Source: **SA5 (Telecom Management)**

Title: **3 Rel-4 CR 32.205/215 (Charging data description for the Circuit/Packet Switched domain)**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-Level	Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Doc-2nd-Level	Workitem
SP-030407	32.205	019	-	Rel-4	Correction to positioning data in ASN.1.	F	4.4.0	S5-034440	OAM-CH
SP-030407	32.205	020	-	Rel-4	Correction of ASN.1 code errors in LCS definitions	F	4.4.0	S5-034441	OAM-CH
SP-030407	32.215	027	-	Rel-4	Corrections of ASN.1 syntax	F	4.4.0	S5-034442	OAM-CH

CR-Form-v7

CHANGE REQUEST

⌘ 32.205 CR 019 ⌘rev - ⌘ Current version: 4.4.0 ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction to positioning data in ASN.1.
Source:	⌘	SA5 (Islip@lucent.com)
Work item code:	⌘	OAM-CH
Date:	⌘	05/09/2003
Category:	⌘	**F**
Release:	⌘	Rel-4

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The required 'PositioningData' parameter is missing. This field is also imported by reference into TS 32.215.
Summary of change:	⌘	Insert the ASN.1 definition for the above parameter.
Consequences if not approved:	⌘	Compilation errors in the ASN.1 code in TS 32.205 and TS 32.215, rendering the specfications non-workable.

Clauses affected:	⌘	Clause 6.1

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

KEEP the History box of the TS to be changed (see end of the present document)

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.

6.1 ASN.1 definitions for CDR information

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

```
TS32205-DataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) umts-Operation-
Maintenance (3) ts-32-205 (205) informationModel (0) asn1Module (2) version1 (1)}


DEFINITIONS IMPLICIT TAGS   ::=

BEGIN

-- EXPORTS everything

IMPORTS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SGSNPDPRecord, GGSNPDPRecord, SGSNMMRecord, SGSNSMORecord, SGSNSMTRecord, SGSNMTLCSRecord,
SGSNMOLCSRecord, SGSNNILCSRecord
FROM TS32215-DataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) umts-
Operation-Maintenance (3) ts-32-215 (215) informationModel (0) asn1Module (2) version1 (1)}


MMO1SRecord, MMO4FRqRecord, MMO4FRsRecord, MMO4DRecord, MMO1DRecord, MMO4RRecord, 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 curcuit switch specific
    --              20..27 are 3G packet switch specific
    --              30..50 are application specific
    --
    moCallRecord            [0] MOCallRecord,
    mtCallRecord            [1] MTCallRecord,
    roamingRecord           [2] RoamingRecord,
    incGatewayRecord        [3] IncGatewayRecord,
    outGatewayRecord        [4] OutGatewayRecord,
    transitRecord           [5] TransitCallRecord,
    moSMSRecord             [6] MOSMSRecord,
    mtSMSRecord             [7] MTSMSRecord,
    moSMSIWRecord           [8] MOSMSIWRecord,
    mtSMSGWRecord           [9] MTSMSGWRecord,
    ssActionRecord          [10] SSActionRecord,
    hlrIntRecord            [11] HLRIntRecord,
    locUpdateHLRRecord      [12] LocUpdateHLRRecord,
    locUpdateVLRRecord      [13] LocUpdateVLRRecord,
    commonEquipRecord       [14] CommonEquipRecord,
    recTypeExtensions       [15] ManagementExtensions,
    termCAMELRecord         [16] TermCAMELRecord,
    mtLCSRecord             [17] MTLCSRecord,
    moLCSRecord             [18] MOLCSRecord,
    niLCSRecord             [19] NILCSRecord,

    sgsnPDPRecord           [20] SGSNPDPRecord,
    ggsnPDPRecord           [21] GGSNPDPRecord,
    sgsnMMRecord            [22] SGSNMMRecord,
    sgsnSMORecord           [23] SGSNSMORecord,
```

```
    sgsnSMTRecord           [24] SGSNSMTRecord,
    sgsnLCTRecord           [25] SGSNLCTRecord,
    sgsnLCORecord           [26] SGSNLCORecord,
    sgsnLCNRecord           [27] SGSNLCNRecord,

    mmO1SRecord             [30] MMO1SRecord,
    mmO4FRqRecord           [31] MMO4FRqRecord,
    mmO4FRsRecord           [32] MMO4FRsRecord,
    mmO4DRecord             [33] MMO4DRecord,
    mmO1DRecord             [34] MMO1DRecord,
    mmO4RRecord             [35] MMO4RRecord,
    mmO1RRecord             [36] MMO1RRecord,
    mmOMDRecord             [37] MMOMDRecord,
    mmR4FRecord             [38] MMR4FRecord,
    mmR1NRqRecord           [38] MMR1NRqRecord,
    mmR1NRsRecord           [40] MMR1NRsRecord,
    mmR1RtRqRecord          [41] MMR1RtRecord,
    mmR1AFRecord            [43] MMR1ARecord,
    mmR4DRqRecord           [44] MMR4DRqRecord,
    mmR4DRsRecord           [45] MMR4DRsRecord,
    mmR1RRRecord            [46] MMR1RRRecord,
    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,
    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
}

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,
```

```
    mscServerIndication         [30] BOOLEAN OPTIONAL
    defaultCallHandling-2       [31] DefaultCallHandling OPTIONAL,
    gsm-SCFAddress-2            [32] Gsm-SCFAddress OPTIONAL,
    serviceKey-2                [33] ServiceKey OPTIONAL,
    freeFormatData-2            [34] FreeFormatData OPTIONAL,
    freeFormatDataAppend-2      [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
}

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] 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] LCSClientType OPTIONAL,
    lcsClientIdentity       [3] LCSClientIdentity 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] LCSClientType OPTIONAL,
    lcsClientIdentity       [3] LCSClientIdentity 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
}

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

BasicServices           ::= SET OF BasicServiceCode

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

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

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

--
--  Record values 23..25 are CS-LCS specific.
--  The contents are defined in this specification
--
    mtLCSRecord         (23),
    moLCSRecord         (24),
    niLCSRecord         (25),
--
--  Record values 26..28 are PS-LCS specific.
--  The contents are defined in  TS 32.215
--
```

```
    sgsnMtLCSRecord     (26),
    sgsnMoLCSRecord     (27),
    sgsnNiLCSRecord     (28)
----  Record values 29..49  are MMS specific.
--  The contents are defined in TS 32.235
--
    mmO1SRecord         (29),
    mmO4FRqRecord       (30),
    mmO4FRsRecord       (31),
    mmO4DRecord         (32),
    mmO1DRecord         (33),
    mmO4RRecord         (34),
    mmO1RRecord         (35),
    mmOMDRecord         (36),
    mmR4FRecord         (37),
    mmR1NRqRecord       (38),
    mmR1NRsRecord       (39),
    mmR1RtRecord        (40),
    mmR1ARecord         (42),
    mmR4DRqRecord       (43),
    mmR4DRsRecord       (44),
    mmR1RRRecord        (45),
    mmR4RRqRecord       (46),
    mmR4RRsRecord       (47),
    mmRMDRecord         (48),
    mmFRecord           (49)
}

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
    unauthorizedLCSClientCause  [6] UnauthorizedLCSClient-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 formated 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
    --
```

```
HLRIntResult            ::= Diagnostics

HSCSDParmsChange        ::= 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)
}

LCSCause                ::= OCTET STRING (SIZE(1))
    --
    -- See LCS Cause Value, 3GPP TS 49.031
    --

LCSClientIdentity       ::= SEQUENCE
{
    lcsClientExternalID [0] LCSClientExternalID OPTIONAL,
    lcsClientDialedByMS [1] AddressString OPTIONAL,
    lcsClientInternalID [2] LCSClientInternalID OPTIONAL
}

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

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

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

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
```

Start of Change in clause 6.1

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

End of Change in clause 6.1

```
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 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	--	--	--	--	Cosmetics (title, styles, formatting, etc.)	4.1.0	4.1.1
Jun 2002	S_16	SP-020285	004	--	Corrections of parameter CallEventRecord	4.1.1	4.2.0
Dec 2002	S_18	SP-020734	006	--	Corrections on parameter Destination Number	4.2.0	4.3.0
Dec 2002	S_18	SP-020736	008	--	Alignment of LCS charging	4.2.0	4.3.0
Dec 2002	S_18	SP-020808	011	--	Corrections on MMS records ASN.1 definition	4.2.0	4.3.0
Mar 2003	S_19	SP-030054	013	--	CDR correction for data services over Iu-interface - alignment with SA1's 22.002	4.3.0	4.4.0

3GPP TSG-SA5 (Telecom Management) **S5-034441**
Meeting #34bis, Cork, IRELAND, 10-18 July 2003

CR-Form-v7

CHANGE REQUEST

⌘ **32.205** **CR** **020** ⌘ **rev** **-** ⌘ Current version: **4.4.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction of ASN.1 code errors in LCS definitions
Source:	⌘	SA5 (islip@lucent.com)
Work item code:	⌘	OAM-CH
Date:	⌘	05/09/2003
Category:	⌘	**F**
Release:	⌘	Rel-4

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Incorrect ASN.1 code in parts of the LCS definitions
Summary of change:	⌘	A number of small changes requested to the ASN-1 code in the document see the change bars for details. e.g. GuaranteedBitRate enumerations should start with lower case letter MaximumBitRate enumerations should start with lower case letter Missing syntax commas for items within lists of items.
Consequences if not approved:	⌘	Compilation errors in the ASN.1 code in TS 32.205, rendering the specification non-workable.

Clauses affected:	⌘	Clause 6.1

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

KEEP the History box of the TS to be changed (see end of the present document)

Begin Change in Clause 6.1

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 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, 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, UnauthorizedLCSClient-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 curcuit switch specific
    --               20..27 are 3G packet switch specific
    --               30..50 are application specific
    --
    moCallRecord            [0] MOCallRecord,
    mtCallRecord            [1] MTCallRecord,
    roamingRecord           [2] RoamingRecord,
    incGatewayRecord        [3] IncGatewayRecord,
    outGatewayRecord        [4] OutGatewayRecord,
    transitRecord           [5] TransitCallRecord,
    moSMSRecord             [6] MOSMSRecord,
    mtSMSRecord             [7] MTSMSRecord,
    moSMSIWRecord           [8] MOSMSIWRecord,
    mtSMSGWRecord           [9] MTSMSGWRecord,
    ssActionRecord          [10] SSActionRecord,
    hlrIntRecord            [11] HLRIntRecord,
    locUpdateHLRRecord      [12] LocUpdateHLRRecord,
    locUpdateVLRRecord      [13] LocUpdateVLRRecord,
    commonEquipRecord       [14] CommonEquipRecord,
    recTypeExtensions       [15] ManagementExtensions,
    termCAMELRecord         [16] TermCAMELRecord,
    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] SGSNMTLCSLCTRecord,
    sgsnLCORecord           [26] SGSNMOLCSLCORecord,
    sgsnLCNRecord           [27] SGSNNILCSLCNRecord,

    mmO1SRecord             [30] MMO1SRecord,
    mmO4FRqRecord           [31] MMO4FRqRecord,
    mmO4FRsRecord           [32] MMO4FRsRecord,
    mmO4DRecord             [33] MMO4DRecord,
```

```
    mmO1DRecord             [34] MMO1DRecord,
    mmO4RRecord             [35] MMO4RRecord,
    mmO1RRecord             [36] MMO1RRecord,
    mmOMDRecord             [37] MMOMDRecord,
    mmR4FRecord             [38] MMR4FRecord,
    mmR1NRqRecord           [38] MMR1NRqRecord,
    mmR1NRsRecord           [40] MMR1NRsRecord,
    mmR1RtRqRecord          [41] MMR1RtRecord,
    mmR1AFRecord            [43] MMR1ARecord,
    mmR4DRqRecord           [44] MMR4DRqRecord,
    mmR4DRsRecord           [45] MMR4DRsRecord,
    mmR1RRRecord            [46] MMR1RRRecord,
    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
{
     gGBR14400BitsPerSecond (1),        -- BS20 non-transparent
     gGBR28800BitsPerSecond (2),        -- BS20 non-transparent and transparent,
                                     -- BS30 transparent and multimedia
     gGBR32000BitsPerSecond (3),        -- BS30 multimedia
     gGBR33600BitsPerSecond (4),        -- BS30 multimedia
     gGBR56000BitsPerSecond (5),        -- BS30 transparent and multimedia
     gGBR57600BitsPerSecond (6),        -- BS20 non-transparent
     gGBR64000BitsPerSecond (7)     -- BS30 transparent and multimedia
}

MaximumBitRate ::= ENUMERATED
```

```
{
      mMBR14400BitsPerSecond (1),        -- BS20 non-transparent
      mMBR28800BitsPerSecond (2),        -- BS20 non-transparent and transparent,
                                      -- BS30 transparent and multimedia
      mMBR32000BitsPerSecond (3),        -- BS30 multimedia
      mMBR33600BitsPerSecond (4),        -- BS30 multimedia
      mMBR56000BitsPerSecond (5),        -- BS30 transparent and multimedia
      mMBR57600BitsPerSecond (6),        -- BS20 non-transparent
      mMBR64000BitsPerSecond (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,
    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
}

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,
    mscServerIndication         [30] BOOLEAN OPTIONAL,
    defaultCallHandling-2       [31] DefaultCallHandling OPTIONAL,
    gsm-SCFAddress-2            [32] Gsm-SCFAddress OPTIONAL,
    serviceKey-2                [33] ServiceKey OPTIONAL,
    freeFormatData-2            [34] FreeFormatData OPTIONAL,
    freeFormatDataAppend-2      [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
}

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] 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] LCSClientType OPTIONAL,
    lcsClientIdentity       [3] LCSClientIdentity 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] LCSClientType OPTIONAL,
    lcsClientIdentity       [3] LCSClientIdentity 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
}

AOCParmChange           ::= SEQUENCE
```

```
{
    changeTime          [0] TimeStamp,
    newParameters       [1] AOCParameters
}

BasicServices           ::= SET OF BasicServiceCode

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

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

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

--
--  Record values 23..25 are CS-LCS specific.
--  The contents are defined in this specification
--
    mtLCSRecord         (23),
    moLCSRecord         (24),
    niLCSRecord         (25),
--
--  Record values 26..28 are PS-LCS specific.
--  The contents are defined in  TS 32.215
--
    sgsnMtLCSRecord     (26),
    sgsnMoLCSRecord     (27),
    sgsnNiLCSRecord     (28),
--
--  Record values 29..49  are MMS specific.
--  The contents are defined in TS 32.235
--
```

```
    mmO1SRecord         (29),
    mmO4FRqRecord       (30),
    mmO4FRsRecord       (31),
    mmO4DRecord         (32),
    mmO1DRecord         (33),
    mmO4RRecord         (34),
    mmO1RRecord         (35),
    mmOMDRecord         (36),
    mmR4FRecord         (37),
    mmR1NRqRecord       (38),
    mmR1NRsRecord       (39),
    mmR1RtRecord        (40),
    mmR1ARecord         (42),
    mmR4DRqRecord       (43),
    mmR4DRsRecord       (44),
    mmR1RRRecord        (45),
    mmR4RRqRecord       (46),
    mmR4RRsRecord       (47),
    mmRMDRecord         (48),
    mmFRecord           (49)
}

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
    unauthorizedLCSClientCause  [6] UnauthorizedLCSClient-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 formated 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
    --

HLRIntResult            ::= Diagnostics

HSCSDParmsChange        ::= 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)
}

LCSCause                ::= OCTET STRING (SIZE(1))
    --
    -- See LCS Cause Value, 3GPP TS 49.031
    --

LCSClientIdentity       ::= SEQUENCE
{
    lcsClientExternalID [0] LCSClientExternalID OPTIONAL,
    lcsClientDialedByMS [1] AddressString OPTIONAL,
    lcsClientInternalID [2] LCSClientInternalID OPTIONAL
}

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

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

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

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

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 6.1
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	--	--	--	--	Cosmetics (title, styles, formatting, etc.)	4.1.0	4.1.1
Jun 2002	S_16	SP-020285	004	--	Corrections of parameter CallEventRecord	4.1.1	4.2.0
Dec 2002	S_18	SP-020734	006	--	Corrections on parameter Destination Number	4.2.0	4.3.0
Dec 2002	S_18	SP-020736	008	--	Alignment of LCS charging	4.2.0	4.3.0
Dec 2002	S_18	SP-020808	011	--	Corrections on MMS records ASN.1 definition	4.2.0	4.3.0
Mar 2003	S_19	SP-030054	013	--	CDR correction for data services over Iu-interface - alignment with SA1's 22.002	4.3.0	4.4.0

CR-Form-v7

CHANGE REQUEST

⌘ **32.215** **CR** **027** ⌘**rev** **-** ⌘ Current version: **4.4.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Corrections of ASN.1 syntax
Source:	⌘	SA5 (islip@lucent.com)
Work item code:	⌘	OAM-CH
Date:	⌘	05/09/2003
Category:	⌘	**F**
Release:	⌘	Rel-4

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	ASN.1 syntax errors that cause compilation failure
Summary of change:	⌘	A number of changes indicated by the change bars in the following
Consequences if not approved:	⌘	Compilation errors in the ASN.1 code in TS 32.215, rendering the specification non-workable.

Clauses affected:	⌘	

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

KEEP the History box of the TS to be changed (see end of the present document)

Start of Changes in Clause 6.1

6.1 ASN.1 definitions for CDR information

The ASN.1 definitions are based on ISO8824 (90)/X.208 (88) [17], which has been superseded by ISO8824-1 (94)/X.680 (94)[18]. This newer version not only includes new features but also removes some that were present in ISO8824 (90)/X.208 (88) [17]. Where possible, the GPRS work would be based on those ASN.1 features to both. However, where necessary, the new features in ISO8824-1 (94)/X.680 (94) [18] be used in some places. ISO8824 (90)/X.208 (88) [17] features that are no longer in ISO8824-1 (94)/X.680 (94) [18] will not be used.

```
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)}


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 the ones in the module versions specified below.

IMPORTS

CallEventRecordType, CellId, Diagnostics, CallDuration, LCSCause, LCSClientIdentity, LCSQoSInfo,
ManagementExtensions, TimeStamp, MSISDN, LocationAreaCode, MessageReference, PositioningData,
RecordingEntity, SMSResult, LevelOfCAMELService, CalledNumber, CallingNumber, CallEventRecord,
LocationAreaAndCell, SmsTpDestinationNumber
FROM TS32205-DataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0)
umts-Operation-Maintenance (3) ts-32-205 (205) informationModel (0) asn1Module (2) version1 (1)}

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

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

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

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

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)}
```

End of Changes in Clause 6.1

```
6.1
ManagementExtension
FROM Attribute-ASN1Module {joint-iso-ccitt ms(9) smi(3) part2 (2) asn1Module(2) 1}
;


--------------------------------------------------------------------------------
--
--  CALL AND EVENT RECORDS
--
--------------------------------------------------------------------------------
GGSNPDPRecord   ::= SET
{
    recordType                  [0] CallEventRecordType,
    networkInitiation           [1] NetworkInitiatedPDPContext OPTIONAL,
    servedIMSI                  [3] IMSI,
    ggsnAddress                 [4] GSNAddress,
    chargingID                  [5] ChargingID,
    sgsnAddress                 [6] SEQUENCE OF GSNAddress,
```

```
    accessPointNameNI           [7] AccessPointNameNI OPTIONAL,
    pdpType                     [8] PDPType OPTIONAL,
    servedPDPAddress            [9] PDPAddress OPTIONAL,
    dynamicAddressFlag          [11] DynamicAddressFlag OPTIONAL,
    listOfTrafficVolumes        [12] SEQUENCE OF ChangeOfCharCondition OPTIONAL,
    recordOpeningTime           [13] TimeStamp,
    duration                    [14] CallDuration,
    causeForRecClosing          [15] CauseForRecClosing,
    diagnostics                 [16] Diagnostics OPTIONAL,
    recordSequenceNumber        [17] INTEGER OPTIONAL,
    nodeID                      [18] NodeID OPTIONAL,
    recordExtensions            [19] ManagementExtensions OPTIONAL,
    localSequenceNumber         [20] LocalSequenceNumber OPTIONAL,
    apnSelectionMode            [21] APNSelectionMode OPTIONAL,
    servedMSISDN                [22] MSISDN OPTIONAL,
    chargingCharacteristics     [23] ChargingCharacteristics,
    chChSelectionMode           [24] ChChSelectionMode OPTIONAL,
    sgsnPLMNIdentifier          [27] PLMN-Id
    }

SGSNMMRecord    ::= SET
{
    recordType                  [0] CallEventRecordType,
    servedIMSI                  [1] IMSI,
    servedIMEI                  [2] IMEI OPTIONAL,
    sgsnAddress                 [3] GSNAddress OPTIONAL,
    msNetworkCapability         [4] MSNetworkCapability OPTIONAL,
    routingArea                 [5] RoutingAreaCode OPTIONAL,
    locationAreaCode            [6] LocationAreaCode OPTIONAL,
    cellIdentifier              [7] CellId OPTIONAL,
    changeLocation              [8] SEQUENCE OF ChangeLocation OPTIONAL,
    recordOpeningTime           [9] TimeStamp,
    duration                    [10] CallDuration OPTIONAL,
    sgsnChange                  [11] SGSNChange OPTIONAL,
    causeForRecClosing          [12] CauseForRecClosing,
    diagnostics                 [13] Diagnostics OPTIONAL,
    recordSequenceNumber        [14] INTEGER OPTIONAL,
    nodeID                      [15] NodeID OPTIONAL,
    recordExtensions            [16] ManagementExtensions OPTIONAL,
    localSequenceNumber         [17] LocalSequenceNumber OPTIONAL,
    servedMSISDN                [18] MSISDN OPTIONAL,
    chargingCharacteristics     [19] ChargingCharacteristics,
    cAMELInformationMM          [20] CAMELInformationMM OPTIONAL,
    systemType                  [21] SystemType OPTIONAL,
    chChSelectionMode           [22] ChChSelectionMode OPTIONAL
}

SGSNPDPRecord   ::= SET
{
    recordType                  [0] CallEventRecordType,
    networkInitiation           [1] NetworkInitiatedPDPContext OPTIONAL,
    servedIMSI                  [3] IMSI,
    servedIMEI                  [4] IMEI OPTIONAL,
    sgsnAddress                 [5] GSNAddress OPTIONAL,
    msNetworkCapability         [6] MSNetworkCapability OPTIONAL,
    routingArea                 [7] RoutingAreaCode OPTIONAL,
    locationAreaCode            [8] LocationAreaCode OPTIONAL,
    cellIdentifier              [9] CellId OPTIONAL,
    chargingID                  [10] ChargingID,
    ggsnAddressUsed             [11] GSNAddress,
    accessPointNameNI           [12] AccessPointNameNI OPTIONAL,
    pdpType                     [13] PDPType OPTIONAL,
    servedPDPAddress            [14] PDPAddress OPTIONAL,
    listOfTrafficVolumes        [15] SEQUENCE OF ChangeOfCharCondition OPTIONAL,
    recordOpeningTime           [16] TimeStamp,
    duration                    [17] CallDuration,
    sgsnChange                  [18] SGSNChange OPTIONAL,
    causeForRecClosing          [19] CauseForRecClosing,
    diagnostics                 [20] Diagnostics OPTIONAL,
    recordSequenceNumber        [21] INTEGER OPTIONAL,
    nodeID                      [22] NodeID OPTIONAL,
    recordExtensions            [23] ManagementExtensions OPTIONAL,
    localSequenceNumber         [24] LocalSequenceNumber OPTIONAL,
    apnSelectionMode            [25] APNSelectionMode OPTIONAL,
    accessPointNameOI           [26] AccessPointNameOI OPTIONAL,
    servedMSISDN                [27] MSISDN OPTIONAL,
    chargingCharacteristics     [28] ChargingCharacteristics,
    systemType                  [29] SystemType OPTIONAL,
```

```
    cAMELInformationPDP         [30] CAMELInformationPDP OPTIONAL,
    rNCUnsentDownlinkVolume     [31] DataVolumeGPRS OPTIONAL,
    chChSelectionMode           [32] ChChSelectionMode OPTIONAL,
    dynamicAddressFlag          [33] DynamicAddressFlag OPTIONAL
}

SGSNSMORecord   ::= SET
{
    recordType                  [0] CallEventRecordType,
    servedIMSI                  [1] IMSI,
    servedIMEI                  [2] IMEI OPTIONAL,
    servedMSISDN                [3] MSISDN OPTIONAL,
    msNetworkCapability         [4] MSNetworkCapability OPTIONAL,
    serviceCentre               [5] AddressString OPTIONAL,
    recordingEntity             [6] RecordingEntity OPTIONAL,
    locationArea                [7] LocationAreaCode OPTIONAL,
    routingArea                 [8] RoutingAreaCode OPTIONAL,
    cellIdentifier              [9] CellId OPTIONAL,
    messageReference            [10] MessageReference,
    eventTimeStamp              [11] TimeStamp,
    smsResult                   [12] SMSResult OPTIONAL,
    recordExtensions            [13] ManagementExtensions OPTIONAL,
    nodeID                      [14] NodeID OPTIONAL,
    localSequenceNumber         [15] LocalSequenceNumber OPTIONAL,
    chargingCharacteristics     [16] ChargingCharacteristics,
    systemType                  [17] SystemType OPTIONAL,
    destinationNumber           [18] SmsTpDestinationNumber OPTIONAL,
    cAMELInformationSMS         [19] CAMELInformationSMS OPTIONAL,
    chChSelectionMode           [20] ChChSelectionMode OPTIONAL
}

SGSNSMTRecord   ::= SET
{
    recordType              [0] CallEventRecordType,
    servedIMSI              [1] IMSI,
    servedIMEI              [2] IMEI OPTIONAL,
    servedMSISDN            [3] MSISDN OPTIONAL,
    msNetworkCapability     [4] MSNetworkCapability OPTIONAL,
    serviceCentre           [5] AddressString OPTIONAL,
    recordingEntity         [6] RecordingEntity OPTIONAL,
    locationArea            [7] LocationAreaCode OPTIONAL,
    routingArea             [8] RoutingAreaCode OPTIONAL,
    cellIdentifier          [9] CellId OPTIONAL,
    eventTimeStamp          [10] TimeStamp,
    smsResult               [11] SMSResult OPTIONAL,
    recordExtensions        [12] ManagementExtensions OPTIONAL,
    nodeID                  [13] NodeID OPTIONAL,
    localSequenceNumber     [14] LocalSequenceNumber OPTIONAL,
    chargingCharacteristics [15] ChargingCharacteristics,
    systemType              [16] SystemType OPTIONAL,
    chChSelectionMode       [17] ChChSelectionMode OPTIONAL,
    cAMELInformationSMS     [18] CAMELInformationSMS OPTIONAL
}


SGSNMTLCSRecord         ::= SET
{
    recordType              [0] CallEventRecordType,
    recordingEntity         [1] RecordingEntity,
    lcsClientType           [2] LCSClientType,
    lcsClientIdentity       [3] LCSClientIdentity,
    servedIMSI              [4] IMSI,
    servedMSISDN            [5] MSISDN OPTIONAL,
    sgsnAddress             [6] GSNAddress OPTIONAL,
    locationType            [7] LocationType,
    lcsQos                  [8] LCSQoSInfo OPTIONAL,
    lcsPriority             [9] LCS-Priority OPTIONAL,
    mlcNumber               [10] ISDN-AddressString,
    eventTimeStamp          [11] TimeStamp,
    measurementDuration     [12] CallDuration OPTIONAL,
    notificationToMSUser    [13] NotificationToMSUser OPTIONAL,
    privacyOverride         [14] NULL OPTIONAL,
    location                [15] LocationAreaAndCell OPTIONAL,
    routingArea             [16] RoutingAreaCode OPTIONAL,
    locationEstimate        [17] Ext-GeographicalInformation OPTIONAL,
    positioningData         [18] PositioningData OPTIONAL,
    lcsCause                [19] LCSCause OPTIONAL,
    diagnostics             [20] Diagnostics OPTIONAL,
```

```
    nodeID                  [21] NodeID OPTIONAL,
    localSequenceNumber     [22] LocalSequenceNumber OPTIONAL,
    chargingCharacteristics [23] ChargingCharacteristics,
    chChSelectionMode       [24] ChChSelectionMode OPTIONAL,
    systemType              [25] SystemType OPTIONAL,
    recordExtensions        [26] ManagementExtensions OPTIONAL,
    causeForRecClosing      [27] CauseForRecClosing
}

SGSNMOLCSRecord         ::= SET
{
    recordType              [0] CallEventRecordType,
    recordingEntity         [1] RecordingEntity,
    lcsClientType           [2] LCSClientType OPTIONAL,
    lcsClientIdentity       [3] LCSClientIdentity OPTIONAL,
    servedIMSI              [4] IMSI,
    servedMSISDN            [5] MSISDN OPTIONAL,
    sgsnAddress             [6] GSNAddress OPTIONAL,
    locationMethod          [7] LocationMethod,
    lcsQos                  [8] LCSQoSInfo OPTIONAL,
    lcsPriority             [9] LCS-Priority OPTIONAL,
    mlcNumber               [10] ISDN-AddressString OPTIONAL,
    eventTimeStamp          [11] TimeStamp,
    measurementDuration     [12] CallDuration OPTIONAL,
    location                [13] LocationAreaAndCell OPTIONAL,
    routingArea             [14] RoutingAreaCode OPTIONAL,
    locationEstimate        [15] Ext-GeographicalInformation OPTIONAL,
    positioningData         [16] PositioningData OPTIONAL,
    lcsCause                [17] LCSCause OPTIONAL,
    diagnostics             [18] Diagnostics OPTIONAL,
    nodeID                  [19] NodeID OPTIONAL,
    localSequenceNumber     [20] LocalSequenceNumber OPTIONAL,
    chargingCharacteristics [21] ChargingCharacteristics,
    chChSelectionMode       [22] ChChSelectionMode OPTIONAL,
    systemType              [23] SystemType OPTIONAL,
    recordExtensions        [24] ManagementExtensions OPTIONAL,
    causeForRecClosing      [25] CauseForRecClosing
}

SGSNNILCSRecord         ::= SET
{
    recordType              [0] CallEventRecordType,
    recordingEntity         [1] RecordingEntity,
    lcsClientType           [2] LCSClientType OPTIONAL,
    lcsClientIdentity       [3] LCSClientIdentity OPTIONAL,
    servedIMSI              [4] IMSI OPTIONAL,
    servedMSISDN            [5] MSISDN OPTIONAL,
    sgsnAddress             [6] GSNAddress OPTIONAL,
    servedIMEI              [7] IMEI OPTIONAL,
    lcsQos                  [8] LCSQoSInfo OPTIONAL,
    lcsPriority             [9] LCS-Priority OPTIONAL,
    mlcNumber               [10] ISDN-AddressString OPTIONAL,
    eventTimeStamp          [11] TimeStamp,
    measurementDuration     [12] CallDuration OPTIONAL,
    location                [13] LocationAreaAndCell OPTIONAL,
    routingArea             [14] RoutingAreaCode OPTIONAL,
    locationEstimate        [15] Ext-GeographicalInformation OPTIONAL,
    positioningData         [16] PositioningData OPTIONAL,
    lcsCause                [17] LCSCause OPTIONAL,
    diagnostics             [18] Diagnostics OPTIONAL,
    nodeID                  [19] NodeID OPTIONAL,
    localSequenceNumber     [20] LocalSequenceNumber OPTIONAL,
    chargingCharacteristics [21] ChargingCharacteristics,
    chChSelectionMode       [22] ChChSelectionMode OPTIONAL,
    systemType              [23] SystemType OPTIONAL,
    recordExtensions        [24] ManagementExtensions OPTIONAL,
    causeForRecClosing      [25] CauseForRecClosing
}

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

AccessPointNameNI   ::= IA5String (SIZE(1..63))
    --
    -- Network Identifier part of APN in  dot representation.
```

```
    -- For example, if the complete APN is 'apn1a.apn1b.apn1c.mnc022.mcc111.gprs'
    -- NI is 'apn1a.apn1b.apn1c' and is presented in this form in the CDR.
    --

AccessPointNameOI   ::= IA5String (SIZE(1..37))
    --
    -- Operator Identifier part of APN in dot representation.
    -- In the 'apn1a.apn1b.apn1c.mnc022.mcc111.gprs' example, the OI portion is 'mnc022.mcc111.gprs'
    -- and is presented in this form in the CDR.
    --

APNSelectionMode::= ENUMERATED
{
    --
    -- See Information Elements TS 29.060
    --
    mSorNetworkProvidedSubscriptionVerified            (0),
    mSProvidedSubscriptionNotVerified                  (1),
    networkProvidedSubscriptionNotVerified             (2)
}

CAMELAccessPointNameNI  ::= AccessPointNameNI

CAMELAccessPointNameOI  ::= AccessPointNameOI

CAMELInformationMM      ::= SET
{
    sCFAddress                      [1] SCFAddress OPTIONAL,
    serviceKey                      [2] ServiceKey OPTIONAL,
    defaultTransactionHandling      [3] DefaultGPRS-Handling OPTIONAL,
    numberOfDPEncountered           [4] NumberOfDPEncountered OPTIONAL,
    levelOfCAMELService             [5] LevelOfCAMELService OPTIONAL,
    freeFormatData                  [6] FreeFormatData OPTIONAL,
    fFDAppendIndicator              [7] FFDAppendIndicator OPTIONAL
}

CAMELInformationPDP ::= SET
{
    sCFAddress                      [1] SCFAddress OPTIONAL,
    serviceKey                      [2] ServiceKey OPTIONAL,
    defaultTransactionHandling      [3] DefaultGPRS-Handling OPTIONAL,
    cAMELAccessPointNameNI          [4] CAMELAccessPointNameNI OPTIONAL,
    cAMELAccessPointNameOI          [5] CAMELAccessPointNameOI OPTIONAL,
    numberOfDPEncountered           [6] NumberOfDPEncountered OPTIONAL,
    levelOfCAMELService             [7] LevelOfCAMELService OPTIONAL,
    freeFormatData                  [8] FreeFormatData OPTIONAL,
    fFDAppendIndicator              [9] FFDAppendIndicator OPTIONAL
}

CAMELInformationSMS     ::= SET
{
    sCFAddress                          [1] SCFAddress OPTIONAL,
    serviceKey                          [2] ServiceKey OPTIONAL,
    defaultSMSHandling                  [3] DefaultSMS-Handling OPTIONAL,
    cAMELCallingPartyNumber             [4] CallingNumber OPTIONAL,
    cAMELDestinationSubscriberNumber    [5] SmsTpDestinationNumber OPTIONAL,
    cAMELSMSCAddress                    [6] AddressString OPTIONAL,
    freeFormatData                      [7] FreeFormatData OPTIONAL,
    smsReferenceNumber                  [8] CallReferenceNumber OPTIONAL
}

CauseForRecClosing  ::= INTEGER
{
    --
    -- In GGSN the value sGSNChange should be used for partial record
    -- generation due to SGSN Address List Overflow
    --
    -- cause codes 0 to 15 are defined in TS 32.205 as 'CauseForTerm' (cause for termination)
    -- LCS related causes belong to the MAP error causes acc. TS 29.002
    --
    normalRelease                   (0),
    abnormalRelease                 (4),
    cAMELInitCallRelease            (5),
    volumeLimit                     (16),
    timeLimit                       (17),
    sGSNChange                      (18),
    maxChangeCond                   (19),
    managementIntervention          (20),
```

```
    intraSGSNIntersystemChange      (21),
    unauthorizedRequestingNetwork   (52),
    unauthorizedLCSClient           (53),
    positionMethodFailure           (54),
    unknownOrUnreachableLCSClient   (58)
}

ChangeCondition ::= ENUMERATED
{
    qoSChange               (0),
    tariffTime              (1),
    recordClosure           (2)
}

ChangeOfCharCondition   ::= SEQUENCE
    --
    -- Used in PDP context record only
    --
{
    qosRequested                [1] QoSInformation OPTIONAL,
    qosNegotiated               [2] QoSInformation OPTIONAL,
    dataVolumeGPRSUplink        [3] DataVolumeGPRS,
    dataVolumeGPRSDownlink      [4] DataVolumeGPRS,
    changeCondition             [5] ChangeCondition,
    changeTime                  [6] TimeStamp
}

ChangeLocation  ::= SEQUENCE
    --
    -- used in SGSNMMRecord only
    --
{
    locationAreaCode        [0] LocationAreaCode,
    routingAreaCode         [1] RoutingAreaCode,
    cellId                  [2] CellId OPTIONAL,
    changeTime              [3] TimeStamp
}

ChargingCharacteristics ::= OCTET STRING (SIZE(2))
    --
    --  Bit 0-3: Profile Index
    --  Bit 4-15: For Behavior
    --

ChargingID  ::= INTEGER (0..4294967295)
    --
    -- Generated in GGSN, part of PDP context, see TS 23.060
    -- 0..4294967295 is equivalent to 0..2**32-1
    --

ChChSelectionMode       ::= ENUMERATED
{
    sGSNSupplied                (0),    -- For GGSN only
    subscriptionSpecific        (1),    -- For SGSN only
    aPNSpecific                 (2),    -- For SGSN only
    homeDefault                 (3),    -- For SGSN and GGSN
    roamingDefault              (4),    -- For SGSN and GGSN
    visitingDefault             (5)     -- For SGSN and GGSN
}


DataVolumeGPRS  ::= INTEGER
    --
    -- The volume of data transferred in octets.
    --

DynamicAddressFlag  ::= BOOLEAN

ETSIAddress ::= AddressString
    --
    -- First octet for nature of address, and numbering plan indicator (3 for X.121)
    -- Other octets TBCD
    -- See TS 29.002
    --

FFDAppendIndicator  ::= BOOLEAN

FreeFormatData  ::= OCTET STRING (SIZE(1..160))
```

```
    --
    -- Free formated data as sent in the FurnishChargingInformationGPRS
    -- see TS 29.078
    --

GSNAddress  ::= IPAddress

IPAddress   ::= CHOICE
{
    iPBinaryAddress  IPBinaryAddress,
    iPTextRepresentedAddress     IPTextRepresentedAddress
}

IPBinaryAddress ::= CHOICE
{
    iPBinV4Address          [0] OCTET STRING (SIZE(4)),
    iPBinV6Address          [1] OCTET STRING (SIZE(16))
}

IPTextRepresentedAddress    ::= CHOICE
{   --
    -- IP address in the familiar "dot" notation
    --
    iPTextV4Address         [2] IA5String (SIZE(7..15)),
    iPTextV6Address         [3] IA5String (SIZE(15..45))
}

LocalSequenceNumber ::= INTEGER (0..4294967295)
    --
    -- Sequence number of the record in this node
    -- 0..4294967295 is equivalent to 0..2**32-1, unsigned integer in four octets
    --

MSNetworkCapability ::= OCTET STRING (SIZE(1..8))
    -- see 3G TS 24.008

NetworkInitiatedPDPContext  ::= BOOLEAN
    --
    -- Set to true if PDP context was initiated from network side
    --

NodeID  ::= IA5String (SIZE(1..20))

NumberOfDPEncountered  ::= INTEGER

PDPAddress  ::= CHOICE
{
    iPAddress               [0] IPAddress,
    eTSIAddress             [1] ETSIAddress
}

PDPType     ::= OCTET STRING (SIZE(2))
    --
    -- OCTET 1: PDP Type Organization
    -- OCTET 2: PDP Type Number
    -- See TS 29.060
    --

PLMN-Id     ::= OCTET STRING (SIZE (3))
    --
    --  This is a 1:1 copy from the Routing Area Identity (RAI) IE specified in TS 29.060
    --  as follows:
    --      OCTET 1 of PLMN-Id = OCTET 2 of RAI
    --      OCTET 2 of PLMN-Id = OCTET 3 of RAI
    --      OCTET 3 of PLMN-Id = OCTET 4 of RAI
    --

QoSInformation  ::= OCTET STRING (SIZE (4..12))
    --
    -- This  octet string
    -- is a 1:1 copy of the contents (i.e. starting with octet 4) of the "Quality of
    -- service Profile" information element specified in 3GPP TS 29.060 [22].
    --
```

```
RoutingAreaCode ::= OCTET STRING (SIZE(1))
    --
    -- See TS 24.008    --
    --

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

SGSNChange  ::= BOOLEAN
    --
    -- present if first record after inter SGSN routing area update
    -- in new SGSN
    --

SystemType  ::= ENUMERATED
{
    --
    --  "unknown" is not to be used in PS domain.
    --
    unknown             (0),
    iuUTRAN             (1),
    gERAN               (2)
}

END
```

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
May 2001	--	--	--	--	Transferred from 3GPP 32.015 v3.5.0.	--	1.0.0
Jun 2001	S_12	SP-010236	--	--	Submitted to TSG SA #12 for Information	1.0.0	1.0.1
Sep 2001	S_13	SP-010464	--	--	Submitted to TSG SA #13 for Approval	2.0.0	4.0.0
Dec 2001	S_14	SP-010633	001	--	Specification of the "Data Record Format" and "Data Record Format Version"	4.0.0	4.1.0
Dec 2001	S_14	SP-010633	002	--	Correction of ASN.1 data item QosInformation	4.0.0	4.1.0
Dec 2001	S_14	SP-010634	003	--	Correction of ASN.1 statements for backwards compatibility reason	4.0.0	4.1.0
Mar 2002	S_15	SP-020022	004	--	Addition of CAMEL phase 3 extensions in SMS-MO CDR	4.1.0	4.2.0
Mar 2002	S_15	SP-020024	005	--	Addition of "QoSRequested" parameter into "traffic volume containers"	4.1.0	4.2.0
Mar 2002	--	--	--	--	Cosmetics (styles, formatting, etc.)	4.2.0	4.2.1
Jun 2002	S_16	SP-020286	009	--	Correction of S-CDR triggers	4.2.1	4.3.0
Jun 2002	S_16	SP-020288	013	--	Correcting definition of traffic data volume CDR field & Specify usage of the LRSN to avoid loss of billing data	4.2.1	4.3.0
Jun 2002	S_16	SP-020285	015	--	Alignment with 23.271 (LCS stage 2) of CDR definition for LCS in PS domain	4.2.1	4.3.0
Dec 2002	S_18	SP-020734	017	--	Corrections on parameter Destination Number	4.3.0	4.4.0
Dec 2002	S_18	SP-020735	019	--	Addition of SGSN's Mobile Country Code (MCC) and Mobile Network Code (MNC) on G-CDR (Alignment with SA2/CN4/GSMA BARG)	4.3.0	4.4.0
Dec 2002	S_18	SP-020736	020	--	Corrections on LCS error cause definitions	4.3.0	4.4.0