**3GPP TSG-SA5 Meeting #129-e *S5-201243***

**Online, , 24th Feb 2020 - 4th Mar 2020**

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **32.298** | **CR** | **0797** | **rev** | **-** | **Current version:** | **16.3.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

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

|  |
| --- |
|  |
| ***Title:***  | Heading corrections |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | TEI16, 5GS\_Ph1-SBI\_CH |  | ***Date:*** | 2020-02-14 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | The use of heading tags as well as the sorting of attributes are faulty in many places. |
|  |  |
| ***Summary of change:*** | Correction and addition of headers. |
|  |  |
| ***Consequences if not approved:*** | Updates as well as finding fault in the specification will be complicated and error prone. |
|  |  |
| ***Clauses affected:*** | 5.1.4.4.2, 5.1.4.7.23A, 5.2.2.4, 5.2.2.5, 5.2.3.1, 5.2.4.7, 5.2.4.8 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

|  |
| --- |
| **First change** |

##### 5.1.4.4.2 MBMS 2G 3G Indicator

The MBMS 2G 3G Indicator is used to indicate the radio access type that can receive the MBMS bearer service.

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| --- |
| **Second change** |

##### 5.1.4.7.23A ProSe UE-to-Network Relay UE ID

The fiels holds a link layer identifier that uniquely represents the ProSe UE-to-Network relay UE in the context of ProSe Direct Communication via UE-to-Network.

|  |
| --- |
| **Third change** |

#### 5.2.2.4 CP data transfer domain CDRs

This subclause contains the abstract syntax definitions that are specific to the CP data transfer CDR types defined in TS 32.253 [13].

.$CPDTChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) cpdtChargingDataTypes (13) asn1Module (0) version2 (1)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

CallDuration,

ChargingID,

DiameterIdentity,

Diagnostics,

LocalSequenceNumber,

ManagementExtensions,

MSISDN,

NodeID,

PLMN-Id,

RATType,

RecordType,

ServiceContextID,

SubscriptionID,

TimeStamp

FROM GenericChargingDataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) charging (5) genericChargingDataTypes (0) asn1Module (0) version2 (1)}

IMEI,

IMSI

FROM MAP-CommonDataTypes {itu-t identified-organization (4) etsi (0) mobileDomain (0)gsm-Network (1) modules (3) map-CommonDataTypes (18) version18 (18)}

-- from TS 29.002 [214]

AccessPointNameNI,

APNRateControl,

ChargingCharacteristics,

ChChSelectionMode,

DataVolumeGPRS,

ServingPLMNRateControl

FROM GPRSChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) gprsChargingDataTypes (2) asn1Module (0) version2 (1)}

;

--

-- CP data transfer RECORDS

--

CPDTRecord ::= CHOICE

--

-- Record values 105 to 106 are CP data transfer specific

--

{

 cPDTSCERecord [105] CPDTSCERecord,

 cPDTSNNRecord [106] CPDTSNNRecord

}

CPDTSCERecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 servedIMSI [2] IMSI OPTIONAL,

 servedMSISDN [3] MSISDN OPTIONAL,

 chargingID [4] ChargingID,

 serviceContextID [5] ServiceContextID OPTIONAL,

 nodeID [6] NodeID OPTIONAL,

 recordOpeningTime [7] TimeStamp,

 duration [8] CallDuration,

 accessPointNameNI [9] AccessPointNameNI OPTIONAL,

 sCEFID [10] DiameterIdentity OPTIONAL,

 chargingCharacteristics [11] ChargingCharacteristics,

 chChSelectionMode [12] ChChSelectionMode OPTIONAL,

 servingNodeIdentity [13] DiameterIdentity OPTIONAL,

 servingPLMNRateControl [14] ServingPLMNRateControl OPTIONAL,

 listOfNIDDsubmission [15] SEQUENCE OF NIDDsubmission OPTIONAL,

 causeForRecClosing [16] CPCauseForRecClosing,

 diagnostics [17] Diagnostics OPTIONAL,

 localSequenceNumber [18] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [19] INTEGER OPTIONAL,

 recordExtensions [20] ManagementExtensions OPTIONAL,

 externalIdentifier [21] SubscriptionID OPTIONAL,

 aPNRateControl [22] APNRateControl OPTIONAL,

 rATType [23] RATType OPTIONAL,

 servingNodePLMNIdentifier [24] PLMN-Id OPTIONAL,

 servedIMEI [25] IMEI OPTIONAL

}

CPDTSNNRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 servedIMSI [2] IMSI OPTIONAL,

 servedMSISDN [3] MSISDN OPTIONAL,

 chargingID [4] ChargingID,

 serviceContextID [5] ServiceContextID OPTIONAL,

 nodeID [6] NodeID OPTIONAL,

 recordOpeningTime [7] TimeStamp,

 duration [8] CallDuration,

 accessPointNameNI [9] AccessPointNameNI OPTIONAL,

 sCEFID [10] DiameterIdentity OPTIONAL,

 chargingCharacteristics [11] ChargingCharacteristics,

 chChSelectionMode [12] ChChSelectionMode OPTIONAL,

 servingNodeIdentity [13] DiameterIdentity OPTIONAL,

 servingPLMNRateControl [14] ServingPLMNRateControl OPTIONAL,

 listOfNIDDsubmission [15] SEQUENCE OF NIDDsubmission OPTIONAL,

 causeForRecClosing [16] CPCauseForRecClosing,

 diagnostics [17] Diagnostics OPTIONAL,

 localSequenceNumber [18] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [19] INTEGER OPTIONAL,

 recordExtensions [20] ManagementExtensions OPTIONAL,

 externalIdentifier [21] SubscriptionID OPTIONAL,

 aPNRateControl [22] APNRateControl OPTIONAL,

 rATType [23] RATType OPTIONAL,

 servingNodePLMNIdentifier [24] PLMN-Id OPTIONAL,

 servedIMEI [25] IMEI OPTIONAL

}

--

-- CP data transfer DATA TYPES

--

--

-- C

--

CPCauseForRecClosing ::= INTEGER

{

 normalRelease (0),

 abnormalRelease (1),

 volumeLimit (2),

 timeLimit (3),

 maxNIDDsubmissions (4),

 servingNodeChange (5),

 pLMNChange (6),

 servingPLMNRateControlChange (7),

 aPNRateControlChange (8),

 rATTypeChange (9),

 managementIntervention (10)

}

--

-- N

--

NIDDsubmission ::= SEQUENCE

{

 submissionTimestamp [0] TimeStamp OPTIONAL,

 eventTimestamp [1] TimeStamp OPTIONAL,

 dataVolumeGPRSUplink [2] DataVolumeGPRS OPTIONAL,

 dataVolumeGPRSDownlink [3] DataVolumeGPRS OPTIONAL,

 submissionResultCode [4] SubmissionResultCode OPTIONAL,

 serviceChangeCondition [5] ServiceChangeCondition OPTIONAL

}

--

-- S

--

ServiceChangeCondition ::= BIT STRING

{

 nIDDsubmissionResponseReceipt (0),

 nIDDsubmissionResponseSending (1),

 nIDDdeliveryToUE (2),

 nIDDdeliveryFromUEerror (3),

 nIDDsubmissionTimeout (4)

}

SubmissionResultCode ::= INTEGER

--

-- Result-Code AVP and Experimental-Result AVP Values as specified in TS 29.128 [244]

-- for MO/MT data transfer

--

.#END

|  |
| --- |
| **Fourth change** |

#### 5.2.2.5 Exposure Function API CDRs

This subclause contains the abstract syntax definitions that are specific to the Exposure Function API CDR types defined in TS 32.254 [14].

.$ExposureFunctionAPIChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) exposureFunctionAPIChargingDataTypes (14) asn1Module (0) version2 (1)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

DiameterIdentity,

IPAddress,

LocalSequenceNumber,

ManagementExtensions,

MSTimeZone,

NodeID,

RecordType,

SCSASAddress,

ServiceContextID,

SubscriptionID,

TimeStamp

FROM GenericChargingDataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) charging (5) genericChargingDataTypes (0) asn1Module (0) version2 (1)}

;

--

-- ExposureFunctionAPI RECORDS

--

ExposureFunctionAPIRecordType ::= CHOICE

--

-- Record values 120 are ExposureFunctionAPI specific

--

{

 eASCERecord [120] EASCERecord

}

EASCERecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 serviceContextID [2] ServiceContextID OPTIONAL,

 nodeId [3] NodeID OPTIONAL,

 sCEFID [4] DiameterIdentity OPTIONAL,

 sCEFAddress [5] IPAddress OPTIONAL,

 aPIIdentifier [6] OCTET STRING OPTIONAL,

 tLTRI [7] INTEGER OPTIONAL,

 sCSASAddress [9] SCSASAddress OPTIONAL,

 eventTimestamp [10] TimeStamp OPTIONAL,

 aPIInvocationTimestamp [11] TimeStamp OPTIONAL,

 aPIDirection [12] APIDirection OPTIONAL,

 aPINetworkServiceNode [13] APINetworkServiceNode OPTIONAL,

 aPIContent [14] UTF8String OPTIONAL,

 aPISize [15] INTEGER OPTIONAL,

 aPIresultCode [16] INTEGER OPTIONAL,

 externalIdentifier [17] SubscriptionID OPTIONAL,

 localRecordSequenceNumber [18] LocalSequenceNumber OPTIONAL,

 recordExtensions [19] ManagementExtensions OPTIONAL,

 startTime [20] TimeStamp OPTIONAL,

 stopTime [21] TimeStamp OPTIONAL

}

--

-- ExposureFunctionAPI DATA TYPES

--

--

-- A

--

APIDirection ::= ENUMERATED

--

-- Used for distinguish the API invocation or API notification

--

{

 invocation (0),

 notification (1)

}

APINetworkServiceNode ::= ENUMERATED

{

 mME (0),

 sGSN (1),

 hSS (2),

 pCRF (3),

 pFDF (4),

 bMSC (5),

 cCSCF (6),

 rCAF (7)

}

.#END

|  |
| --- |
| **Fifth change** |

#### 5.2.3.1 IMS CDRs

This subclause contains the abstract syntax definitions that are specific to the CDR types defined in TS 32.260 [20].

.$IMSChargingDataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) charging (5) imsChargingDataTypes (4) asn1Module (0) version2 (1)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

InvolvedParty,

IPAddress,

LocalSequenceNumber,

ManagementExtensions,

NodeAddress,

MSCAddress,

MSTimeZone,

RecordType,

ServiceContextID,

ServiceSpecificInfo,

Session-Id,

SubscriberEquipmentNumber,

SubscriptionID,

ThreeGPPPSDataOffStatus,

TimeStamp

FROM GenericChargingDataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) charging (5) genericChargingDataTypes (0) asn1Module (0) version2 (1)}

;

--

-- IMS RECORDS

--

IMSRecord ::= CHOICE

--

-- Record values 63-69, 82, 89, ,90, 91 are IMS specific

--

{

 sCSCFRecord [63] SCSCFRecord,

 pCSCFRecord [64] PCSCFRecord,

 iCSCFRecord [65] ICSCFRecord,

 mRFCRecord [66] MRFCRecord,

 mGCFRecord [67] MGCFRecord,

 bGCFRecord [68] BGCFRecord,

 aSRecord [69] ASRecord,

 eCSCFRecord [70] ECSCFRecord,

 iBCFRecord [82] IBCFRecord,

 tRFRecord [89] TRFRecord,

 tFRecord [90] TFRecord,

 aTCFRecord [91] ATCFRecord

}

SCSCFRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 privateUserID [8] GraphicString OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifierList OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 gGSNaddress [22] NodeAddress OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 list-Of-Message-Bodies [24] SEQUENCE OF MessageBody OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 list-Of-Associated-URI [27] ListOfInvolvedParties OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-of-subscription-ID [31] SEQUENCE OF SubscriptionID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 iMSCommunicationServiceIdentifier [33] IMSCommunicationServiceIdentifier OPTIONAL,

 numberPortabilityRouting [34] NumberPortabilityRouting OPTIONAL,

 carrierSelectRouting [35] CarrierSelectRouting OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 applicationServersInformation [40] SEQUENCE OF ApplicationServersInformation OPTIONAL,

 requested-Party-Address [41] InvolvedParty OPTIONAL,

 list-Of-Called-Asserted-Identity [42] ListOfInvolvedParties OPTIONAL,

 online-charging-flag [43] NULL OPTIONAL,

 realTimeTariffInformation [44] SEQUENCE OF RealTimeTariffInformation OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 nNI-Information [46] NNI-Information OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 iMSEmergencyIndicator [52] NULL OPTIONAL,

 transit-IOI-Lists [53] TransitIOILists OPTIONAL,

 iMSVisitedNetworkIdentifier [54] OCTET STRING OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,

 instanceId [57] OCTET STRING OPTIONAL,

 subscriberEquipmentNumber [58] SubscriberEquipmentNumber OPTIONAL,

 routeHeaderReceived [59] OCTET STRING OPTIONAL,

 routeHeaderTransmitted [60] OCTET STRING OPTIONAL,

 list-Of-AccessNetworkInfoChange [62] SEQUENCE OF AccessNetworkInfoChange OPTIONAL,

 listOfCalledIdentityChanges [63] SEQUENCE OF CalledIdentityChange OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 fEIdentifierList [65] FEIdentifierList OPTIONAL

}

PCSCFRecord ::= SET

--

-- This record is also applicable for P-CSCF with collocated ATCF

-- ATCF-specific fields which are not applicable to P-CSCF are indicated.

--

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 privateUserID [8] GraphicString OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifiers OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 gGSNaddress [22] NodeAddress OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 list-Of-Message-Bodies [24] SEQUENCE OF MessageBody OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 list-Of-Associated-URI [27] ListOfInvolvedParties OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-of-subscription-ID [31] SEQUENCE OF SubscriptionID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 iMSCommunicationServiceIdentifier [33] IMSCommunicationServiceIdentifier OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 list-of-Requested-Party-Address [41] ListOfInvolvedParties OPTIONAL, -- ATCF only

 list-Of-Called-Asserted-Identity [42] ListOfInvolvedParties OPTIONAL,

 nNI-Information [46] NNI-Information OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 servedPartyIPAddress [50] ServedPartyIPAddress OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 iMSEmergencyIndicator [52] NULL OPTIONAL,

 transit-IOI-Lists [53] TransitIOILists OPTIONAL,

 iMSVisitedNetworkIdentifier [54] OCTET STRING OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,

 instanceId [57] OCTET STRING OPTIONAL,

 subscriberEquipmentNumber [58] SubscriberEquipmentNumber OPTIONAL,

 routeHeaderReceived [59] OCTET STRING OPTIONAL,

 routeHeaderTransmitted [60] OCTET STRING OPTIONAL,
 list-Of-AccessNetworkInfoChange [62] SEQUENCE OF AccessNetworkInfoChange OPTIONAL,

 listOfCalledIdentityChanges [63] SEQUENCE OF CalledIdentityChange OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 initialIMS-Charging-Identifier [105] IMS-Charging-Identifier OPTIONAL, -- ATCF only

 list-Of-AccessTransferInformation [106] SEQUENCE OF AccessTransferInformation OPTIONAL,

 -- ATCF only

 relatedICID [107] IMS-Charging-Identifier OPTIONAL,

 relatedICIDGenerationNode [108] NodeAddress OPTIONAL,

 fEIdentifierList [109] FEIdentifierList OPTIONAL

}

ICSCFRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifiers OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 list-Of-Associated-URI [27] ListOfInvolvedParties OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 numberPortabilityRouting [34] NumberPortabilityRouting OPTIONAL,

 carrierSelectRouting [35] CarrierSelectRouting OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 transit-IOI-List [45] GraphicString OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 iMSEmergencyIndicator [52] NULL OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,

 routeHeaderTransmitted [60] OCTET STRING OPTIONAL,

 s-CSCF-Information [61] S-CSCF-Information OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 fEIdentifierList [65] FEIdentifierList OPTIONAL

}

MRFCRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifiers OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 gGSNaddress [22] NodeAddress OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-of-subscription-ID [31] SEQUENCE OF SubscriptionID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 applicationServersInformation [40] SEQUENCE OF ApplicationServersInformation OPTIONAL,

 online-charging-flag [43] NULL OPTIONAL,

 transit-IOI-List [45] GraphicString OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,
 list-Of-AccessNetworkInfoChange [62] SEQUENCE OF AccessNetworkInfoChange OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 service-Id [70] Service-Id OPTIONAL,

 requested-Party-Address [71] InvolvedParty OPTIONAL,

 list-Of-Called-Asserted-Identity [72] ListOfInvolvedParties OPTIONAL,

 fEIdentifierList [73] FEIdentifierList OPTIONAL

}

MGCFRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifiers OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 numberPortabilityRouting [34] NumberPortabilityRouting OPTIONAL,

 carrierSelectRouting [35] CarrierSelectRouting OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 realTimeTariffInformation [44] SEQUENCE OF RealTimeTariffInformation OPTIONAL,

 transit-IOI-List [45] GraphicString OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,
 list-Of-AccessNetworkInfoChange [62] SEQUENCE OF AccessNetworkInfoChange OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 trunkGroupID [80] TrunkGroupID OPTIONAL,

 bearerService [81] TransmissionMedium OPTIONAL,

 iSUPCause [82] ISUPCause OPTIONAL,

 fEIdentifierList [83] FEIdentifierList OPTIONAL

}

BGCFRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifiers OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 numberPortabilityRouting [34] NumberPortabilityRouting OPTIONAL,

 carrierSelectRouting [35] CarrierSelectRouting OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 transit-IOI-List [45] GraphicString OPTIONAL,

 nNI-Information [46] NNI-Information OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 fEIdentifierList [65] FEIdentifierList OPTIONAL

}

ASRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 privateUserID [8] GraphicString OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifiers OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 gGSNaddress [22] NodeAddress OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 list-Of-Message-Bodies [24] SEQUENCE OF MessageBody OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-of-subscription-ID [31] SEQUENCE OF SubscriptionID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 iMSCommunicationServiceIdentifier [33] IMSCommunicationServiceIdentifier OPTIONAL,

 numberPortabilityRouting [34] NumberPortabilityRouting OPTIONAL,

 carrierSelectRouting [35] CarrierSelectRouting OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 list-of-Requested-Party-Address [41] ListOfInvolvedParties OPTIONAL,

 online-charging-flag [43] NULL OPTIONAL,

 realTimeTariffInformation [44] SEQUENCE OF RealTimeTariffInformation OPTIONAL,

 nNI-Information [46] NNI-Information OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 transit-IOI-Lists [53] TransitIOILists OPTIONAL,

 iMSVisitedNetworkIdentifier [54] OCTET STRING OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,

 instanceId [57] OCTET STRING OPTIONAL,

 subscriberEquipmentNumber [58] SubscriberEquipmentNumber OPTIONAL,

 list-Of-AccessNetworkInfoChange [62] SEQUENCE OF AccessNetworkInfoChange OPTIONAL,

 listOfCalledIdentityChanges [63] SEQUENCE OF CalledIdentityChange OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 serviceSpecificInfo [100] SEQUENCE OF ServiceSpecificInfo OPTIONAL,

 requested-Party-Address [101] InvolvedParty OPTIONAL,

 list-Of-Called-Asserted-Identity [102] ListOfInvolvedParties OPTIONAL,

 alternateChargedPartyAddress [103] UTF8String OPTIONAL,

 outgoingSessionId [104] Session-Id OPTIONAL,

 initialIMS-Charging-Identifier [105] IMS-Charging-Identifier OPTIONAL,

 list-Of-AccessTransferInformation [106] SEQUENCE OF AccessTransferInformation OPTIONAL,

 tADS-Identifier [109] TADIdentifier OPTIONAL,

 vlr-Number [110] MSCAddress OPTIONAL,

 msc-Address [111] MSCAddress OPTIONAL,

 threeGPPPSDataOffStatus [112] ThreeGPPPSDataOffStatus OPTIONAL,

 fEIdentifierList [113] FEIdentifierList OPTIONAL

}

ECSCFRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifierList OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 gGSNaddress [22] NodeAddress OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 list-Of-Message-Bodies [24] SEQUENCE OF MessageBody OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-of-subscription-ID [31] SEQUENCE OF SubscriptionID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 iMSCommunicationServiceIdentifier [33] IMSCommunicationServiceIdentifier OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 applicationServersInformation [40] SEQUENCE OF ApplicationServersInformation OPTIONAL,

 requested-Party-Address [41] InvolvedParty OPTIONAL,

 list-Of-Called-Asserted-Identity [42] ListOfInvolvedParties OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 transit-IOI-Lists [53] TransitIOILists OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,

 list-Of-AccessNetworkInfoChange [62] SEQUENCE OF AccessNetworkInfoChange OPTIONAL,

 listOfCalledIdentityChanges [63] SEQUENCE OF CalledIdentityChange OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 fEIdentifierList [65] FEIdentifierList OPTIONAL

}

IBCFRecord ::= SET

--

-- This record is also applicable for IBCF with collocated ATCF

-- ATCF-specific fields which are not applicable to IBCF are indicated.

--

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 privateUserID [8] GraphicString OPTIONAL, -- ATCF only

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifiers OPTIONAL,

 localRecordSequenceNumber [ 15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 gGSNaddress [22] NodeAddress OPTIONAL, -- ATCF only

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 list-Of-Message-Bodies [24] SEQUENCE OF MessageBody OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-of-subscription-ID [31] SEQUENCE OF SubscriptionID OPTIONAL, -- ATCF only

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 iMSCommunicationServiceIdentifier [33] IMSCommunicationServiceIdentifier OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 list-of-Requested-Party-Address [41] ListOfInvolvedParties OPTIONAL, -- ATCF only

 list-Of-Called-Asserted-Identity [42] ListOfInvolvedParties OPTIONAL, -- ATCF only realTimeTariffInformation [44] SEQUENCE OF RealTimeTariffInformation OPTIONAL,

 transit-IOI-List [45] GraphicString OPTIONAL,

 nNI-Information [46] SEQUENCE OF NNI-Information OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,

 routeHeaderReceived [59] OCTET STRING OPTIONAL,
 list-Of-AccessNetworkInfoChange [62] SEQUENCE OF AccessNetworkInfoChange OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 initialIMS-Charging-Identifier [105] IMS-Charging-Identifier OPTIONAL, -- ATCF only

 list-Of-AccessTransferInformation [106] SEQUENCE OF AccessTransferInformation OPTIONAL,

 -- ATCF only

 fEIdentifierList [107] FEIdentifierList OPTIONAL

}

TRFRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifierList OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 list-Of-Message-Bodies [24] SEQUENCE OF MessageBody OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-of-subscription-ID [31] SEQUENCE OF SubscriptionID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 iMSCommunicationServiceIdentifier [33] IMSCommunicationServiceIdentifier OPTIONAL,

 numberPortabilityRouting [34] NumberPortabilityRouting OPTIONAL,

 carrierSelectRouting [35] CarrierSelectRouting OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 applicationServersInformation [40] SEQUENCE OF ApplicationServersInformation OPTIONAL,

 requested-Party-Address [41] InvolvedParty OPTIONAL,

 list-Of-Called-Asserted-Identity [42] ListOfInvolvedParties OPTIONAL,

 nNI-Information [46] SEQUENCE OF NNI-Information OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 transit-IOI-Lists [53] TransitIOILists OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 routeHeaderReceived [59] OCTET STRING OPTIONAL,

 listOfCalledIdentityChanges [63] SEQUENCE OF CalledIdentityChange OPTIONAL,

 fEIdentifierList [64] FEIdentifierList OPTIONAL

}

ATCFRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 privateUserID [8] GraphicString OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifiers OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 gGSNaddress [22] NodeAddress OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 list-Of-Message-Bodies [24] SEQUENCE OF MessageBody OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 accessNetworkInformation [29] OCTET STRING OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-of-subscription-ID [31] SEQUENCE OF SubscriptionID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 iMSCommunicationServiceIdentifier [33] IMSCommunicationServiceIdentifier OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 list-of-Requested-Party-Address [41] ListOfInvolvedParties OPTIONAL,

 list-Of-Called-Asserted-Identity [42] ListOfInvolvedParties OPTIONAL,

 nNI-Information [46] NNI-Information OPTIONAL,

 userLocationInformation [47] OCTET STRING OPTIONAL,

 mSTimeZone [48] MSTimeZone OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 additionalAccessNetworkInformation [56] OCTET STRING OPTIONAL,

 routeHeaderReceived [59] OCTET STRING OPTIONAL,

 routeHeaderTransmitted [60] OCTET STRING OPTIONAL,
 list-Of-AccessNetworkInfoChange [62] SEQUENCE OF AccessNetworkInfoChange OPTIONAL,

 listOfCalledIdentityChanges [63] SEQUENCE OF CalledIdentityChange OPTIONAL,

 cellularNetworkInformation [64] OCTET STRING OPTIONAL,

 initialIMS-Charging-Identifier [105] IMS-Charging-Identifier OPTIONAL,

 list-Of-AccessTransferInformation [106] SEQUENCE OF AccessTransferInformation OPTIONAL,

 fEIdentifierList [107] FEIdentifierList OPTIONAL

}

TFRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 sIP-Method [2] SIP-Method OPTIONAL,

 role-of-Node [3] Role-of-Node OPTIONAL,

 nodeAddress [4] NodeAddress OPTIONAL,

 session-Id [5] Session-Id OPTIONAL,

 list-Of-Calling-Party-Address [6] ListOfInvolvedParties OPTIONAL,

 called-Party-Address [7] InvolvedParty OPTIONAL,

 serviceRequestTimeStamp [9] TimeStamp OPTIONAL,

 serviceDeliveryStartTimeStamp [10] TimeStamp OPTIONAL,

 serviceDeliveryEndTimeStamp [11] TimeStamp OPTIONAL,

 recordOpeningTime [12] TimeStamp OPTIONAL,

 recordClosureTime [13] TimeStamp OPTIONAL,

 interOperatorIdentifiers [14] InterOperatorIdentifierList OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 recordSequenceNumber [16] INTEGER OPTIONAL,

 causeForRecordClosing [17] CauseForRecordClosing OPTIONAL,

 incomplete-CDR-Indication [18] Incomplete-CDR-Indication OPTIONAL,

 iMS-Charging-Identifier [19] IMS-Charging-Identifier OPTIONAL,

 list-Of-SDP-Media-Components [21] SEQUENCE OF Media-Components-List OPTIONAL,

 serviceReasonReturnCode [23] UTF8String OPTIONAL,

 list-Of-Message-Bodies [24] SEQUENCE OF MessageBody OPTIONAL,

 recordExtensions [25] ManagementExtensions OPTIONAL,

 expiresInformation [26] INTEGER OPTIONAL,

 event [28] UTF8String OPTIONAL,

 serviceContextID [30] ServiceContextID OPTIONAL,

 list-Of-Early-SDP-Media-Components [32] SEQUENCE OF Early-Media-Components-List OPTIONAL,

 iMSCommunicationServiceIdentifier [33] IMSCommunicationServiceIdentifier OPTIONAL,

 numberPortabilityRouting [34] NumberPortabilityRouting OPTIONAL,

 carrierSelectRouting [35] CarrierSelectRouting OPTIONAL,

 sessionPriority [36] SessionPriority OPTIONAL,

 serviceRequestTimeStampFraction [37] Milliseconds OPTIONAL,

 serviceDeliveryStartTimeStampFraction [38] Milliseconds OPTIONAL,

 serviceDeliveryEndTimeStampFraction [39] Milliseconds OPTIONAL,

 applicationServersInformation [40] SEQUENCE OF ApplicationServersInformation OPTIONAL,

 requested-Party-Address [41] InvolvedParty OPTIONAL,

 list-Of-Called-Asserted-Identity [42] ListOfInvolvedParties OPTIONAL,

 nNI-Information [46] NNI-Information OPTIONAL,

 fromAddress [51] OCTET STRING OPTIONAL,

 transit-IOI-Lists [53] TransitIOILists OPTIONAL,

 listOfReasonHeader [55] ListOfReasonHeader OPTIONAL,

 routeHeaderReceived [59] OCTET STRING OPTIONAL,

 routeHeaderTransmitted [60] OCTET STRING OPTIONAL,

 listOfCalledIdentityChanges [63] SEQUENCE OF CalledIdentityChange OPTIONAL,

 fEIdentifierList [64] FEIdentifierList OPTIONAL

}

--

-- IMS DATA TYPES

--

--

-- A

--

AccessCorrelationID ::= CHOICE

--

-- gPRS-Charging-Id is used for GPRS, EPS and 5GS

--

{

 gPRS-Charging-Id [2] INTEGER (0..4294967295),

 accessNetworkChargingIdentifier [4] GraphicString

}

AccessNetworkInfoChange ::= SEQUENCE

{

 accessNetworkInformation [0] OCTET STRING OPTIONAL,

 additionalAccessNetworkInformation [1] OCTET STRING OPTIONAL,

 accessChangeTime [2] TimeStamp OPTIONAL,

 cellularNetworkInformation [3] OCTET STRING OPTIONAL

}

AccessTransferType ::= ENUMERATED

{

 pSToCS (0),

 cSToPS (1) ,

 pSToPS (2),

 cSToCS (3)

}

AccessTransferInformation ::= SEQUENCE

{

 accessTransferType [0] AccessTransferType OPTIONAL,

 accessNetworkInformation [1] OCTET STRING OPTIONAL,

 additionalAccessNetworkInformation [2] OCTET STRING OPTIONAL,

 inter-UE-Transfer [3] NULL OPTIONAL,

 relatedICID [4] IMS-Charging-Identifier OPTIONAL,

 relatedICIDGenerationNode [5] NodeAddress OPTIONAL,

 accessTransferTime                [6] TimeStamp OPTIONAL,

 subscriberEquipmentNumber [7] SubscriberEquipmentNumber OPTIONAL,

 instanceId [8] OCTET STRING OPTIONAL,

 cellularNetworkInformation [9] OCTET STRING OPTIONAL

}

ACRInterimLost ::= ENUMERATED

{

 no (0),

 yes (1),

 unknown (2)

}

AoCCostInformation ::= SEQUENCE

{

 accumulatedCost [0] REAL,

 incrementalCost [1] REAL,

 currencyCode [2] INTEGER

}

AoCInformation ::= SET

{

 tariffInformation [0] TariffInformation OPTIONAL,

 aoCCostInformation [1] AoCCostInformation OPTIONAL

}

ApplicationServersInformation ::= SEQUENCE

{

 applicationServersInvolved [0] NodeAddress OPTIONAL,

 applicationProvidedCalledParties [1] SEQUENCE OF InvolvedParty OPTIONAL,

 sTatus [2] Status OPTIONAL

}

--

-- C

--

CalledIdentityChange ::= SEQUENCE

{

calledIdentity [0] InvolvedParty OPTIONAL,

changeTime [1] TimeStamp OPTIONAL

}

CarrierSelectRouting ::= GraphicString

CauseForRecordClosing ::= ENUMERATED

{

 serviceDeliveryEndSuccessfully (0),

 unSuccessfulServiceDelivery (1),

 timeLimit (3),

 serviceChange (4), -- e.g. change in media due to Re-Invite,

 -- Access Transfer

 managementIntervention (5) -- partial record generation reasons to be added

 -- Additional codes are for further study

}

--

-- E

--

Early-Media-Components-List ::= SEQUENCE

{

 sDP-Offer-Timestamp [0] TimeStamp OPTIONAL,

 sDP-Answer-Timestamp [1] TimeStamp OPTIONAL,

 sDP-Media-Components [2] SEQUENCE OF SDP-Media-Component OPTIONAL,

 mediaInitiatorFlag [3] NULL OPTIONAL,

 sDP-Session-Description [4] SEQUENCE OF GraphicString OPTIONAL,

 sDP-Type [5] SDP-Type OPTIONAL

}

--

-- F

--

FEIdentifierList ::= SEQUENCE OF GraphicString

--

-- I

--

IMS-Charging-Identifier ::= OCTET STRING

IMSCommunicationServiceIdentifier ::= OCTET STRING

Incomplete-CDR-Indication ::= SET

{

 aCRStartLost [0] BOOLEAN, -- TRUE if ACR[Start] was lost, FALSE otherwise

 aCRInterimLost [1] ACRInterimLost,

 aCRStopLost [2] BOOLEAN -- TRUE if ACR[Stop] was lost, FALSE otherwise

}

InterOperatorIdentifierList ::= SEQUENCE OF InterOperatorIdentifiers

InterOperatorIdentifiers ::= SEQUENCE

{

 originatingIOI [0] GraphicString OPTIONAL,

 terminatingIOI [1] GraphicString OPTIONAL

}

ISUPCause ::= SEQUENCE

{

 iSUPCauseLocation [0] INTEGER OPTIONAL,

 iSUPCauseValue [1] INTEGER OPTIONAL,

 iSUPCauseDiagnostics [2] OCTET STRING OPTIONAL

}

--

-- L

--

ListOfInvolvedParties ::= SEQUENCE OF InvolvedParty

ListOfReasonHeader ::= SEQUENCE OF ReasonHeaderInformation

--

-- M

--

Media-Components-List ::= SEQUENCE

--

-- MediaInitiatorParty is used to identify the initiator of the media

-- multi-participants session e.g. in AS PoC Server

--

{

 sIP-Request-Timestamp [0] TimeStamp OPTIONAL,

 sIP-Response-Timestamp [1] TimeStamp OPTIONAL,

 sDP-Media-Components [2] SEQUENCE OF SDP-Media-Component OPTIONAL,

 mediaInitiatorFlag [3] NULL OPTIONAL,

 sDP-Session-Description [4] SEQUENCE OF GraphicString OPTIONAL,

 mediaInitiatorParty [5] InvolvedParty OPTIONAL,

 sIP-Request-Timestamp-Fraction [6] Milliseconds OPTIONAL,

 sIP-Response-Timestamp-Fraction [7] Milliseconds OPTIONAL,

 sDP-Type [8] SDP-Type OPTIONAL

}

MessageBody ::= SEQUENCE

{

 content-Type [0] GraphicString,

 content-Disposition [1] GraphicString OPTIONAL,

 content-Length [2] INTEGER,

 originator [3] InvolvedParty OPTIONAL

}

Milliseconds ::= INTEGER (0..999)

--

-- N

--

NNI-Information ::= SEQUENCE

{

 sessionDirection [0] SessionDirection OPTIONAL,

 nNIType [1] NNIType OPTIONAL,

 relationshipMode [2] RelationshipMode OPTIONAL,

 neighbourNodeAddress [3] IPAddress OPTIONAL

}

NNIType ::= ENUMERATED

{

 non-roaming (0),

 roaming-without-loopback (1),

 roaming-with-loopback (2)

}

NumberPortabilityRouting ::= GraphicString

--

-- R

--

RateElement ::= SEQUENCE

{

 unitType [0] INTEGER,

 unitValue [1] REAL,

 unitCost [2] REAL,

 unitQuotaThreshold [3] REAL

}

RealTimeTariffInformation ::= CHOICE

{

 tariffInformation [0] TariffInformation,

 tariffXml [1] UTF8String

}

ReasonHeaderInformation ::= GraphicString

RelationshipMode ::= ENUMERATED

{

 trusted (0),

 non-trusted (1)

}

Role-of-Node ::= ENUMERATED

{

 originating (0),

 terminating (1)

}

--

-- S

--

S-CSCF-Information ::= SEQUENCE

{

 mandatoryCapabilities [0] SEQUENCE OF GraphicString OPTIONAL,

 optionalCapabilities [1] SEQUENCE OF GraphicString OPTIONAL,

 serverName [2] GraphicString OPTIONAL

}

SDP-Media-Component ::= SEQUENCE

{

 sDP-Media-Name [0] GraphicString OPTIONAL,

 sDP-Media-Descriptions [1] SDP-Media-Description OPTIONAL,

 accessCorrelationID AccessCorrelationID OPTIONAL, -- not used in MGCF

 -- [2] is used by gPRS-Charging-Id

 -- [4] is used by accessNetworkChargingIdentifier

 localGWInsertedIndication [5] BOOLEAN OPTIONAL,

 iPRealmDefaultIndication [6] BOOLEAN OPTIONAL,

 transcoderInsertedIndication [7] BOOLEAN OPTIONAL

}

SDP-Media-Description ::= SEQUENCE OF GraphicString

ServedPartyIPAddress ::= IPAddress

Service-Id ::= GraphicString

SessionDirection ::= ENUMERATED

{

 inbound (0),

 outbound (1)

}

SessionPriority ::= ENUMERATED

--

-- PRIORITY-0 is the highest priority and Priority-4 is the lowest priority. See TS 29.229[232]

--

{

 pRIORITY-0 (0),

 pRIORITY-1 (1),

 pRIORITY-2 (2),

 pRIORITY-3 (3),

 pRIORITY-4 (4)

}

SIP-Method ::= GraphicString

SDP-Type ::= ENUMERATED

{

 sDP-offer (0),

 sDP-answer (1)

}

Status ::= ENUMERATED

{

 fourxx (0),

 fivexx (1),

 time-out (2)

}

--

-- T

--

TADIdentifier ::= ENUMERATED

{

 cS (0),

 pS (1)

}

TariffInformation ::= SEQUENCE

{

 currencyCode [0] INTEGER,

 scaleFactor [1] REAL,

 rateElements [2] SEQUENCE OF RateElement OPTIONAL

}

TransitIOILists ::= SEQUENCE OF GraphicString

TransmissionMedium ::= SEQUENCE

{

 tMR [0] OCTET STRING (SIZE (1)) OPTIONAL, -- required TM, refer to Q.763

 tMU [1] OCTET STRING (SIZE (1)) OPTIONAL -- used TM, refer to Q.763

}

TrunkGroupID ::= CHOICE

{

 incoming [0] GraphicString,

 outgoing [1] GraphicString

}

.#END

|  |
| --- |
| **Sixth change** |

#### 5.2.4.7 ProSe CDRs

This subclause contains the abstract syntax definitions that are specific to the ProSe CDR types defined in TS 32.277 [36].

.$ProSeChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) proseChargingDataType (11) asn1Module (0) version2 (1)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

IPAddress,

LocalSequenceNumber,

ManagementExtensions,

NodeID,

PLMN-Id,

RecordType,

ServiceContextID,

TimeStamp

FROM GenericChargingDataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) charging (5) genericChargingDataTypes (0) asn1Module (0) version2 (1)}

IMSI

FROM MAP-CommonDataTypes {itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3) map-CommonDataTypes (18) version18 (18)}

-- from TS 29.002 [214]

ChargingCharacteristics,

ChChSelectionMode,

DataVolumeGPRS

FROM GPRSChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) gprsChargingDataTypes (2) asn1Module (0) version2 (1)}

;

--

-- ProSe RECORDS

--

ProSeRecordType ::= CHOICE

--

-- Record values 100..102 are ProSe specific

--

{

 pFDDRecord [100] PFDDRecord,

 pFEDRecord [101] PFEDRecord,

 pFDCRecord [102] PFDCRecord

}

PFDDRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 serviceContextID [2] ServiceContextID OPTIONAL,

 servedIMSI [3] IMSI OPTIONAL,

 proSeFunctionIPAddress [4] IPAddress OPTIONAL,

 chargingCharacteristics [5] ChargingCharacteristics,

 chChSelectionMode [6] ChChSelectionMode OPTIONAL,

 recordExtensions [7] ManagementExtensions OPTIONAL,

 proSeRequestTimestamp [8] TimeStamp OPTIONAL,

 roleofUE [9] ProSeUERole OPTIONAL,

 pCThreeControlProtocolCause [10] INTEGER OPTIONAL,

 roleofProSeFunction [11] ProSeFunctionRole OPTIONAL,

 proSeApplicationID [12] UTF8String OPTIONAL,

 proSeEventType [13] ProSeEventType OPTIONAL,

 nodeID [14] NodeID OPTIONAL,

 proseFunctionId [15] UTF8String OPTIONAL,

 announcingUEHPLMNIdentifier [16] PLMN-Id OPTIONAL,

 announcingUEVPLMNIdentifier [17] PLMN-Id OPTIONAL,

 monitoringUEHPLMNIdentifier [18] PLMN-Id OPTIONAL,

 monitoringUEVPLMNIdentifier [19] PLMN-Id OPTIONAL,

 monitoredPLMNIdentifier [20] PLMN-Id OPTIONAL,

 applicationID [21] UTF8String OPTIONAL,

 directDiscoveryModel [22] UTF8String OPTIONAL,

 validityPeriod [23] INTEGER OPTIONAL,

 monitoringUEIdentifier [24] IMSI OPTIONAL,

discovererUEHPLMNIdentifier [25] PLMN-Id OPTIONAL,

discovererUEVPLMNIdentifier [26] PLMN-Id OPTIONAL,

discovereeUEHPLMNIdentifier [27] PLMN-Id OPTIONAL,

discovereeUEVPLMNIdentifier [28] PLMN-Id OPTIONAL,

announcingPLMNID [29] PLMN-Id OPTIONAL,

pc5RadioTechnology [30] PC5RadioTechnology OPTIONAL

}

PFEDRecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 serviceContextID [2] ServiceContextID OPTIONAL,

 servedIMSI [3] IMSI OPTIONAL,

 proSeFunctionIPAddress [4] IPAddress OPTIONAL,

 chargingCharacteristics [5] ChargingCharacteristics,

 chChSelectionMode [6] ChChSelectionMode OPTIONAL,

 recordExtensions [7] ManagementExtensions OPTIONAL,

 proSeRequestTimestamp [8] TimeStamp OPTIONAL,

 roleofUE [9] ProSeUERole OPTIONAL,

 pCThreeEPCControlProtocolCause [10] INTEGER OPTIONAL,

 proseFunctionPLMNIdentifier [11] PLMN-Id OPTIONAL,

 proseFunctionId [12] UTF8String OPTIONAL,

 recordOpeningTime [13] TimeStamp OPTIONAL,

 recordClosureTime [14] TimeStamp OPTIONAL,

 applicationID [15] UTF8String OPTIONAL,

 requestorApplicationLayerUserID [16] UTF8String OPTIONAL,

 wLANLinkLayerID [17] UTF8String OPTIONAL,

 requestorEPCProSeUserID [18] UTF8String OPTIONAL,

 requestedApplicationLayerUserID [19] UTF8String OPTIONAL,

 requestedPLMNIdentifier [20] PLMN-Id OPTIONAL,

 timeWindow [21] INTEGER OPTIONAL,

 rangeClass [22] RangeClass OPTIONAL,

 uELocation [23] OCTET STRING OPTIONAL,

 proximityAlertIndication [24] ProximityAlertIndication OPTIONAL,

 proximityAlertTimestamp [25] TimeStamp OPTIONAL,

 proximityCancellationTimestamp [26] TimeStamp OPTIONAL,

 reasonforCancellation [27] ReasonforCancellation OPTIONAL,

 causeForRecClosing [28] ProSeCauseForRecClosing,

 proximityRequestRenewalInfoBlockList [29] SEQUENCE OF ProximityRequestRenewalInfoBlock OPTIONAL

}

PFDCRecord ::= SET

{

-- General CDR information

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 serviceContextID [2] ServiceContextID OPTIONAL,

 servedIMSI [3] IMSI OPTIONAL,

 proSeFunctionIPAddress [4] IPAddress OPTIONAL,

 chargingCharacteristics [5] ChargingCharacteristics,

 chChSelectionMode [6] ChChSelectionMode OPTIONAL,

 recordExtensions [7] ManagementExtensions OPTIONAL,

 nodeID [8] NodeID OPTIONAL,

 proseFunctionPLMNIdentifier [9] PLMN-Id OPTIONAL,

 proseFunctionId [10] UTF8String OPTIONAL,

 recordOpeningTime [11] TimeStamp OPTIONAL,

 recordClosureTime [12] TimeStamp OPTIONAL,

-- Common ProSe information. The same data is provided in all currently open group-level CDRs

 listOfCoverageInfo [13] SEQUENCE OF CoverageInfo OPTIONAL,

 listOfRadioParameterSet [14] SEQUENCE OF RadioParameterSetInfo OPTIONAL,

-- Group-specific information. This data could be different in each open group-level CDR

 proSeUEID [15] OCTET STRING OPTIONAL,

 sourceIPaddress [16] IPAddress OPTIONAL,

 layerTwoGroupID [17] OCTET STRING OPTIONAL,

 proSeGroupIPmulticastaddress [18] IPAddress OPTIONAL,

 timeOfFirstTransmission [19] TimeStamp OPTIONAL,

 timeOfFirstReception [20] TimeStamp OPTIONAL,

 listOfTransmitters [21] SEQUENCE OF TransmitterInfo OPTIONAL,

 listOfTransmissionData [22] SEQUENCE OF ChangeOfProSeCondition OPTIONAL,

 listOfReceptionData [23] SEQUENCE OF ChangeOfProSeCondition OPTIONAL,

 causeForRecClosing [24] ProSeCauseForRecClosing,

 listOfAppSpecificData [25] SEQUENCE OF AppSpecificData,

targetIPaddress [26] IPAddress OPTIONAL,

 relayIPaddress [27] IPAddress OPTIONAL,

proSeUEtoNetworkRelayUEID [28] OCTET STRING OPTIONAL,

proSeTargetLayerTwoID [29] OCTET STRING OPTIONAL

}

--

-- ProSe DATA TYPES

--

--

-- A

--

--

-- C

--

ChangeOfProSeCondition ::= SEQUENCE

--

-- Used for transmitted and received data container

--

{

 changeConditionTimestamp [0] TimeStamp OPTIONAL,

 coverageStatus [1] CoverageStatus OPTIONAL,

 uELocation [2] OCTET STRING OPTIONAL,

 dataVolume [3] DataVolumeGPRS OPTIONAL,

 serviceChangeCondition [4] ServiceChangeCondition OPTIONAL,

 localSequenceNumber [5] LocalSequenceNumber OPTIONAL,

 usageInformationReportSequenceNumber [6] INTEGER OPTIONAL,

 radioResourcesInd [7] RadioResourcesIndicator OPTIONAL,

 radiofrequency [8] RadioFrequency OPTIONAL,

 vPLMNIdentifier [9] PLMN-Id OPTIONAL

}

CoverageInfo ::= SEQUENCE

{

 coverageStatus [0] CoverageStatus,

 timeStamp [1] TimeStamp OPTIONAL,

 listOfLocation [2] SEQUENCE OF LocationInfo OPTIONAL

}

CoverageStatus ::= ENUMERATED

{

 outOfCoverage (0),

 inCoverage (1)

}

--

-- L

--

LocationInfo ::= SEQUENCE

{

 uELocation [0] OCTET STRING OPTIONAL,

 timeStamp [1] TimeStamp OPTIONAL

}

--

-- P

--

PC5RadioTechnology ::= ENUMERATED

{

 eUTRA (0),

 wLAN (1),

 bothEUTRAAndWLAN (2)

}

ProSeCauseForRecClosing ::= ENUMERATED

{

 proximityAlerted (0),

 timeExpiredWithNoRrenewal (1),

 requestorCancellation (2),

 timeLimited (3),

 maxNumberOfReports (4),

 abnormalRelease (5)

}

ProSeEventType ::= ENUMERATED

{

 openAnnouncing (0),

 openMonitoring (1),

 openMatchReport (2),

 restrictedAnnouncing (3),

 restrictedMonitoring (4),

 restrictedMatchReport (5),

 restrictedDiscoveryRequest (6),

 restrictedDiscoveryReporting (7)

}

ProSeFunctionRole ::= ENUMERATED

{

 hPLMN (0),

 vPLMN (1),

 localPLMN (2)

}

ProSeUERole ::= ENUMERATED

{

 annoucingUE (0),

 monitoringUE (1),

 requestorUE (2),

 requestedUE (3),

 discovererUE (4),

 discovereeUE (5)

}

ProximityAlertIndication ::= ENUMERATED

{

 alerted (0),

 noAlert (1)

}

ProximityRequestRenewalInfoBlock ::= SEQUENCE

--

-- Used for EPC-level discovery charging

--

{

 proSeRequestTimestamp [0] TimeStamp OPTIONAL,

 timeWindow [1] INTEGER OPTIONAL,

 rangeClass [2] RangeClass OPTIONAL,

 uELocation [3] OCTET STRING OPTIONAL

}

--

-- R

--

RadioFrequency ::= OCTET STRING

--

-- Format of the value is according to the carrierFreq-r12 ASN.1 data type described in TS

-- 36.331 [241].

--

RadioParameterSetInfo ::= SEQUENCE

--

-- Format of the params value is according to the ProsePreconfiguration-r12 ASN.1 data type

-- described in TS 36.331 [241].

--

{

 timeStamp [0] TimeStamp OPTIONAL,

 params [1] OCTET STRING

}

RadioResourcesIndicator ::= INTEGER

{

 operatorProvided (1),

 configured (2)

}

RangeClass ::= ENUMERATED

{

 reserved (0),

 fiftyMeter (1),

 onehundredMeter (2),

 twohundredMeter (3),

 fivehundredMeter (4),

 onethousandMeter (5)

}

ReasonforCancellation ::= ENUMERATED

{

 proximityAlerted (0),

 timeExpiredWithNoRrenewal (1),

 requestorCancellation (2)

}

--

-- S

--

ServiceChangeCondition ::= BIT STRING

{

 pLMNchange (0),

 coverageStatusChange (1),

 locationChange (2)

}

--

-- T

--

TransmitterInfo ::= SEQUENCE

{

 sourceIPaddress [0] IPAddress,

 proSeUEID [1] OCTET STRING

}

.#END

|  |
| --- |
| **Seventh change** |

#### 5.2.4.8 Monitoring Event CDRs

This subclause contains the abstract syntax definitions that are specific to the Monitoring Event CDR types defined in TS 32.278 [38].

.$MONTEChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) mONTEChargingDataType (12) asn1Module (0) version2 (1)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

DiameterIdentity,

LocalSequenceNumber,

ManagementExtensions,

NodeID,

RecordType,

ServiceContextID,

TimeStamp

FROM GenericChargingDataTypes {itu-t (0) identified-organization (4) etsi(0) mobileDomain (0) charging (5) genericChargingDataTypes (0) asn1Module (0) version2 (1)}

IMSI

FROM MAP-CommonDataTypes {itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3) map-CommonDataTypes (18) version18 (18)}

-- from TS 29.002 [214]

UserCSGInformation

FROM GPRSChargingDataTypes {itu-t (0) identified-organization (4) etsi (0) mobileDomain (0) charging (5) gprsChargingDataTypes (2) asn1Module (0) version2 (1)}

;

--

-- Monitoring Event RECORDS

--

MERecordType ::= CHOICE

--

-- Record values 103..104 are Monitoring Event specific

--

{

 mECORecord [103] MECORecord,

 mERERecord [104] MERERecord

}

MECORecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 serviceContextID [2] ServiceContextID OPTIONAL,

 nodeID [3] NodeID OPTIONAL,

 recordTimeStamp [4] TimeStamp OPTIONAL,

 eventTimestamp [5] TimeStamp OPTIONAL,

 monitoringEventConfigurationActivity [6] MonitoringEventConfigurationActivity OPTIONAL,

 sCEFReferenceID [7] SCEFReferenceID OPTIONAL,

 sCEFID [8] DiameterIdentity OPTIONAL,

 monitoringType [9] MonitoringType OPTIONAL,

 maximumNumberofReports [10] INTEGER OPTIONAL,

 monitoringDuration [11] TimeStamp OPTIONAL,

 chargeablePartyIdentifier [12] UTF8String OPTIONAL,

 monitoredUser [13] IMSI OPTIONAL,

 maximumDetectionTime [14] INTEGER OPTIONAL,

 localRecordSequenceNumber [15] LocalSequenceNumber OPTIONAL,

 reachabilityConfiguration [16] ReachabilityConfiguration OPTIONAL,

 locationType [17] LocationType OPTIONAL,

 accuracy [18] Accuracy OPTIONAL,

 listofLocations [19] SEQUENCE OF EPSLocationInfo OPTIONAL,

 monitoringEventConfigStatus [20] MonitoringEventConfigStatus OPTIONAL,

 recordExtensions [21] ManagementExtensions OPTIONAL

}

MERERecord ::= SET

{

 recordType [0] RecordType,

 retransmission [1] NULL OPTIONAL,

 serviceContextID [2] ServiceContextID OPTIONAL,

 nodeID [3] NodeID OPTIONAL,

 recordTimeStamp [4] TimeStamp OPTIONAL,

 localRecordSequenceNumber [5] LocalSequenceNumber OPTIONAL,

 listofMonitoringEventReportData [6] SEQUENCE OF MonitoringEventReportData OPTIONAL, recordExtensions [7] ManagementExtensions OPTIONAL

}

--

-- Monitoring Event DATA TYPES

--

--

-- A

--

Accuracy ::= ENUMERATED

--

-- Note: value "3" is not used in this specification: it is provided to reflect

-- the full list specified in TS 29.336 Accuracy AVP

--

{

 cGIECGI (0),

 eNB (1),

 lATARA (2),

 pRA (3)

}

CauseType ::= ENUMERATED

{

 radioNetworkLayer (0),

 transportLayer (1),

 nAS (2),

 protocol (3),

 miscellaneous (4)

}

--

-- C

--

CommunicationFailureInfo ::= SEQUENCE

{

 causeType [0] CauseType OPTIONAL,

 s1APCause [1] INTEGER OPTIONAL,

 rANAPCause [2] INTEGER OPTIONAL,

 bSSGPCause [3] INTEGER OPTIONAL,

 gMMCause [4] INTEGER OPTIONAL,

 sMCause [5] INTEGER OPTIONAL

}

CurrentLocationRetrieved ::= ENUMERATED

{

 activeLocationRetrieval (0)

}

--

-- E

--

EPSLocationInfo ::= SEQUENCE

--

-- Only one element is present.

--

{

 mMELocationInformation [0] MMELocationInformation OPTIONAL,

 sGSNLocationInformation [1] SGSNLocationInformation OPTIONAL

}

--

-- L

--

LocationType ::= ENUMERATED

{

 currentLocation (0),

 lastKnownLocation (1)

}

--

-- M

--

MMELocationInformation ::= SEQUENCE

{

 eUTRANCellGlobalIdentity [0] OCTET STRING OPTIONAL,

 trackingAreaIdentity [1] OCTET STRING OPTIONAL,

 geographicalInformation [2] OCTET STRING OPTIONAL,

 geodeticInformation [3] OCTET STRING OPTIONAL,

 currentLocationRetrieved [4] CurrentLocationRetrieved OPTIONAL,

 ageOfLocationInformation [5] INTEGER OPTIONAL,

 userCSGInformation [6] UserCSGInformation OPTIONAL,

 eNodeBID [7] OCTET STRING OPTIONAL

}

MonitoringEventConfigStatus ::= SEQUENCE

{

 serviceResult [0] ServiceResult OPTIONAL,

 sCEFReferenceID [1] SCEFReferenceID OPTIONAL,

 sCEFID [2] DiameterIdentity OPTIONAL

}

MonitoringEventConfigurationActivity ::= ENUMERATED

{

 create (0),

 transfer (1),

 update (2),

 delete (3)

}

MonitoringEventReportData ::= SEQUENCE

{

 eventTimestamp [0] TimeStamp OPTIONAL,

 sCEFReferenceID [1] SCEFReferenceID OPTIONAL,

 sCEFID [2] DiameterIdentity OPTIONAL,

 monitoringEventReportNumber [3] INTEGER OPTIONAL,

 chargeablePartyIdentifier [4] UTF8String OPTIONAL,

 monitoredUser [5] IMSI OPTIONAL,

 monitoringType [6] MonitoringType OPTIONAL,

 reachabilityInformation [7] ReachabilityType OPTIONAL,

 reportedLocation [8] EPSLocationInfo OPTIONAL,

 communicationFailureInformation [9] SEQUENCE OF CommunicationFailureInfo OPTIONAL,

 listOfNumberOfUEPerLocationReport [10] SEQUENCE OF NumberOfUEPerLocationReport OPTIONAL

}

MonitoringType ::= ENUMERATED

--

-- Note: value "3" and "4" are not used in this specification: they are provided to reflect the full

-- list specified in TS 29.336 Monitoring-Type AVP.

--

{

 lossOfConnectivity (0),

 ueReachability (1),

 locationReporting (2),

 changeOfIMSIIMEISVAssociation (3),

 roamingStatus (4),

 communicationFailure (5),

 availabilityAfterDDNFailure (6),

 numberOfUEPerLocation (7)

}

--

-- N

--

NumberOfUEPerLocationReport ::= SEQUENCE

{

 ePSLocationInformation [0] EPSLocationInfo OPTIONAL,

 uECount [1] INTEGER OPTIONAL

}

--

-- R

--

ReachabilityConfiguration ::= SEQUENCE

{

 reachabilityType [0] ReachabilityType OPTIONAL,

 maximumLatency [1] INTEGER OPTIONAL,

 maximumResponseTime [2] INTEGER OPTIONAL

}

ReachabilityType ::= ENUMERATED

{

 reachabilityforSMS (0),

 reachabilityforData (1)

}

--

-- S

--

SGSNLocationInformation ::= SEQUENCE

{

 cellGlobalIdentity [0] OCTET STRING OPTIONAL,

 locationAreaIdentity [1] OCTET STRING OPTIONAL,

 serviceAreaIdentity [2] OCTET STRING OPTIONAL,

 routingAreaIdentity [3] OCTET STRING OPTIONAL,

 geographicalInformation [4] OCTET STRING OPTIONAL,

 geodeticInformation [5] OCTET STRING OPTIONAL,

 currentLocationRetrieved [6] CurrentLocationRetrieved OPTIONAL,

 ageOfLocationInformation [7] INTEGER OPTIONAL,

 userCSGInformation [8] UserCSGInformation OPTIONAL

}

SCEFReferenceID ::= INTEGER (0..4294967295)

--

-- 0..4294967295 is equivalent to 0..2\*\*32-1

--

ServiceResult ::= SEQUENCE

{

 vendorId [0] INTEGER OPTIONAL,

 serviceResultCode [1] INTEGER OPTIONAL

}

.#END

|  |
| --- |
| **End of changes** |