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>Rel-4</b> (Release 4) <b>Rel-5</b> (Release 5) <b>Rel-6</b> (Release 6) <b>Rel-7</b> (Release 7)

<b>Reason for change:</b>	⌘ The capability of the S-CSCF to store the value of the network Inter Operator Identification (IOI) which is specified in TS 24.229 is missing from the list of requirements that relates to the concept of IOI. If not stored, the S-CSCF may not be able to include this information in the Diameter Accounting Requests sent to the CCF.
<b>Summary of change:</b>	⌘ Additional requirements are added in order to include: <ul style="list-style-type: none"> <li>- Include the capability of the S-CSCF to store the local network IOI</li> <li>- Specify the validity period of the IOI when received from a remote network</li> </ul>
<b>Consequences if not approved:</b>	⌘ Inter-operator accounting is not possible as Accounting requests may not contain the orig-ioi and term-ioi.

<b>Clauses affected:</b>	⌘ 7.1.3.2										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
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<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<b>Other comments:</b>	⌘										

