3GPP TSG CN Plenary Meeting #24 **NP-040225**
2nd – 4th June 2004 Seoul, KOREA.

Source: TSG CN WG4

Title: Corrections on Location Services

Agenda item: 9.18

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level N4-040	Phase	Subject	Cat	Ver_C
29.002	736		600	Rel-6	Addition of SAI-Present indication to the LCS procedures	F	6.5.0
29.002	734	1	732	Rel-6	Add Additional V-GMLC parameter in MAP-SRI-INFO-FOR-LCS	F	6.5.0

3GPP TSG CN WG4 Meeting #23 **N4-040600**
Zagreb, CROATIA, 10th – 14th MAY 2004

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **736** ⌘ **rev** **-** ⌘ Current version: **6.5.0** ⌘

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

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

Title:	⌘	Addition of SAI-Present indication to the LCS procedures
Source:	⌘	CN4
Work item code:	⌘	LCS2
Date:	⌘	30/04/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

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

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

Reason for change:	⌘	In CN4#21 meeting the new parameter CellIdOrSai was added to the Provide Subscriber Location result and Subscriber Location Report request. No indication was however added which of the two information will be included in the MAP messages.
Summary of change:	⌘	New parameter sai-Present is added to the two MAP operation ASN.1 definitions.
Consequences if not approved:	⌘	GMLC does not know whether the parameter CellIdOrSai contains Cell Id or Service Area Identity.

Clauses affected:	⌘	17.7.13

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

Other comments:	⌘	

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

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

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

17.7.13 Location service data types

```
MAP-LCS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-LCS-DataTypes (25) version9 (9)}

DEFINITIONS
IMPLICIT TAGS
::=
BEGIN

EXPORTS
   RoutingInfoForLCS-Arg,
   RoutingInfoForLCS-Res,
   ProvideSubscriberLocation-Arg,
   ProvideSubscriberLocation-Res,
   SubscriberLocationReport-Arg,
   SubscriberLocationReport-Res,
   LocationType,
   DeferredLocationEventType,
   LCSClientName,
   LCS-QoS,
   Horizontal-Accuracy,
   ResponseTime,
   Ext-GeographicalInformation,
   SupportedGADShapes,
   Add-GeographicalInformation,
   LCSRequestorID,
   LCS-ReferenceNumber,
   LCSCodeword,
   AreaEventInfo
;

IMPORTS
   AddressString,
   ISDN-AddressString,
   IMEI,
   IMSI,
   LMSI,
   SubscriberIdentity,
   AgeOfLocationInformation,
   LCSClientExternalID,
   LCSClientInternalID,
   LCSServiceTypeID,
   CellGlobalIdOrServiceAreaIdOrLAI
FROM MAP-CommonDataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-CommonDataTypes (18) version9 (9)}

   ExtensionContainer
FROM MAP-ExtensionDataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version9 (9)}

   USSD-DataCodingScheme,
   USSD-String
FROM MAP-SS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-SS-DataTypes (14) version9 (9)}

   APN,
   GSN-Address,
   SupportedLCS-CapabilitySets
FROM MAP-MS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version9 (9)}

   Additional-Number
FROM MAP-SM-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-SM-DataTypes (16) version9 (9)}
;
```

```
RoutingInfoForLCS-Arg ::= SEQUENCE {
     mlcNumber                          [0] ISDN-AddressString,
     targetMS                           [1] SubscriberIdentity,
     extensionContainer                 [2] ExtensionContainer           OPTIONAL,
     ...}
```

```
RoutingInfoForLCS-Res ::= SEQUENCE {
     targetMS                          [0] SubscriberIdentity,
     lcsLocationInfo                   [1] LCSLocationInfo,
     extensionContainer                [2] ExtensionContainer          OPTIONAL,
     ...,
     v-gmlc-Address                    [3]  GSN-Address                OPTIONAL,
     h-gmlc-Address                    [4]  GSN-Address                OPTIONAL,
     ppr-Address                       [5]  GSN-Address                OPTIONAL }
```

```
LCSLocationInfo ::= SEQUENCE {
     networkNode-Number                ISDN-AddressString,
     -- NetworkNode-number can be either msc-number or sgsn-number
     lmsi                              [0] LMSI                        OPTIONAL,
     extensionContainer                [1] ExtensionContainer          OPTIONAL,
     ... ,
     gprsNodeIndicator                 [2] NULL                        OPTIONAL,
     -- gprsNodeIndicator is set only if the SGSN number is sent as the Network Node Number
     additional-Number                 [3] Additional-Number           OPTIONAL,
     supportedLCS-CapabilitySets       [4]  SupportedLCS-CapabilitySets  OPTIONAL,
     additional-LCS-CapabilitySets     [5]  SupportedLCS-CapabilitySets  OPTIONAL
     }
```

```
ProvideSubscriberLocation-Arg ::= SEQUENCE {
     locationType                      LocationType,
     mlc-Number                        ISDN-AddressString,
     lcs-ClientID                      [0] LCS-ClientID                OPTIONAL,
     privacyOverride                   [1] NULL                        OPTIONAL,
     imsi                              [2] IMSI                        OPTIONAL,
     msisdn                            [3] ISDN-AddressString          OPTIONAL,
     lmsi                              [4] LMSI                        OPTIONAL,
     imei                              [5] IMEI                        OPTIONAL,
     lcs-Priority                      [6] LCS-Priority                OPTIONAL,
     lcs-QoS                           [7] LCS-QoS                     OPTIONAL,
     extensionContainer                [8] ExtensionContainer          OPTIONAL,
     ... ,
     supportedGADShapes                [9]  SupportedGADShapes         OPTIONAL,
     lcs-ReferenceNumber               [10] LCS-ReferenceNumber        OPTIONAL,
     lcsServiceTypeID                  [11] LCSServiceTypeID           OPTIONAL,
     lcsCodeword                       [12] LCSCodeword                OPTIONAL,
     lcs-PrivacyCheck                  [13] LCS-PrivacyCheck           OPTIONAL,
     areaEventInfo                     [14] AreaEventInfo              OPTIONAL,
     h-gmlc-Address                    [15] GSN-Address                OPTIONAL }

     -- one of imsi or msisdn is mandatory
     -- If a location estimate type indicates activate deferred location or cancel deferred
     -- location, a lcs-Reference number shall be included.
```

```
LocationType ::= SEQUENCE {
     locationEstimateType              [0] LocationEstimateType,
     ...,
     deferredLocationEventType         [1] DeferredLocationEventType   OPTIONAL }
```

```
LocationEstimateType ::= ENUMERATED {
     currentLocation                   (0),
     currentOrLastKnownLocation        (1),
     initialLocation                   (2),
     ...,
     activateDeferredLocation          (3),
     cancelDeferredLocation            (4) }
--   exception handling:
--   a ProvideSubscriberLocation-Arg containing an unrecognized LocationEstimateType
--   shall be rejected by the receiver with a return error cause of unexpected data value
```

```
DeferredLocationEventType ::= BIT STRING {
     msAvailable                       (0) ,
     enteringIntoArea                  (1),
     leavingFromArea                   (2),
     beingInsideArea                   (3) } (SIZE (1..16))
-- beingInsideArea is always treated as oneTimeEvent regardless of the possible value
-- of occurrenceInfo inside areaEventInfo.
-- exception handling:
-- a ProvideSubscriberLocation-Arg containing other values than listed above in
-- DeferredLocationEventType shall be rejected by the receiver with a return error cause of
-- unexpected data value.
```

```
LCS-ClientID ::= SEQUENCE {
     lcsClientType                     [0] LCSClientType,
     lcsClientExternalID               [1] LCSClientExternalID         OPTIONAL,
```

```
    lcsClientDialedByMS                 [2] AddressString               OPTIONAL,
    lcsClientInternalID                 [3] LCSClientInternalID         OPTIONAL,
    lcsClientName                       [4] LCSClientName               OPTIONAL,
    ...,
    lcsAPN                              [5] APN                         OPTIONAL,
    lcsRequestorID                      [6] LCSRequestorID              OPTIONAL }
```

```
LCSClientType ::= ENUMERATED {
    emergencyServices                   (0),
    valueAddedServices                  (1),
    plmnOperatorServices                (2),
    lawfulInterceptServices             (3),
    ... }
    --   exception handling:
    --   unrecognized values may be ignored if the LCS client uses the privacy override
    --   otherwise, an unrecognized value shall be treated as unexpected data by a receiver
    --   a return error shall then be returned if received in a MAP invoke
```

```
LCSClientName ::= SEQUENCE {
    dataCodingScheme                    [0] USSD-DataCodingScheme,
    nameString                          [2] NameString,
    ...,
    lcs-FormatIndicator                 [3] LCS-FormatIndicator         OPTIONAL }

-- The USSD-DataCodingScheme shall indicate use of the default alphabet through the
-- following encoding
--   bit  7 6 5 4 3 2 1 0
--        0 0 0 0 1 1 1 1
```

```
NameString ::= USSD-String (SIZE (1..maxNameStringLength))
```

```
maxNameStringLength  INTEGER ::= 63
```

```
LCSRequestorID ::= SEQUENCE {
    dataCodingScheme                    [0] USSD-DataCodingScheme,
    requestorIDString                   [1] RequestorIDString,
    ...,
    lcs-FormatIndicator                 [2] LCS-FormatIndicator         OPTIONAL }
```

```
RequestorIDString ::= USSD-String (SIZE (1..maxRequestorIDStringLength))
```

```
maxRequestorIDStringLength  INTEGER ::= 63
```

```
LCS-FormatIndicator ::= ENUMERATED {
    logicalName                         (0),
    e-mailAddress                       (1),
    msisdn                              (2),
    url                                 (3),
    sipUrl                              (4),
    ... }
```

```
LCS-Priority ::= OCTET STRING (SIZE (1))
    -- 0 = highest priority
    -- 1 = normal priority
    -- all other values treated as 1
```

```
LCS-QoS ::= SEQUENCE {
    horizontal-accuracy                 [0] Horizontal-Accuracy         OPTIONAL,
    verticalCoordinateRequest           [1] NULL                        OPTIONAL,
    vertical-accuracy                   [2] Vertical-Accuracy           OPTIONAL,
    responseTime                        [3] ResponseTime                OPTIONAL,
    extensionContainer                  [4] ExtensionContainer          OPTIONAL,
    ...}
```

```
Horizontal-Accuracy ::= OCTET STRING (SIZE (1))
    -- bit 8 = 0
    -- bits 7-1 = 7 bit Uncertainty Code defined in 3GPP TS 23.032. The horizontal location
    -- error should be less than the error indicated by the uncertainty code with 67%
    -- confidence.
```

```
Vertical-Accuracy ::= OCTET STRING (SIZE (1))
    -- bit 8 = 0
    -- bits 7-1 = 7 bit Vertical Uncertainty Code defined in 3GPP TS 23.032.
    -- The vertical location error should be less than the error indicated
    -- by the uncertainty code with 67% confidence.
```

```
ResponseTime ::= SEQUENCE {
     responseTimeCategory                ResponseTimeCategory,
     ...}
--   note: an expandable SEQUENCE simplifies later addition of a numeric response time.
```

```
ResponseTimeCategory ::= ENUMERATED {
     lowdelay  (0),
     delaytolerant  (1),
     ... }
--   exception handling:
--   an unrecognized value shall be treated the same as value 1 (delaytolerant)
```

```
SupportedGADShapes ::= BIT STRING {
     ellipsoidPoint  (0),
     ellipsoidPointWithUncertaintyCircle (1),
     ellipsoidPointWithUncertaintyEllipse (2),
     polygon (3),
     ellipsoidPointWithAltitude (4),
     ellipsoidPointWithAltitudeAndUncertaintyElipsoid (5),
     ellipsoidArc  (6) } (SIZE (7..16))
-- A node shall mark in the BIT STRING all Shapes defined in 3GPP TS 23.032 it supports.
-- exception handling: bits 7 to 15 shall be ignored if received.
```

```
LCS-ReferenceNumber::= OCTET STRING (SIZE(1))
```

```
LCSCodeword ::= SEQUENCE {
     dataCodingScheme                    [0] USSD-DataCodingScheme,
     lcsCodewordString                   [1] LCSCodewordString,
     ...}
```

```
LCSCodewordString ::= USSD-String (SIZE (1..maxLCSCodewordStringLength))
```

```
maxLCSCodewordStringLength  INTEGER ::= 20
```

```
LCS-PrivacyCheck ::= SEQUENCE {
     callSessionUnrelated                [0] PrivacyCheckRelatedAction,
     callSessionRelated                  [1] PrivacyCheckRelatedAction     OPTIONAL,
     ...}
```

```
PrivacyCheckRelatedAction ::= ENUMERATED {
     allowedWithoutNotification (0),
     allowedWithNotification (1),
     allowedIfNoResponse (2),
     restrictedIfNoResponse (3),
     notAllowed (4),
     ...}
--   exception handling:
--   a ProvideSubscriberLocation-Arg containing an unrecognized PrivacyCheckRelatedAction
--   shall be rejected by the receiver with a return error cause of unexpected data value
```

```
AreaEventInfo ::= SEQUENCE {
     areaDefinition                      [0]  AreaDefinition,
     occurrenceInfo                      [1]  OccurrenceInfo               OPTIONAL,
     intervalTime                        [2]  IntervalTime                 OPTIONAL,
     ...}
```

```
AreaDefinition ::= SEQUENCE {
     areaList                            [0]  AreaList,
     ...}
```

```
AreaList ::= SEQUENCE SIZE (1..maxNumOfAreas) OF Area
```

```
maxNumOfAreas  INTEGER ::= 10
```

```
Area ::= SEQUENCE {
     areaType                            [0]  AreaType,
     areaIdentification                  [1]  AreaIdentification,
     ...}
```

```
AreaType ::= ENUMERATED {
     countryCode                        (0),
     plmnId                             (1),
     locationAreaId                     (2),
     routingAreaId                      (3),
     cellGlobalId                       (4),
     ...}
```

```
AreaIdentification ::= OCTET STRING (SIZE (2..7))
     -- The internal structure is defined as follows:
     -- octet 1 bits 4321               Mobile Country Code 1st digit
     --         bits 8765               Mobile Country Code 2nd digit
     -- octet 2 bits 4321               Mobile Country Code 3rd digit
     --         bits 8765               Mobile Network Code 3rd digit if 3 digit MNC included
     --                                 or filler (1111)
     -- octet 3 bits 4321               Mobile Network Code 1st digit
     --         bits 8765               Mobile Network Code 2nd digit
     -- octets 4 and 5                  Location Area Code (LAC)
     -- octet 6                         Routing Area Code (RAC) for Routing Area Id
     -- octets 6 and 7                  Cell Identity (CI) for Cell Global Id
```

```
OccurrenceInfo ::= ENUMERATED {
     oneTimeEvent                       (0),
     multipleTimeEvent                  (1),
     ...}
```

```
IntervalTime ::= INTEGER (1..32767)
     -- minimum interval time between area reports in seconds
```

```
ProvideSubscriberLocation-Res ::= SEQUENCE {
     locationEstimate                   Ext-GeographicalInformation,
     ageOfLocationEstimate              [0] AgeOfLocationInformation      OPTIONAL,
     extensionContainer                 [1] ExtensionContainer            OPTIONAL,
     ... ,
     add-LocationEstimate               [2] Add-GeographicalInformation   OPTIONAL,
     deferredmt-lrResponseIndicator     [3] NULL                          OPTIONAL,
     geranPositioningData               [4] PositioningDataInformation    OPTIONAL,
     utranPositioningData               [5] UtranPositioningDataInfo      OPTIONAL,
     cellIdOrSai                        [6] CellGlobalIdOrServiceAreaIdOrLAI   OPTIONAL,
     sai-Present                        [x] NULL                          OPTIONAL }

--   if deferredmt-lrResponseIndicator is set, locationEstimate is ignored.

-- the add-LocationEstimate parameter shall not be sent to a node that did not indicate the
-- geographic shapes supported in the ProvideSubscriberLocation-Arg
-- The locationEstimate and the add-locationEstimate parameters shall not be sent if
-- the supportedGADShapes parameter has been received in ProvideSubscriberLocation-Arg
-- and the shape encoded in locationEstimate or add-LocationEstimate is not marked
-- as supported in supportedGADShapes. In such a case ProvideSubscriberLocation
-- shall be rejected with error FacilityNotSupported with additional indication
-- shapeOfLocationEstimateNotSupported.
-- sai-Present indicates that the cellIdOrSai parameter contains a Service Area Identity.
```

```
Ext-GeographicalInformation ::= OCTET STRING (SIZE (1..maxExt-GeographicalInformation))
    -- Refers to geographical Information defined in 3GPP TS 23.032.
    -- This is composed of 1 or more octets with an internal structure according to
    -- 3GPP TS 23.032
    -- Octet 1: Type of shape, only the following shapes in 3GPP TS 23.032 are allowed:
    --       (a) Ellipsoid point with uncertainty circle
    --       (b) Ellipsoid point with uncertainty ellipse
    --       (c) Ellipsoid point with altitude and uncertainty ellipsoid
    --       (d) Ellipsoid Arc
    --       (e) Ellipsoid Point
    -- Any other value in octet 1 shall be treated as invalid
    -- Octets 2 to 8 for case (a) – Ellipsoid point with uncertainty circle
    --       Degrees of Latitude                                    3 octets
    --       Degrees of Longitude                                   3 octets
    --       Uncertainty code                                       1 octet
    -- Octets 2 to 11 for case (b) – Ellipsoid point with uncertainty ellipse:
    --       Degrees of Latitude                                    3 octets
    --       Degrees of Longitude                                   3 octets
    --       Uncertainty semi-major axis                            1 octet
    --       Uncertainty semi-minor axis                            1 octet
    --       Angle of major axis                                    1 octet
    --       Confidence                                             1 octet
    -- Octets 2 to 14 for case (c) – Ellipsoid point with altitude and uncertainty ellipsoid
    --       Degrees of Latitude                                    3 octets
    --       Degrees of Longitude                                   3 octets
    --       Altitude                                               2 octets
    --       Uncertainty semi-major axis                            1 octet
    --       Uncertainty semi-minor axis                            1 octet
    --       Angle of major axis                                    1 octet
    --       Uncertainty altitude                                   1 octet
    --       Confidence                                             1 octet
    -- Octets 2 to 13 for case (d) – Ellipsoid Arc
    --       Degrees of Latitude                                    3 octets
    --       Degrees of Longitude                                   3 octets
    --       Inner radius                                           2 octets
    --       Uncertainty radius                                     1 octet
    --       Offset angle                                           1 octet
    --       Included angle                                         1 octet
    --       Confidence                                             1 octet
    -- Octets 2 to 7 for case (e) – Ellipsoid Point
    --       Degrees of Latitude                                    3 octets
    --       Degrees of Longitude                                   3 octets

    --
    -- An Ext-GeographicalInformation parameter comprising more than one octet and
    -- containing any other shape or an incorrect number of octets or coding according
    -- to 3GPP TS 23.032 shall be treated as invalid data by a receiver.
    --
    -- An Ext-GeographicalInformation parameter comprising one octet shall be discarded
    -- by the receiver if an Add-GeographicalInformation parameter is received
    -- in the same message.
    --
    -- An Ext-GeographicalInformation parameter comprising one octet shall be treated as
    -- invalid data by the receiver if an Add-GeographicalInformation parameter is not
    -- received in the same message.
```

```
maxExt-GeographicalInformation  INTEGER ::= 20
    -- the maximum length allows for further shapes in 3GPP TS 23.032 to be included in later
    -- versions of 3GPP TS 29.002
```

```
PositioningDataInformation ::= OCTET STRING (SIZE (2..maxPositioningDataInformation))
    -- Refers to the Positioning Data defined in 3GPP TS 49.031.
    -- This is composed of 2 or more octets with an internal structure according to
    -- 3GPP TS 49.031.
```

```
maxPositioningDataInformation INTEGER ::= 10
    --
```

```
UtranPositioningDataInfo ::= OCTET STRING (SIZE (3..maxUtranPositioningDataInfo))
    -- Refers to the Position Data defined in 3GPP TS 25.413.
    -- This is composed of the positioningDataDiscriminator and the positioningDataSet
    -- included in positionData as defined in 3GPP TS 25.413.
```

```
maxUtranPositioningDataInfo INTEGER ::= 11
    --
```

```
Add-GeographicalInformation ::= OCTET STRING (SIZE (1..maxAdd-GeographicalInformation))
     -- Refers to geographical Information defined in 3GPP TS 23.032.
     -- This is composed of 1 or more octets with an internal structure according to
     -- 3GPP TS 23.032
     -- Octet 1: Type of shape, all the shapes defined in 3GPP TS 23.032 are allowed:
     -- Octets 2 to n (where n is the total number of octets necessary to encode the shape
     -- according to 3GPP TS 23.032) are used to encode the shape itself in accordance with
the
     -- encoding defined in 3GPP TS 23.032
     --
     -- An Add-GeographicalInformation parameter, whether valid or invalid, received
     -- together with a valid Ext-GeographicalInformation parameter in the same message
     -- shall be discarded.
     --
     -- An Add-GeographicalInformation parameter containing any shape not defined in
     -- 3GPP TS 23.032 or an incorrect number of octets or coding according to
     -- 3GPP TS 23.032 shall be treated as invalid data by a receiver if not received
     -- together with a valid Ext-GeographicalInformation parameter in the same message.
```

```
maxAdd-GeographicalInformation  INTEGER ::= 91
     -- the maximum length allows support for all the shapes currently defined in 3GPP TS
23.032
```

```
SubscriberLocationReport-Arg ::= SEQUENCE {
     lcs-Event                          LCS-Event,
     lcs-ClientID                       LCS-ClientID,
     lcsLocationInfo                    LCSLocationInfo,
     msisdn                             [0] ISDN-AddressString             OPTIONAL,
     imsi                               [1] IMSI                           OPTIONAL,
     imei                               [2] IMEI                           OPTIONAL,
     na-ESRD                            [3] ISDN-AddressString             OPTIONAL,
     na-ESRK                            [4] ISDN-AddressString             OPTIONAL,
     locationEstimate                   [5] Ext-GeographicalInformation    OPTIONAL,
     ageOfLocationEstimate              [6] AgeOfLocationInformation       OPTIONAL,
     extensionContainer                 [7] ExtensionContainer             OPTIONAL,
     ... ,
     add-LocationEstimate               [8] Add-GeographicalInformation    OPTIONAL,
     deferredmt-lrData                  [9] Deferredmt-lrData              OPTIONAL,
     lcs-ReferenceNumber                [10] LCS-ReferenceNumber           OPTIONAL,
     geranPositioningData               [11] PositioningDataInformation    OPTIONAL,
     utranPositioningData               [12] UtranPositioningDataInfo      OPTIONAL,
     na-ESRK-Request                    [16] NULL                          OPTIONAL,
     cellIdOrSai                        [13] CellGlobalIdOrServiceAreaIdOrLAI  OPTIONAL,
     h-gmlc-Address                     [14] GSN-Address                   OPTIONAL,
     lcsServiceTypeID                   [15] LCSServiceTypeID              OPTIONAL,
     sai-Present                        [xx] NULL                          OPTIONAL }

     -- one of msisdn or imsi is mandatory
     -- a location estimate that is valid for the locationEstimate parameter should
     -- be transferred in this parameter in preference to the add-LocationEstimate.
     -- the deferredmt-lrData parameter shall be included if and only if the lcs-Event
     -- indicates a deferredmt-lrResponse.
     -- if the lcs-Event indicates a deferredmt-lrResponse then the locationEstimate
     -- and the add-locationEstimate parameters shall not be sent if the
     -- supportedGADShapes parameter had been received in ProvideSubscriberLocation-Arg
     -- and the shape encoded in locationEstimate or add-LocationEstimate was not marked
     -- as supported in supportedGADShapes. In such a case terminationCause
     -- in deferredmt-lrData shall be present with value
     -- shapeOfLocationEstimateNotSupported.
     -- If a lcs event indicates deferred mt-lr response, the lcs-Reference number shall be
     -- included.
     -- sai-Present indicates that the cellIdOrSai parameter contains a Service Area Identity.
```

```
Deferredmt-lrData ::= SEQUENCE {
     deferredLocationEventType          DeferredLocationEventType,
     terminationCause                   [0] TerminationCause               OPTIONAL,
     lcsLocationInfo                    [1] LCSLocationInfo                OPTIONAL,
     ...}
     -- lcsLocationInfo may be included only if a terminationCause is present
     -- indicating mt-lrRestart.
```

```
LCS-Event ::= ENUMERATED {
     emergencyCallOrigination  (0),
     emergencyCallRelease  (1),
     mo-lr  (2),
     ...,
     deferredmt-lrResponse  (3) }
     --   exception handling:
     --   a SubscriberLocationReport-Arg containing an unrecognized LCS-Event
     --   shall be rejected by a receiver with a return error cause of unexpected data value
```

```
TerminationCause ::= ENUMERATED {
     normal  (0),
     errorundefined  (1),
     internalTimeout  (2),
     congestion  (3),
     mt-lrRestart  (4),
     privacyViolation  (5),
     ...,
     shapeOfLocationEstimateNotSupported (6) }
-- mt-lrRestart shall be used to trigger the GMLC to restart the location procedure,
-- either because the sending node knows that the terminal has moved under coverage
-- of another MSC or SGSN (e.g. Send Identification received), or because the subscriber
-- has been deregistered due to a Cancel Location received from HLR.
--
-- exception handling
-- an unrecognized value shall be treated the same as value 1 (errorundefined)
```

```
SubscriberLocationReport-Res ::= SEQUENCE {
     extensionContainer                  ExtensionContainer                OPTIONAL,
     ...,
     na-ESRK                             [0] ISDN-AddressString            OPTIONAL }
```

```
END
```

3GPP TSG CN WG4 Meeting #23 **N4-040732**
Zagreb, CROATIA, 10th – 14th MAY 2004

CR-Form-v7

CHANGE REQUEST

⌘ **29.002** **CR** **734** ⌘ **rev** **1** ⌘ Current version: **6.5.0** ⌘

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

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

Title:	⌘	Add Additional V-GMLC parameter in MAP-SRI-INFO-FOR-LCS
Source:	⌘	CN4
Work item code:	⌘	LCS2
Date:	⌘	13/05/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

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

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

Reason for change:	⌘	During the operation MAP-SRI-INFO-FOR-LCS, HLR may return to the GMLC the V-GMLC address associated to each serving node. It is possible that each serving node (SGSN, MSC) is associated to different GMLC (V-GMLC). In order to be able to fullfil the requirement in 23.271, both GMLC addresses must be possible to be available. A new parameter is needed so that a possibly different GMLC address associated to the serving SGSN or MSC (inluded in parameter 'Additional Number') is needed.
Summary of change:	⌘	-Add definition for parameter Additional V-GMLC address. -Add the parameter in the MAP-SEND-ROUTING-INFO-FOR-LCS service primitives including its usage definition. -Add the parameter in the abstract syntax notation of the relevant operation.
Consequences if not approved:	⌘	Possible misrouting of the positioning request from GMLC between the serving SGSN and MSC. Misalignment between TSs causing coonfusion to implementers possibly resulting in implementation differences due to deferred intrerpretation.

Clauses affected:	⌘	7.6.2.64 (new), 13A.1.2, 13A.1.3, 17.7.13				
Other specs affected:	⌘	**Y**	**N**		⌘	
		X		Other core specifications		23.271 CR 268
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘					

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

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

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

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

First modification

7.6.2.58 gsmSCF Address

This parameter refers to the ISDN number assigned to the gsmSCF address. In an IP Multimedia Core Network, the gsmSCF-address shall contain the IM-SSF address when the IM-SSF takes the role of the gsmSCF.

7.6.2.59 V-GMLC Address

This parameter refers to the IP address of a V-GMLC.

7.6.2.60 Void

7.6.2.61 H-GMLC Address

This parameter refers to the IP address of a H-GMLC.

7.6.2.62 PPR Address

This parameter refers to the IP address of a Privacy Profile Register.

7.6.2.63 Routeing Number

This parameter refers to a number used for routeing purpose and identifying a network operator. See 3GPP TS 23.066 [108].

7.6.2.64 Additional V-GMLC Address

This parameter refers to the IP address of a V-GMLC.

7.6.3 Subscriber management parameters

7.6.3.1 Category

Next modification

13A.1 MAP-SEND-ROUTING-INFO-FOR-LCS Service

13A.1.1 Definition

This service is used between the GMLC and the HLR to retrieve the routing information needed for routing a location service request to the servicing VMSC or SGSN. The MAP-SEND-ROUTING-INFO-FOR-LCS is a confirmed service using the primitives from table 13A.1/1.

13A.1.2 Service Primitives

Table 13A.1/1: MAP-SEND-ROUTING-INFO-FOR-LCS

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
MLC Number	M	M(=)		
MSISDN	C	C(=)	C	C(=)
IMSI	C	C(=)	C	C(=)
LMSI			C	C(=)
Network Node Number			C	C(=)
GPRS Node Indicator			C	C(=)
Additional Number			C	C(=)
Supported LCS Capability Sets			C	C(=)
Additional LCS Capability Sets			C	C(=)
V-GMLC Address			U	C(=)
Additional V-GMLC Address			U	C(=)
H-GMLC Address			C	C(=)
PPR Address			U	C(=)
User error			C	C(=)
Provider error				O

13A.1.3 Parameter Use

Invoke id

See definition in clause 7.6.1.

MLC Number

See definition in clause 7.6.2.

MSISDN

See definition in clause 7.6.2. The request shall carry either the IMSI or MSISDN. The response shall carry whichever of these was not included in the request (see 3GPP TS 23.271 for details).

IMSI

See definition in clause 7.6.2.

LMSI

See definition in clause 7.6.2. It is an operator option to provide this parameter from the VLR; it is mandatory for the HLR to include the LMSI in a successful response, if the VLR has used the LMSI.

Network Node Number

See definition in clause 7.6.2. This parameter is provided in a successful response. If the "Network Node Number" and "Additional Number" are received in the GMLC, the "Network Node Number" is used in preference to the "Additional Number".

GPRS Node Indicator

See definition in clause 7.6.8. The presence of this parameter is mandatory only if the SGSN number is sent in the Network Node Number.

Additional Number

See definition in clause 7.6.2. This parameter is provided in a successful response. If the "Network Node Number" and "Additional Number" are received in the GMLC, the "Network Node Number" is used in preference to the "Additional Number".

Supported LCS Capability Sets

See definition in clause 7.6.11. This parameter indicates the LCS capability of the serving node that is indicated by the "Network Node Number". This parameter is provided only if LCS capability sets are available in HLR and "Network Node Number" is present in this message.

Additional LCS Capability Sets

See definition in clause 7.6.11. This parameter indicates the LCS capability of the serving node that is indicated by the "Additional Number". This parameter is provided only if LCS capability sets are available in HLR and "Additional Number" is present in this message.

V-GMLC address

See definition in clause 7.6.2. . This parameter indicates the V-GMLC address of the serving node that is indicated by the Network Node Number.

Additional V-GMLC address

See definition in clause 7.6.2. This parameter indicates the V-GMLC address of the serving node that is indicated by the Additional Number. This parameter is provided only if additional LCS capability sets are available in HLR and Additional Number is present in this message.

H-GMLC address

See definition in clause 7.6.2. The requirements for its presence are specified in 3GPP TS 23.271 [26a].

PPR address

See definition in clause 7.6.2.

User error

The following errors defined in clause 7.6.1 may be used, depending on the nature of the fault:

- Unknown subscriber;
- Absent Subscriber;
- Facility Not Supported;
- System failure;
- Unexpected Data Value;
- Data missing;
- Unauthorised requesting network.

Provider error

For definition of provider errors see clause 7.6.1.

Next modification

17.7.13 Location service data types

```
MAP-LCS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-LCS-DataTypes (25) version9 (9)}

DEFINITIONS
IMPLICIT TAGS
::=
BEGIN

EXPORTS
   RoutingInfoForLCS-Arg,
   RoutingInfoForLCS-Res,
   ProvideSubscriberLocation-Arg,
   ProvideSubscriberLocation-Res,
   SubscriberLocationReport-Arg,
   SubscriberLocationReport-Res,
   LocationType,
   DeferredLocationEventType,
   LCSClientName,
   LCS-QoS,
   Horizontal-Accuracy,
   ResponseTime,
   Ext-GeographicalInformation,
   SupportedGADShapes,
   Add-GeographicalInformation,
   LCSRequestorID,
   LCS-ReferenceNumber,
   LCSCodeword,
   AreaEventInfo
;

IMPORTS
   AddressString,
   ISDN-AddressString,
   IMEI,
   IMSI,
   LMSI,
   SubscriberIdentity,
   AgeOfLocationInformation,
   LCSClientExternalID,
   LCSClientInternalID,
   LCSServiceTypeID,
   CellGlobalIdOrServiceAreaIdOrLAI
FROM MAP-CommonDataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-CommonDataTypes (18) version9 (9)}

   ExtensionContainer
FROM MAP-ExtensionDataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version9 (9)}

   USSD-DataCodingScheme,
   USSD-String
FROM MAP-SS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-SS-DataTypes (14) version9 (9)}

   APN,
   GSN-Address,
   SupportedLCS-CapabilitySets
FROM MAP-MS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version9 (9)}

   Additional-Number
FROM MAP-SM-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-SM-DataTypes (16) version9 (9)}
;
```

```
RoutingInfoForLCS-Arg ::= SEQUENCE {
     mlcNumber                          [0] ISDN-AddressString,
     targetMS                           [1] SubscriberIdentity,
     extensionContainer                 [2] ExtensionContainer           OPTIONAL,
     ...}
```

```
RoutingInfoForLCS-Res ::= SEQUENCE {
     targetMS                          [0] SubscriberIdentity,
     lcsLocationInfo                   [1] LCSLocationInfo,
     extensionContainer                [2] ExtensionContainer            OPTIONAL,
     ...,
     v-gmlc-Address                    [3]  GSN-Address                  OPTIONAL,
     h-gmlc-Address                    [4]  GSN-Address                  OPTIONAL,
     ppr-Address                       [5]  GSN-Address                  OPTIONAL,
     additional-v-gmlc-Address         [x]  GSN-Address                  OPTIONAL }
```

```
LCSLocationInfo ::= SEQUENCE {
     networkNode-Number                ISDN-AddressString,
     -- NetworkNode-number can be either msc-number or sgsn-number
     lmsi                              [0] LMSI                          OPTIONAL,
     extensionContainer                [1] ExtensionContainer            OPTIONAL,
     ... ,
     gprsNodeIndicator                 [2] NULL                          OPTIONAL,
     -- gprsNodeIndicator is set only if the SGSN number is sent as the Network Node Number
     additional-Number                 [3] Additional-Number             OPTIONAL,
     supportedLCS-CapabilitySets       [4]  SupportedLCS-CapabilitySets  OPTIONAL,
     additional-LCS-CapabilitySets     [5]  SupportedLCS-CapabilitySets  OPTIONAL
     }
```

Modification End