Source: **SA WG5**

Title: **CRs to Telecommunications Management; Charging and billing; 3G call and event data for the Circuit Switched (CS) domain (32.005)**

Document for: **Approval**

Agenda Item: **7.5.3**

Doc-1st-Level	Doc-2nd-Level	Spec	CR	Rev	Phase	Cat	Subject	Version-Current	Version-New	Work item
SP-000523	S5-000535	32.005	002		R99	F	Support 3G CS by adding "system type" parameter to CDRs (same as in 3G PS)	3.2.0	3.3.0	OAM-CH
SP-000523	S5-000536	32.005	003		R99	F	Correction of parameter Location Area and Cell	3.2.0	3.3.0	OAM-CH
SP-000523	S5-000537	32.005	004		R99	F	Correction of parameter CallEventRecord	3.2.0	3.3.0	OAM-CH

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

32.005 CR **002** Current Version: **V.3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ ↑ *CR number as allocated by MCC support team*

For submission to: **SA#10**   for approval **X**   strategic ☐ *(for SMG use only)*
list expected approval meeting # here ↑   for information ☐   non-strategic ☐

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

---

Proposed change affects:
(at least one should be marked with an X)

(U)SIM ☐   ME ☐   UTRAN / Radio ☐   Core Network **X**

Source:	**SA5#15**	**Date:**	**20/10/2000**

Subject: Support 3G CS by adding "system type" parameter to CDRs (same as in 3G PS)

Work item: OAM-CH

Category:

(only one category shall be marked with an X)

			Release:		
F	Correction	**X**		Phase 2	☐
A	Corresponds to a correction in an earlier release			Release 96	☐
B	Addition of feature			Release 97	☐
C	Functional modification of feature			Release 98	☐
D	Editorial modification			Release 99	**X**
				Release 00	☐

Reason for change: The parameter "systemType" is added to the CDRs in order to indicate the use of 3G or 2G air interface for the provision of service. With the current CDR definition, the billing system would not be able to make that distinction.

Clauses affected: A.9, B.2 and B.3

Other specs Affected:

Other 3G core specifications	☐	→ List of CRs:	
Other GSM core specifications	☐	→ List of CRs:	
MS test specifications	☐	→ List of CRs:	
BSS test specifications	☐	→ List of CRs:	
O&M specifications	☐	→ List of CRs:	

Other comments:

A.9   Abstract syntax

```
GSM1205-DataTypes {  ccitt (0) identified-organization (4) etsi (0) mobileDomain (0) gsm-Operation-
Maintenance (3) gsm-12-05 (5) informationModel (0) asn1Module (2) 1 }

DEFINITIONS IMPLICIT TAGS   ::=

BEGIN

-- EXPORTS everything

IMPORTS

NumberOfForwarding, CallReferenceNumber
FROM MAP-CH-DataTypes { ccitt identified-organization (4) etsi(0) mobileDomain (0) gsmNetworkId (1)
moduleId (3) map-CH-DataTypes (13) version2 (2) }

AddressString, ISDN-AddressString, BasicServiceCode, IMSI, IMEI
FROM MAP-CommonDataTypes { ccitt identified-organization (4) etsi(0) mobileDomain (0) gsmNetworkId
(1) moduleId (3) map-CommonDataTypes (18) version2 (2) }

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

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


BearerServiceCode
FROM MAP-BS-Code { ccitt identified-organization (4) etsi(0) mobileDomain(0) gsmNetworkId (1)
moduleId (3) map-BS-Code (20) version2 (2) }

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

SS-Code
FROM MAP-SS-Code { ccitt identified-organization (4) etsi(0) mobileDomain(0) gsmNetworkId (1)
moduleId (3) map-SS-Code (15) version2 (2) }

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}

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
-- ITU-T Rec. X.227 / ISO 8650 corrigendum and not "ANY"
------------------------------------------------------------------------------
--
--  CALL AND EVENT RECORDS
--
------------------------------------------------------------------------------

CallEventRecord ::= CHOICE
{
    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,
     termCAMELIntRecord   [16] TermCAMELIntRecord
}

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
}


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,
    networkCallReference   [46] NetworkCallReference OPTIONAL,
    mSCAddress             [47] MSCAddress OPTIONAL,
    defaultCallHandling    [48] DefaultCallHandling OPTIONAL,
    freeFormatData         [49] FreeFormatData OPTIONAL,
    freeFormatDataAppend   [50] BOOLEAN OPTIONAL,
    systemType             [51] SystemType OPTIONAL
}

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

TermCAMELIntRecord  ::= 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
}

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] CalledNumber 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] Location-info OPTIONAL,
    newLocation         [4] 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
}

--------------------------------------------------------------------------------
--
--  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
}


--------------------------------------------------------------------------------
--
--  FTAM 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
}

-------------------------------------------------------------------------------
--
--  OBJECT IDENTIFIERS
--
-------------------------------------------------------------------------------

gsm1205InformationModel  OBJECT IDENTIFIER  ::=
    { ccitt (0) identified-organization (4) etsi (0) mobileDomain (0)
    gsm-Operation-Maintenance (3) gsm-12-05 (5) informationModel (0) }

gsm1205ASN1Module   OBJECT IDENTIFIER   ::=
    { gsm1205InformationModel asn1Module(2) }

gsm1205ManagedObjectClass OBJECT IDENTIFIER ::=
    { gsm1205InformationModel managedObjectClass(3) }

gsm1205Package OBJECT IDENTIFIER ::=
    { gsm1205InformationModel package(4) }

gsm1205NameBinding OBJECT IDENTIFIER ::=
    { gsm1205InformationModel nameBinding(6) }

gsm1205Attribute OBJECT IDENTIFIER ::=
    { gsm1205InformationModel attribute(7) }

gsm1205Action OBJECT IDENTIFIER ::=
    { gsm1205InformationModel action(9) }

gsm1205Notification OBJECT IDENTIFIER   ::=
    { gsm1205InformationModel notification(10) }

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

SystemType   ::= ENUMERATED
{
    umtsRel99           (1)
}

END
```

B.2　Record contents

The following tables describe the contents of each of the call and event records defined in the present document. Each table contains the name of the field, a key indicating whether or not the field is mandatory, and a description of the contents.

The key field has the following meaning:

M This field is mandatory and always present. Any exceptions to this rule are explicitly described.

C This field is only available under certain conditions. If available the field is present.
The conditions under which the field is available are individually described.

O This field is optional and configurable either via additional TMN management functions or manufacturer specific means. For the avoidance of doubt, optional does not mean that the parameter is not supported by the

network element. Equipment manufacturers shall be capable of providing all of these fields in order to claim conformance with the present document.

B.2.1   Mobile originated call attempt

If the generation of these records is enabled then an MOC record shall be created for each outgoing call attempt made by a mobile station. These MOC records shall be produced in the originating MSC.

Table B.1: MOC record

Field		Description
Record Type	M	Mobile originated.
Served IMSI	M	IMSI of the calling party.
Served IMEI	C	IMEI of the calling ME, if available.
Served MSISDN	O	The primary MSISDN of the calling party.
Called Number	M	The address of the called party e.g. the number dialled by the calling sub.
Translated Number	O	The called number after digit translation within the MSC (if applicable)
Connected Number	O	The number of the connected party if different to the Called Number
Roaming Number	O	The Mobile Station Roaming Number employed to route this connection, if applicable.
Recording Entity	M	The E.164 number of the visited MSC producing the record.
Incoming TKGP	O	The MSC trunk group on which the call originated , usually from the BSS
Outgoing TKGP	O	The trunk group on which the call left the MSC
Location	M	The identity of the cell in which the call originated including the location area code.
Change of Location	O	A list of changes in Location Area Code / Cell Id. each time-stamped.
Basic service	M	Bearer or teleservice employed.
Transparency Indicator	C	Only provided for those teleservices which may be employed in both transparent and non-transparent mode.
ChangeOfService	O	A list of changes of basic service during a connection each time-stamped.
Supp. Services	C	Supplementary services invoked as a result of this connection.
AOC Parameters	O	The charge advice parameters sent to the MS on call set-up
Change of AOC Parms	O	New AOC parameters sent to the MS e.g. as a result of a tariff switch over, including the time at which the new set was applied.
MS Classmark	M	The mobile station classmark employed on call set-up.
Change of Classmark	O	A list of changes to the classmark during the connection each time-stamped
Event time stamps:	C C O	Seizure of incoming traffic channel (for unsuccessful call attempts) Answer (for successful calls) Release of traffic channel
Call duration	M	The chargeable duration of the connection for successful calls, the holding time for call attempts.
Radio Chan. Requested	O	The type of radio traffic channel (full / half etc.) requested by the MS.
Radio Chan. Used	M	The type of radio channel actually used (full or half rate).
Change of Rad. Chan.	O	A list of changes each time stamped
Cause for termination	M	The reason for the release of the connection.
Diagnostics	O	A more detailed reason for the release of the connection.
Data volume	C	The number of data segments transmitted if available at the MSC
Sequence no.	C	Partial record sequence number, only present in case of partial records.
Call reference	M	A local identifier distinguishing between transactions on the same MS
Additional Chg. Info	O	Charge/no charge indicator and additional charging parameters
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
gsmSCF address	C	Identifies the CAMEL server serving the subscriber.
Service key	C	The CAMEL service logic to be applied.
Network call reference	C	An identifier to correlate transactions on the same call taking place in different network nodes, shall be present if CAMEL is applied.
MSC Address	C	This field contains the E.164 number assigned to the MSC that generated the network call reference.
Default call handling	O	Indicates whether or not a CAMEL call encountered default call handling. This field shall be present only if default call handling has been applied.
Number of HSCSD Channels Requested	C	The maximum number of HSCSD channels requested as received from the MS at call set-up
Number of HSCSD Channels Allocated	C	The number of HSCSD channels allocated to the MS at call set-up
Change of HSCSD Parameters	C	A list of network or user initiated changes of number of HSCSD channels during a connection each timestamped. Shall only be present in case of an HSCSD call, if the basic HSCSD parameters are modified due the user or network initiated modification procedure.
Fixed Network User Rate	O	May be present for HSCSD connections.
Air Interface User Rate Requested	C	The total Air Interface User Rate Requested by the MS at call setup. Shall only be present for non-transparent HSCSD connections.
Channel Coding Accepted	C	A list of the traffic channels codings accepted by the MS. Shall only be present for HSCSD connections.
Channel Coding Used	C	The traffic channels codings negotiated between the MS and the network at call setup. Shall only be present for HSCSD connections.
Speech Version Used	O	Speech version used for that call

Speech Version Supported	O	Speech version supported by the MS with highest priority indicated by MS
Number of DP encountered	O	Number that counts how often armed detection points (TDP and EDP) were encountered.
Level of CAMEL service	O	Indicator for the complexity of the CAMEL feature used.
Free format Data	C	This field contains data sent by the gsmSCF in the FCI message(s). The data can be sent either in one FCI message or several FCI messages with append indicator.
CAMEL call leg information	C	Set of CAMEL information IEs. Each of these IEs contains information related to one outgoing CAMEL call leg.
Free format data append indicator	C	Indicator if free format data from this CDR is to be appended to free format data in previous partial CDR.
Free format Data	C	This field contains data sent by the gsmSCF in the FCI messages. The data can be sent either in one FCI message or several FCI messages with append indicator.
CAMEL call leg information	C	Set of CAMEL information IEs. Each of these IEs contains information related to one outgoing CAMEL call leg.
Free format data append indicator	C	Indicator if free format data from this CDR is to be appended to free format data in previous partial CDR.
Default call handling 2	O	Indicates whether or not a CAMEL call encountered default call handling for 2nd service such as dialled service. This field shall be present only if default call handling has been applied.
GsmSCF address 2	C	Identifies the CAMEL server serving the subscriber for 2nd service such as dialled service.
Service key 2	C	The CAMEL service logic to be applied for 2nd service such as dialled service.
Free format Data 2	C	This field contains data sent by the gsmSCF in the FCI message(s) for 2nd service such as dialled service. The data can be sent either in one FCI message or several FCI messages with append indicator.
Free format data append indicator 2	C	Indicator if free format data for 2nd service from this CDR is to be appended to free format data in previous partial CDR.
System Type	C	Indicates 3G-UMTS System; Not present for GSM.

B.2.2   Mobile originated emergency call attempt

If the generation of MOC records is enabled then an MOC emergency record shall be created for each outgoing emergency call attempt made by a mobile station. These records shall be produced in the originating MSC.

Table B.2: MOC emergency record

Field		Description
Record Type	M	Mobile originated.
Served IMSI	C	IMSI of the calling party in case of an emergency call with a SIM card.
Served IMEI	C	IMEI of the calling mobile equipment if available.
Served MSISDN	O	The primary MSISDN of the calling party.
Translated Number	O	The called number after digit translation within the MSC (if applicable)
Recording Entity	M	The E.164 number of the visited MSC producing the record.
Incoming TKGP	O	The MSC trunk group on which the call originated, usually from the BSS
Outgoing TKGP	O	The trunk group on which the call left the MSC
Location	M	The identity of the cell in which the call originated including the location area code.
Change of Location	O	A list of changes in Location Area Code / Cell Id. each time-stamped.
Basic service	M	Teleservice 'emergency call'.
AOC Parameters	O	The charge advice parameters sent to the MS on call set-up
Change of AOC Parms	O	New AOC parameters sent to the MS e.g. as a result of a tariff switch over, including the time at which the new set was applied.
MS Classmark	M	The mobile station classmark employed on call set-up.
Change of classmark	O	A list of changes to the classmark during the connection each time-stamped
Event time stamps:	C C O	Seizure of incoming traffic channel (for unsuccessful call attempts) Answer (for successful calls) Release of traffic channel
Call duration	M	The chargeable duration of the connection for successful calls, the holding time for call attempts.
Radio Chan. Requested	O	The type of radio traffic channel (full / half etc.) requested by the MS.
Radio Chan. Used	M	The type of radio channel used (full or half rate).
Change of Rad. Chan.	O	A list of changes each time stamped
Cause for termination	M	The reason for the release of the connection.
Diagnostics	O	A more detailed reason for the release of the connection.
Sequence no.	C	Partial record sequence number, only present in case of partial records.
Call reference	M	A local identifier distinguishing between transactions on the same MS
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
System Type	C	Indicates 3G-UMTS System; Not present for GSM.

B.2.4 Mobile terminated call attempt

If the generation of these records is enabled, then an MTC record shall be created for each incoming call attempt made for a mobile station. The MTC records shall be produced in the terminating MSC.

Table B.4: MTC record

Field		Description
Record Type	M	Mobile Terminated.
Served IMSI	M	IMSI of the called party.
Served IMEI	O	IMEI of the called ME.
Served MSISDN	O	The MSISDN of the called party.
Calling Number	C	The number of the calling party if available.
Connected Number	O	Only relevant in case of call forwarding where the "forwarded-to" number is recorded.
Recording Entity	M	The E.164 number of the visited (terminating) MSC
Incoming TKGP	O	The MSC trunk group on which the call originated.
Outgoing TKGP	O	The trunk group on which the call left the MSC, usually to the BSS
Location	C	The identity of the cell occupied by the called party when the call was set up including the location area code.
Change of Location	O	A list of changes in Location Area Code / Cell Id. each time-stamped.
Basic Service	M	Bearer or teleservice employed
Transparency Indicator	C	Only provided for those teleservices which may be employed in both transparent and non-transparent mode.
Change of Service	O	A list of changes of basic service during a connection each time-stamped.
Supp. services	C	Supplementary services invoked as a result of this connection.
AOC Parameters	O	The charge advice parameters sent to the MS on call set-up
Change of AOC Parms.	O	New AOC parameters sent to the MS e.g. as a result of a tariff switch-over, including the time at which the new set was applied.
MS Classmark	M	The mobile station class mark
Change of Classmark	O	A list of changes to the classmark during the connection each time-stamped
Event time stamps:	C C O	Seizure of traffic channel for unsuccessful call attempts Answer time for successful calls Release of traffic channel
Call duration	M	The chargeable duration of the connection if successful, the holding time of the call if unsuccessful.
Radio Chan. Requested	O	The type of radio traffic channel (full / half etc.) requested by the MS.
Radio Chan. Used	M	The type of radio channel used (full or half rate).
Change of Rad. Chan	O	A list of changes each time stamped
Cause for term.	M	The reason for the release of the call.
Diagnostics	O	A more detailed reason for the release of the connection.
Data volume	C	The number of data segments transmitted, if available at the MSC
Sequence no.	C	Partial record sequence number, only present in case of partial records.
Call reference	M	A local identifier distinguishing between transactions at the same MS
Additional Chg. Info	O	Charge/no charge indicator and additional charging parameters
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
Network call reference	C	An identifier to correlate transactions on the same call taking place in different network nodes, shall be present if CAMEL is applied.
MSC Address	C	This field contains the E.164 number assigned to the MSC that generated the network call reference.
Number of HSCSD Channels Requested	O	The maximum number of HSCSD channels requested as received from the MS at call set-up
Number of HSCSD Channels Allocated	O	The number of HSCSD channels allocated to the MS at call set-up
Change of HSCSD Parameters	O	A list of network or user initiated changes of number of HSCSD channels during a connection each timestamped. Shall only be present in case of an HSCSD call, if the basic HSCSD parameters are modified due the user or network initiated modification procedure.
Fixed Network User Rate	O	May be present for HSCSD connections.
Air Interface User Rate Requested	C	The total Air Interface User Rate Requested by the MS at call setup. Shall only be present for non-transparent HSCSD connections.
Channel Coding Accepted	C	A list of the traffic channels codings accepted by the MS. Shall only be present for HSCSD connections.
Channel Coding Used	C	The traffic channels codings negotiated between the MS and the network at call setup. Shall only be present for HSCSD connections.
Speech Version Used	O	Speech version used for that call
Speech Version Supported	O	Speech version supported by the MS with highest priority indicated by MS

GsmSCF address	C	Identifies the CAMEL server serving the subscriber.
Service Key	C	The CAMEL service logic to be applied.
Default Call handling	O	Indicates whether or not a CAMEL call encountered defeault call handling. This field shall be present only if default call handling has been applied.
Free format Data	C	Indicator if free format data from this CDR is to be appended to free format data in previous partial CDR.
Free format data append indicator	C	Indicator if free format data from this CDR is to be appended to free format data in previous partial CDR.
System Type	C	Indicates 3G-UMTS System; Not present for GSM.

B.2.9   Supplementary service actions

A supplementary service record may be produced in the NEF of the appropriate MSC or HLR for each supplementary service action (activation, deactivation, invocation etc.) performed or initiated by the subscriber.

There are two basic types of SS-actions:

- Call related i.e. as a result of a connection e.g. Invocation of CLIP / CLIR / AOC etc.

- Non-call related i.e. as a result of subscriber controlled input (SCI) e.g. Registration of call forwarding

Each supplementary service action shall be performed on one or more basic service groups. If the action applies to all tele and all bearer services (i.e. to all basic services) then the basic services field shall be omitted.

SCI actions may be recorded in individual SS-action records. Call related actions may be recorded in either the appropriate call record (MOC/MTC) or in separate SS-action records. For further details concerning the generation of supplementary service records see subclause 8.2.1.1.3.

Additional non-standard supplementary service actions may be made available within some networks in the form of Unstructured Supplementary Service Data (USSD). These actions may also be recorded in SS-action records. However, as these actions are non-standard they may not include an appropriate action type, supplementary service code or basic service code.

Table B.9: SS-action record

Field		Description
Record Type	M	Supplementary service action.
Served IMSI	M	The IMSI of the MS performing the action.
Served IMEI	O	The IMEI of the ME performing the action.
Served MSISDN	O	The primary MSISDN of the party performing the action.
MS Classmark	M	The mobile station classmark.
Recording Entity	M	The E.164 number of the visited MSC / HLR.
Location	O	The Location Area Code and Cell Identity from which the request originated.
Supp. Service	C	The supplementary service or group of supplementary services for which the request was made. May not be available in case of USSD.
Basic Services	C	The basic service group(s) to which the supplementary service applies. This field is not provided if the action applies to all basic services.
SS Action	C	Activation, deactivation, interrogation etc. May not be available in case of USSD.
SS Action time stamp	M	The time at which the action was requested.
SS Parameters	C	Service dependent parameters or unstructured suppl. service data.
SS Action Result	C	Result of the requested transaction if unsuccessful.
Call Reference	M	A local identifier distinguishing between transactions at the same MS.
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
System Type	C	Indicates 3G-UMTS System; Not present for GSM.

B.2.13 Short message service, mobile originated

If enabled, an SMS-MO record shall be produced, within the originating MSC, for each short message sent by a mobile subscriber.

Table B.13: SMS-MO record

Field		Description
Record Type	M	SMS-Mobile originated.
Served IMSI	M	The IMSI of the subscriber sending the short message.
Served IMEI	O	The IMEI of the ME sending the message, if available.
Served MSISDN	O	The primary MSISDN of the subscriber sending the message.
MS Classmark	M	The mobile station classmark.
Service Centre	M	The address (E.164) of the SMS-service centre.
Recording Entity	M	The E.164 number of the visited MSC
Location	O	The Location Area Code and Cell Identity from which the message originated.
Event Time stamp	M	The time at which the message was received by the MSC from the subscriber.
Message Reference	M	A reference, provided by the MS uniquely identifying this message.
SMS Result	C	The result of the attempted delivery if unsuccessful.
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
Destination number	O	The destination short message subscriber number.
CAMELSMSInformation	C	Set of CAMEL information IEs. Each of these IEs contains information related to CAMEL call leg related for the SMS.
System Type	C	Indicates 3G-UMTS System; Not present for GSM.

B.2.14 Short message service, mobile terminated

If enabled, an SMS-MT record shall be produced, within the terminating MSC, for each short message received by a mobile subscriber.

Table B.14: SMS-MT record

Field		Description
Record Type	M	SMS-Mobile Terminated.
Service Centre	M	The E.164 address of the SMS service centre.
Served IMSI	M	The IMSI of the receiving party.
Served IMEI	O	The IMEI of the receiving party, if available.
Served MSISDN	O	The MSISDN of the receiving party.
MS Classmark	M	The mobile station classmark.
Recording Entity	M	The E.164 number of the visited MSC.
Location	O	The Location Area Code and Cell Identity to which the message was delivered.
Event time stamp	M	Delivery time stamp, time at which message was sent to the MS by the MSC.
SMS Result	C	The result of the attempted delivery if unsuccessful.
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
System Type	C	Indicates 3G-UMTS System; Not present for GSM.

B.2.18 Reduced partial records

In order to minimise the amount of data transferred, the contents of partial record may be reduced to those fields required to uniquely identify the connection and those fields that actually change. Table B.18 contains an example of such a record for a mobile originated call attempt. Reduced partial records may be generated for any of the relevant call records.

Table B.18: Reduced partial (MOC) record

Field		Description
Record Type	M	Mobile originated.
Served IMSI	C	IMSI of the calling party, if available
Called Number	C	If available.
Recording Entity	M	The E.164 number of the visited MSC producing the record.
Change of Location	C	A list of changes in Location Area Code / Cell Id. each time-stamped.
ChangeOfService	C	A list of changes of basic service during a connection each time-stamped.
Change of AOC Parms	C	New AOC parameters sent to the MS e.g. as a result of a tariff switch over, including the time at which the new set was applied.
Change of Classmark	C	A list of changes to the classmark during the connection each time-stamped
Event time stamps:	M	Answer time, start of this partial record.
Call duration	M	The chargeable duration of this partial record.
Change of Rad. Chan.	C	A list of changes each time stamped
Cause for termination	M	The reason for the release of the connection.
Diagnostics	O	Only relevant for the last record in the sequence.
Data volume	C	The number of data segments transmitted during this partial output
Sequence no.	M	Partial record sequence number, only present in case of partial records.
Call reference	M	A local identifier distinguishing between transactions on the same MS
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
System Type	C	Indicates 3G-UMTS System; Not present for GSM.

B.3   Description of record fields

This subclause contains a brief description of each field of the call and event records described in the previous subclause.

B.3.46a System type

This field is present conditionally, indicating the use of a 3G air-interface for the provision of service recorded by this CDR.

In the case of service provided by a GSM air interface, the field is not present.

CHANGE REQUEST	*Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

32.005 CR **003** Current Version: **V.3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to: **SA#10**	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑	for information		non-strategic		*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   *The latest version of this form is available from:* <u>ftp://ftp.3gpp.org/Information/CR-Form-v2.doc</u>

Proposed change affects:
(at least one should be marked with an X)

(U)SIM ☐   ME ☐   UTRAN / Radio ☐   Core Network **X**

Source:	**SA5#16**		**Date:**	**01/12/2000**

Subject:	Correction of parameter Location Area and Cell

Work item:	OAM-CH

Category:

(only one category shall be marked with an X)

				Release:		
F	Correction	**X**			Phase 2	
A	Corresponds to a correction in an earlier release				Release 96	
B	Addition of feature				Release 97	
C	Functional modification of feature				Release 98	
D	Editorial modification				Release 99	**X**
					Release 00	

Reason for change:	The description for the parameter Location Area and Cell is not consistent with the location information in 2G and 3G domain. Generally the location identifier for 2G is the Cell Id (refer to 24.008) and for 3G the Service Area Code (refer to 25.413).

Clauses affected:	2., 4., 8, A9, B1 and B2

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:	

2 References

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

[27]   3G TS 25.413: "UTRAN Iu Interface RANAP Signalling".

4 Abbreviations

SAC   Service Area Code

8 TMN management functions

8.2.1.1.2 Partial record generation control

This function controls the generation of partial records. Partial records may be generated for any one of the following reasons:

- expiry of the partial record timer;
- change of basic service during a connection;
- change of location (LAC, or Cell Id for 2G or SAC for 3G) during a connection;
- change of MS classmark during a connection;
- change of AoC parameters during a call;
- change of radio channel (full/ half rate) during a call;
- change of HSCSD parameters during call;
- change of destination during a call (CAMEL).

This functions permits both the selection of the above options and the specification of the partial record interval timer for long hold calls. The timer may take any value within the range 0 to 24 hours, where 0 means no partial records will be generated.

The following system management functions are required:

Set/Get   callRecordingFunction

A.9 Abstract syntax

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

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

LocationAreaAndCell      ::= SEQUENCE
{
    locationAreaCode    [0] LocationAreaCode,
    cellIdentifier      [1] CellId
--
-- For 2G the content of the Cell Identifier is defined by the Cell Id
-- refer TS 24.008 and for 3G by the Service Area Code refer TS 25.413.
--

}

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
}
```

B.1   General

B.1.2   Partial records

In order to increase the security of the recording process and to simplify post-processing, it may be desirable to generate a sequence of call records to describe a single connection or transaction.

In case of connections of extended duration, the loss of a single call record may result in an unacceptable loss of revenue. If the connection is, for example, recorded in a number of consecutive partial records generated at say hourly intervals, then the maximum loss of revenue is the equivalent of a one hour continuous connection.

Most modern billing systems employ some form of cumulative credit-limit checking based on the stream of input call records. If however, a call record is only produced at the end of the connection then a subscriber may avoid such credit checking by employing a connection for days, weeks or even months without a single call record being produced.

All of the records defined in the present document are of variable length and some at least are potentially unlimited in size (SET OF, SEQUENCE OF etc.). However, the storage capacity of the internal records within the NEF is normally subject to strict size limitations. Under such conditions a partial record may be required in order to circumvent internal resource limitations. For example, if an internal MOC record can only support the use of four supplementary service invocations then the use of a fifth may result in the generation of a partial record.

Alternatively, for those manufacturers whose systems are based on fixed length records, partial records may be employed instead of the various lists contained within the present document definitions

Finally, in case of radio link failure and subsequent call re-establishment partial records shall be generated to record the duration of the call prior to the radio link failure and the subsequent duration of the call once the call has been re-established. For further details see subclause B.1.5.

To summarise, the following events may result in the generation of a partial record:

-   expiry of the partial record timer;
-   change of basic service during a connection;
-   change of location (LAC, or Cell Id. or SAC) during a connection;
-   change of MS classmark during a connection;
-   change of AoC Parameters during a call;
-   change of Radio Channel Type (full/half rate) during a call;
-   radio link failure and subsequent call re-establishment;
-   change of HSCSD Parameters during a call;
-   change of CAMEL destination (CAMEL controlled/initiated) during a call.

All partial records for the same connection shall contain the same call reference and shall be ordered via a running sequence number. The time stamps involved shall apply to the individual partial records rather than the connection as a whole i.e. the "end" time stamp (duration) of one record shall, in general, coincide with the "start" time stamp (answer time) of the next. Each time a new partial record is created the cause for termination of the previous field shall contain the value "partial record ". The cause for termination of the final partial record shall contain the true cause for termination of the connection.

It should be noted that the records produced in case of call re-establishment are not contiguous and that the value of the cause for term field in the record that is closed on radio link failure contains the value "partial record call re-establishment". For further details of these records see subclause B.2.18.

The partial records generated may repeat each of the non-varying fields contained in the original record. Alternatively, a form of reduced partial record may be generated which includes only those fields required to identify the original record together with the field(s) that actually change. An example of a reduced partial record for MOCs is provided in subclause B.2.18.

B.2   Record contents

B.2.1   Mobile originated call attempt

If the generation of these records is enabled then an MOC record shall be created for each outgoing call attempt made by a mobile station. These MOC records shall be produced in the originating MSC.

Table B.1: MOC record

Field		Description
Record Type	M	Mobile originated.
Served IMSI	M	IMSI of the calling party.
Served IMEI	C	IMEI of the calling ME, if available.
Served MSISDN	O	The primary MSISDN of the calling party.
Called Number	M	The address of the called party e.g. the number dialled by the calling sub.
Translated Number	O	The called number after digit translation within the MSC (if applicable)
Connected Number	O	The number of the connected party if different to the Called Number
Roaming Number	O	The Mobile Station Roaming Number employed to route this connection, if applicable.
Recording Entity	M	The E.164 number of the visited MSC producing the record.
Incoming TKGP	O	The MSC trunk group on which the call originated , usually from the BSS
Outgoing TKGP	O	The trunk group on which the call left the MSC
Location	M	The identity of the cell or the SAC in which the call originated including the location area code.
Change of Location	O	A list of changes in Location Area Code / Cell Identifier. each time-stamped.
Basic service	M	Bearer or teleservice employed.
Transparency Indicator	C	Only provided for those teleservices which may be employed in both transparent and non-transparent mode.
ChangeOfService	O	A list of changes of basic service during a connection each time-stamped.
Supp. Services	C	Supplementary services invoked as a result of this connection.
AOC Parameters	O	The charge advice parameters sent to the MS on call set-up
Change of AOC Parms	O	New AOC parameters sent to the MS e.g. as a result of a tariff switch over, including the time at which the new set was applied.
MS Classmark	M	The mobile station classmark employed on call set-up.
Change of Classmark	O	A list of changes to the classmark during the connection each time-stamped
Event time stamps:	C C O	Seizure of incoming traffic channel (for unsuccessful call attempts) Answer (for successful calls) Release of traffic channel
Call duration	M	The chargeable duration of the connection for successful calls, the holding time for call attempts.
Radio Chan. Requested	O	The type of radio traffic channel (full / half etc.) requested by the MS.
Radio Chan. Used	M	The type of radio channel actually used (full or half rate).
Change of Rad. Chan.	O	A list of changes each time stamped
Cause for termination	M	The reason for the release of the connection.
Diagnostics	O	A more detailed reason for the release of the connection.
Data volume	C	The number of data segments transmitted if available at the MSC
Sequence no.	C	Partial record sequence number, only present in case of partial records.
Call reference	M	A local identifier distinguishing between transactions on the same MS
Additional Chg. Info	O	Charge/no charge indicator and additional charging parameters
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
gsmSCF address	C	Identifies the CAMEL server serving the subscriber.
Service key	C	The CAMEL service logic to be applied.
Network call reference	C	An identifier to correlate transactions on the same call taking place in different network nodes, shall be present if CAMEL is applied.
MSC Address	C	This field contains the E.164 number assigned to the MSC that generated the network call reference.
Default call handling	O	Indicates whether or not a CAMEL call encountered default call handling. This field shall be present only if default call handling has been applied.
Number of HSCSD Channels Requested	C	The maximum number of HSCSD channels requested as received from the MS at call set-up
Number of HSCSD Channels Allocated	C	The number of HSCSD channels allocated to the MS at call set-up
Change of HSCSD Parameters	C	A list of network or user initiated changes of number of HSCSD channels during a connection each timestamped. Shall only be present in case of an HSCSD call, if the basic HSCSD parameters are modified due the user or network initiated modification procedure.
Fixed Network User Rate	O	May be present for HSCSD connections.
Air Interface User Rate Requested	C	The total Air Interface User Rate Requested by the MS at call setup. Shall only be present for non-transparent HSCSD connections.
Channel Coding Accepted	C	A list of the traffic channels codings accepted by the MS. Shall only be present for HSCSD connections.
Channel Coding Used	C	The traffic channels codings negotiated between the MS and the network at call setup. Shall only be present for HSCSD connections.
Speech Version Used	O	Speech version used for that call

Speech Version Supported	O	Speech version supported by the MS with highest priority indicated by MS
Number of DP encountered	O	Number that counts how often armed detection points (TDP and EDP) were encountered.
Level of CAMEL service	O	Indicator for the complexity of the CAMEL feature used.
Free format Data	C	This field contains data sent by the gsmSCF in the FCI message(s). The data can be sent either in one FCI message or several FCI messages with append indicator.
CAMEL call leg information	C	Set of CAMEL information IEs. Each of these IEs contains information related to one outgoing CAMEL call leg.
Free format data append indicator	C	Indicator if free format data from this CDR is to be appended to free format data in previous partial CDR.
Free format Data	C	This field contains data sent by the gsmSCF in the FCI messages. The data can be sent either in one FCI message or several FCI messages with append indicator.
CAMEL call leg information	C	Set of CAMEL information IEs. Each of these IEs contains information related to one outgoing CAMEL call leg.
Free format data append indicator	C	Indicator if free format data from this CDR is to be appended to free format data in previous partial CDR.
Default call handling 2	O	Indicates whether or not a CAMEL call encountered default call handling for 2nd service such as dialled service. This field shall be present only if default call handling has been applied.
GsmSCF address 2	C	Identifies the CAMEL server serving the subscriber for 2nd service such as dialled service.
Service key 2	C	The CAMEL service logic to be applied for 2nd service such as dialled service.
Free format Data 2	C	This field contains data sent by the gsmSCF in the FCI message(s) for 2nd service such as dialled service. The data can be sent either in one FCI message or several FCI messages with append indicator.
Free format data append indicator 2	C	Indicator if free format data for 2nd service from this CDR is to be appended to free format data in previous partial CDR.

B.2.2   Mobile originated emergency call attempt

If the generation of MOC records is enabled then an MOC emergency record shall be created for each outgoing emergency call attempt made by a mobile station. These records shall be produced in the originating MSC.

Table B.2: MOC emergency record

Field		Description
Record Type	M	Mobile originated.
Served IMSI	C	IMSI of the calling party in case of an emergency call with a SIM card.
Served IMEI	C	IMEI of the calling mobile equipment if available.
Served MSISDN	O	The primary MSISDN of the calling party.
Translated Number	O	The called number after digit translation within the MSC (if applicable)
Recording Entity	M	The E.164 number of the visited MSC producing the record.
Incoming TKGP	O	The MSC trunk group on which the call originated, usually from the BSS
Outgoing TKGP	O	The trunk group on which the call left the MSC
Location	M	The identity of the cell or the SAC in which the call originated including the location area code.
Change of Location	O	A list of changes in Location Area Code / Cell Identifier each time-stamped.
Basic service	M	Teleservice 'emergency call'.
AOC Parameters	O	The charge advice parameters sent to the MS on call set-up
Change of AOC Parms	O	New AOC parameters sent to the MS e.g. as a result of a tariff switch over, including the time at which the new set was applied.
MS Classmark	M	The mobile station classmark employed on call set-up.
Change of classmark	O	A list of changes to the classmark during the connection each time-stamped
Event time stamps:	C C O	Seizure of incoming traffic channel (for unsuccessful call attempts) Answer (for successful calls) Release of traffic channel
Call duration	M	The chargeable duration of the connection for successful calls, the holding time for call attempts.
Radio Chan. Requested	O	The type of radio traffic channel (full / half etc.) requested by the MS.
Radio Chan. Used	M	The type of radio channel used (full or half rate).
Change of Rad. Chan.	O	A list of changes each time stamped
Cause for termination	M	The reason for the release of the connection.
Diagnostics	O	A more detailed reason for the release of the connection.
Sequence no.	C	Partial record sequence number, only present in case of partial records.
Call reference	M	A local identifier distinguishing between transactions on the same MS
Record extensions	O	A set of network/ manufacturer specific extensions to the record.

B.2.4 Mobile terminated call attempt

If the generation of these records is enabled, then an MTC record shall be created for each incoming call attempt made for a mobile station. The MTC records shall be produced in the terminating MSC.

Table B.4: MTC record

Field		Description
Record Type	M	Mobile Terminated.
Served IMSI	M	IMSI of the called party.
Served IMEI	O	IMEI of the called ME.
Served MSISDN	O	The MSISDN of the called party.
Calling Number	C	The number of the calling party if available.
Connected Number	O	Only relevant in case of call forwarding where the "forwarded-to" number is recorded.
Recording Entity	M	The E.164 number of the visited (terminating) MSC
Incoming TKGP	O	The MSC trunk group on which the call originated.
Outgoing TKGP	O	The trunk group on which the call left the MSC, usually to the BSS
Location	C	The identity of the cell or the SAC occupied by the called party when the call was set up including the location area code.
Change of Location	O	A list of changes in Location Area Code / Cell Identifier each time-stamped.
Basic Service	M	Bearer or teleservice employed
Transparency Indicator	C	Only provided for those teleservices which may be employed in both transparent and non-transparent mode.
Change of Service	O	A list of changes of basic service during a connection each time-stamped.
Supp. services	C	Supplementary services invoked as a result of this connection.
AOC Parameters	O	The charge advice parameters sent to the MS on call set-up
Change of AOC Parms.	O	New AOC parameters sent to the MS e.g. as a result of a tariff switch-over, including the time at which the new set was applied.
MS Classmark	M	The mobile station class mark
Change of Classmark	O	A list of changes to the classmark during the connection each time-stamped
Event time stamps:	C C O	Seizure of traffic channel for unsuccessful call attempts Answer time for successful calls Release of traffic channel
Call duration	M	The chargeable duration of the connection if successful, the holding time of the call if unsuccessful.
Radio Chan. Requested	O	The type of radio traffic channel (full / half etc.) requested by the MS.
Radio Chan. Used	M	The type of radio channel used (full or half rate).
Change of Rad. Chan	O	A list of changes each time stamped
Cause for term.	M	The reason for the release of the call.
Diagnostics	O	A more detailed reason for the release of the connection.
Data volume	C	The number of data segments transmitted, if available at the MSC
Sequence no.	C	Partial record sequence number, only present in case of partial records.
Call reference	M	A local identifier distinguishing between transactions at the same MS
Additional Chg. Info	O	Charge/no charge indicator and additional charging parameters
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
Network call reference	C	An identifier to correlate transactions on the same call taking place in different network nodes, shall be present if CAMEL is applied.
MSC Address	C	This field contains the E.164 number assigned to the MSC that generated the network call reference.
Number of HSCSD Channels Requested	O	The maximum number of HSCSD channels requested as received from the MS at call set-up
Number of HSCSD Channels Allocated	O	The number of HSCSD channels allocated to the MS at call set-up
Change of HSCSD Parameters	O	A list of network or user initiated changes of number of HSCSD channels during a connection each timestamped. Shall only be present in case of an HSCSD call, if the basic HSCSD parameters are modified due the user or network initiated modification procedure.
Fixed Network User Rate	O	May be present for HSCSD connections.
Air Interface User Rate Requested	C	The total Air Interface User Rate Requested by the MS at call setup. Shall only be present for non-transparent HSCSD connections.
Channel Coding Accepted	C	A list of the traffic channels codings accepted by the MS. Shall only be present for HSCSD connections.
Channel Coding Used	C	The traffic channels codings negotiated between the MS and the network at call setup. Shall only be present for HSCSD connections.
Speech Version Used	O	Speech version used for that call
Speech Version Supported	O	Speech version supported by the MS with highest priority indicated by MS

GsmSCF address	C	Identifies the CAMEL server serving the subscriber.
Service Key	C	The CAMEL service logic to be applied.
Default Call handling	O	Indicates whether or not a CAMEL call encountered defeault call handling. This field shall be present only if default call handling has been applied.
Free format Data	C	Indicator if free format data from this CDR is to be appended to free format data in previous partial CDR.
Free format data append indicator	C	Indicator if free format data from this CDR is to be appended to free format data in previous partial CDR.

B.2.9   Supplementary service actions

A supplementary service record may be produced in the NEF of the appropriate MSC or HLR for each supplementary service action (activation, deactivation, invocation etc.) performed or initiated by the subscriber.

There are two basic types of SS-actions:

- Call related i.e. as a result of a connection e.g. Invocation of CLIP / CLIR / AOC etc.

- Non-call related i.e. as a result of subscriber controlled input (SCI) e.g. Registration of call forwarding

Each supplementary service action shall be performed on one or more basic service groups. If the action applies to all tele and all bearer services (i.e. to all basic services) then the basic services field shall be omitted.

SCI actions may be recorded in individual SS-action records. Call related actions may be recorded in either the appropriate call record (MOC/MTC) or in separate SS-action records. For further details concerning the generation of supplementary service records see subclause 8.2.1.1.3.

Additional non-standard supplementary service actions may be made available within some networks in the form of Unstructured Supplementary Service Data (USSD). These actions may also be recorded in SS-action records. However, as these actions are non-standard they may not include an appropriate action type, supplementary service code or basic service code.

Table B.9: SS-action record

Field		Description
Record Type	M	Supplementary service action.
Served IMSI	M	The IMSI of the MS performing the action.
Served IMEI	O	The IMEI of the ME performing the action.
Served MSISDN	O	The primary MSISDN of the party performing the action.
MS Classmark	M	The mobile station classmark.
Recording Entity	M	The E.164 number of the visited MSC / HLR.
Location	O	The Location Area Code and Cell Identifierty from which the request originated.
Supp. Service	C	The supplementary service or group of supplementary services for which the request was made. May not be available in case of USSD.
Basic Services	C	The basic service group(s) to which the supplementary service applies. This field is not provided if the action applies to all basic services.
SS Action	C	Activation, deactivation, interrogation etc. May not be available in case of USSD.
SS Action time stamp	M	The time at which the action was requested.
SS Parameters	C	Service dependent parameters or unstructured suppl. service data.
SS Action Result	C	Result of the requested transaction if unsuccessful.
Call Reference	M	A local identifier distinguishing between transactions at the same MS.
Record extensions	O	A set of network/ manufacturer specific extensions to the record.

B.2.11 Location update (VLR)

If enabled, a VLR location update record shall be produced in the (new) VLR for each location registration or location update received by the VLR for a mobile subscriber.

Table B.11: Loc.-upd. (VLR) record

Field		Description
Record Type	M	Location update.
Served IMSI	M	IMSI of the served MS.
Served MSISDN	O	The primary MSISDN of the party performing the location update
Recording Entity	M	The E.164 number of the entity (VLR or MSC/VLR) generating the record.
Old location	C C	Not present for registration: VMSC Number Location Area Code
New location	M M O	VMSC Number Location Area Code Cell Identification or SAC
MS Classmark	M	The mobile station classmark
Update time stamp	M	Time at which the update was invoked.
Update Result	C	The result of the location update if unsuccessful.
Record extensions	O	A set of network/ manufacturer specific extensions to the record.

B.2.13 Short message service, mobile originated

If enabled, an SMS-MO record shall be produced, within the originating MSC, for each short message sent by a mobile subscriber.

Table B.13: SMS-MO record

Field		Description
Record Type	M	SMS-Mobile originated.
Served IMSI	M	The IMSI of the subscriber sending the short message.
Served IMEI	O	The IMEI of the ME sending the message, if available.
Served MSISDN	O	The primary MSISDN of the subscriber sending the message.
MS Classmark	M	The mobile station classmark.
Service Centre	M	The address (E.164) of the SMS-service centre.
Recording Entity	M	The E.164 number of the visited MSC
Location	O	The Location Area Code and Cell Identifierty from which the message originated.
Event Time stamp	M	The time at which the message was received by the MSC from the subscriber.
Message Reference	M	A reference, provided by the MS uniquely identifying this message.
SMS Result	C	The result of the attempted delivery if unsuccessful.
Record extensions	O	A set of network/ manufacturer specific extensions to the record.
Destination number	O	The destination short message subscriber number.
CAMELSMSInformation	C	Set of CAMEL information IEs. Each of these IEs contains information related to CAMEL call leg related for the SMS.

B.2.14 Short message service, mobile terminated

If enabled, an SMS-MT record shall be produced, within the terminating MSC, for each short message received by a mobile subscriber.

Table B.14: SMS-MT record

Field		Description
Record Type	M	SMS-Mobile Terminated.
Service Centre	M	The E.164 address of the SMS service centre.
Served IMSI	M	The IMSI of the receiving party.
Served IMEI	O	The IMEI of the receiving party, if available.
Served MSISDN	O	The MSISDN of the receiving party.
MS Classmark	M	The mobile station classmark.
Recording Entity	M	The E.164 number of the visited MSC.
Location	O	The Location Area Code and Cell Identifierty to which the message was delivered.
Event time stamp	M	Delivery time stamp, time at which message was sent to the MS by the MSC.
SMS Result	C	The result of the attempted delivery if unsuccessful.
Record extensions	O	A set of network/ manufacturer specific extensions to the record.

B.2.18 Reduced partial records

In order to minimise the amount of data transferred, the contents of partial record may be reduced to those fields required to uniquely identify the connection and those fields that actually change. Table B.18 contains an example of such a record for a mobile originated call attempt. Reduced partial records may be generated for any of the relevant call records.

Table B.18: Reduced partial (MOC) record

Field		Description
Record Type	M	Mobile originated.
Served IMSI	C	IMSI of the calling party, if available
Called Number	C	If available.
Recording Entity	M	The E.164 number of the visited MSC producing the record.
Change of Location	C	A list of changes in Location Area Code / Cell Identifier. each time-stamped.
ChangeOfService	C	A list of changes of basic service during a connection each time-stamped.
Change of AOC Parms	C	New AOC parameters sent to the MS e.g. as a result of a tariff switch over, including the time at which the new set was applied.
Change of Classmark	C	A list of changes to the classmark during the connection each time-stamped
Event time stamps:	M	Answer time, start of this partial record.
Call duration	M	The chargeable duration of this partial record.
Change of Rad. Chan.	C	A list of changes each time stamped
Cause for termination	M	The reason for the release of the connection.
Diagnostics	O	Only relevant for the last record in the sequence.
Data volume	C	The number of data segments transmitted during this partial output
Sequence no.	M	Partial record sequence number, only present in case of partial records.
Call reference	M	A local identifier distinguishing between transactions on the same MS
Record extensions	O	A set of network/ manufacturer specific extensions to the record.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

32.005	CR	**004**	Current Version:	**V.3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑   *↑ CR number as allocated by MCC support team*

For submission to:	**SA#10**	for approval	**X**	strategic		*(for SMG*
list expected approval meeting # here ↑		for information		non-strategic		*use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects:
(at least one should be marked with an X)

(U)SIM ☐   ME ☐   UTRAN / Radio ☐   Core Network **X**

Source:	**SA5#15**		**Date:**	**20/10/2000**

Subject:	Correction of parameter CallEventRecord

Work item:	OAM-CH

Category:	F	Correction		**X**	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release				Release 96	
(only one category	B	Addition of feature				Release 97	
shall be marked	C	Functional modification of feature				Release 98	
with an X)	D	Editorial modification				Release 99	**X**
						Release 00	

Reason for change:	The ASN.1 decoder is not able to distinguish between CS and PS records with the same global tag of CallEventRecord.
	For a common handling of both record types in the same proceeding the sub-element record choice of CallEventRecord should be unique.

Clauses affected:	A.9

Other specs affected:	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:	

A.9   Abstract syntax

```
CallEventRecord ::= CHOICE
{
    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,
    termCAMELIntRecord    [16] TermCAMELIntRecord
--
-- Record values 20..24 are 3G packed switch specific
--
    sgsnPDPRecord         [20] SGSNPDPRecord,
    ggsnPDPRecord         [21] GGSNPDPRecord,
    sgsnMMRecord          [22] SGSNMMRecord,
    sgsnSMORecord         [23] SGSNSMORecord,
    sgsnSMTRecord         [24] SGSNSMTRecord
}
```