3GPP TSG CN Plenary Meeting #27 **NP-050049**
9th – 11th March 2005 Tokyo, JAPAN.

Source: TSG CN WG4

Title: Corrections on Location services

Agenda item: 9.18

Document for: APPROVAL

Doc-2nd-Level	Spec	CR	Rev	Phase	Subject	Cat	Ver_C
N4-050364	24.030	022	1	Rel-6	Miss alignment with stage 2 on reuse mechanism	F	6.2.0
N4-050365	24.080	043	1	Rel-6	Miss alignment with stage 2 on reuse mechanism	F	6.2.0
N4-050366	24.030	23	1	Rel-6	Pseudonym indicator support in MO-LR	F	6.2.0
N4-050367	24.080	44	1	Rel-6	Pseudonym indicator support in MO-LR	F	6.2.0
N4-050467	29.002	763	2	Rel-6	Pseudonym indicator support in MO-LR	F	6.8.0

3GPP TSG-CN4 Meeting #26 **Tdoc N4-050364**
Sydney, Australia, 14-18 Feburary 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.030** **CR** **22** ⌘**rev** **2** ⌘ Current version: **6.2.0** ⌘

*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 [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Miss alignment with stage 2 on reuse mechanism
Source:	⌘	CN4
Work item code:	⌘	LCS2
Date:	⌘	20/Jan/2005
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:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Reuse of UE's location mechanism was introduced to 3GPP LCS as the release 6 function in SA2 (Tdoc: S2-030350). This mechanism makes it possible to avoid heavy unnecessary signalling load caused frequent location requests. While this function requires small protocol updates in several LCS interfaces, it seems UE-CN interface updates are missing.
Summary of change:	⌘	Add "requested maximum age of location" and "the requested type of location" to the Service invoke message that is sent from UE to CN in MO-LR procedure. Note that this message is described in both 4th flow in section 9.2.1 and 2nd flow in section 9.2.2.1 in TS 23.271 (LCS stage 2)
Consequences if not approved:	⌘	Frequent location requests may cause serious signalling traffic problem to the network.

Clauses affected:	⌘	5.1.1			
Other specs affected:	⌘	Y: X / N:	Other core specifications	⌘	24.080-CR043
		Y: / N: X	Test specifications		
		Y: / N: 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:

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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 Changes

5 Mobile initiated location services operations

5.1 Mobile Originated Location Request (MO-LR)

5.1.1 Normal operation

The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component. SS Version Indicator value 1 or above shall be used.

The receiving network entity shall initiate the handling of location request in the network. The network shall pass the result of the location procedure to the MS by sending a FACILITY message to the MS containing a LCS-MOLR return result component. When location estimate is kept in the network entity and this information satisfies the requested accuracy and the requested maximum age of location, then the network may reuse this information and the positioning measurement procedure may be skipped.

The network shall pass the result of the location procedure to the MS only if the location estimate is given in a format that the MS supports, as indicated by either the presence (and content) or the absence of the parameter supportedGADShapes, which may be sent by the MS in the LCS-MOLR operation.

The MS may terminate the dialogue by sending a RELEASE COMPLETE message in the case of single location request (see figure 5.1). The MS may also initiate another location request operation by sending a FACILITY message to the network containing a LCS-MOLR invoke component (see figure 5.2). After the last location request operation the MS shall terminate the dialogue by sending a RELEASE COMPLETE message.

If the network is unable to successfully fulfil the request received from the MS (e.g. to provide a location estimate or location assistance information), it shall clear the transaction by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080. If the network is unable to provide a location estimate due to lack of support in the MS for the type of shape of the location estimate, then it shall use the error Facility Not Supported.

If the network has returned a result to the MS in a FACILITY message but, after some PLMN administered time period has elapsed, has not received either a new location request operation in a FACILITY message or a RELEASE COMPLETE message from the MS, the network may clear the transaction by sending a RELEASE COMPLETE message.

During the MO-LR operation the MS shall run a timer T(LCSL). This timer is started when the operation is sent, and stopped when a response is received from the network. If this timer expires the MS shall assume that the operation has failed, and may terminate the dialogue by sending a RELEASE COMPLETE message, and shall inform the user of the failure.

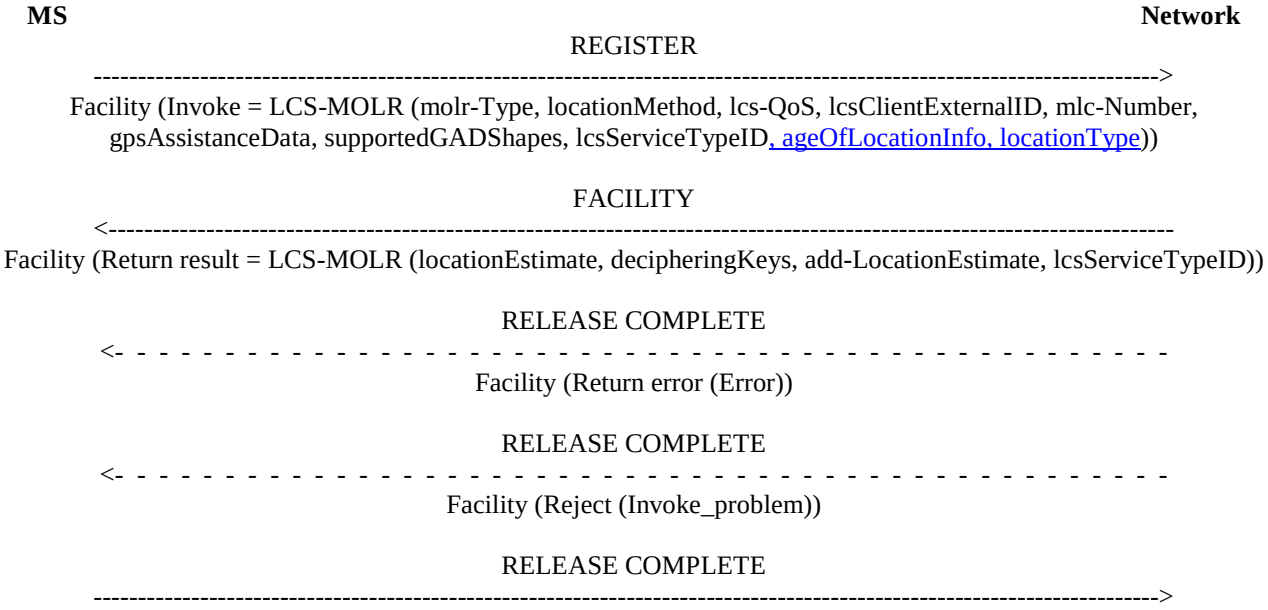

Figure 5.1: Single mobile originated location request

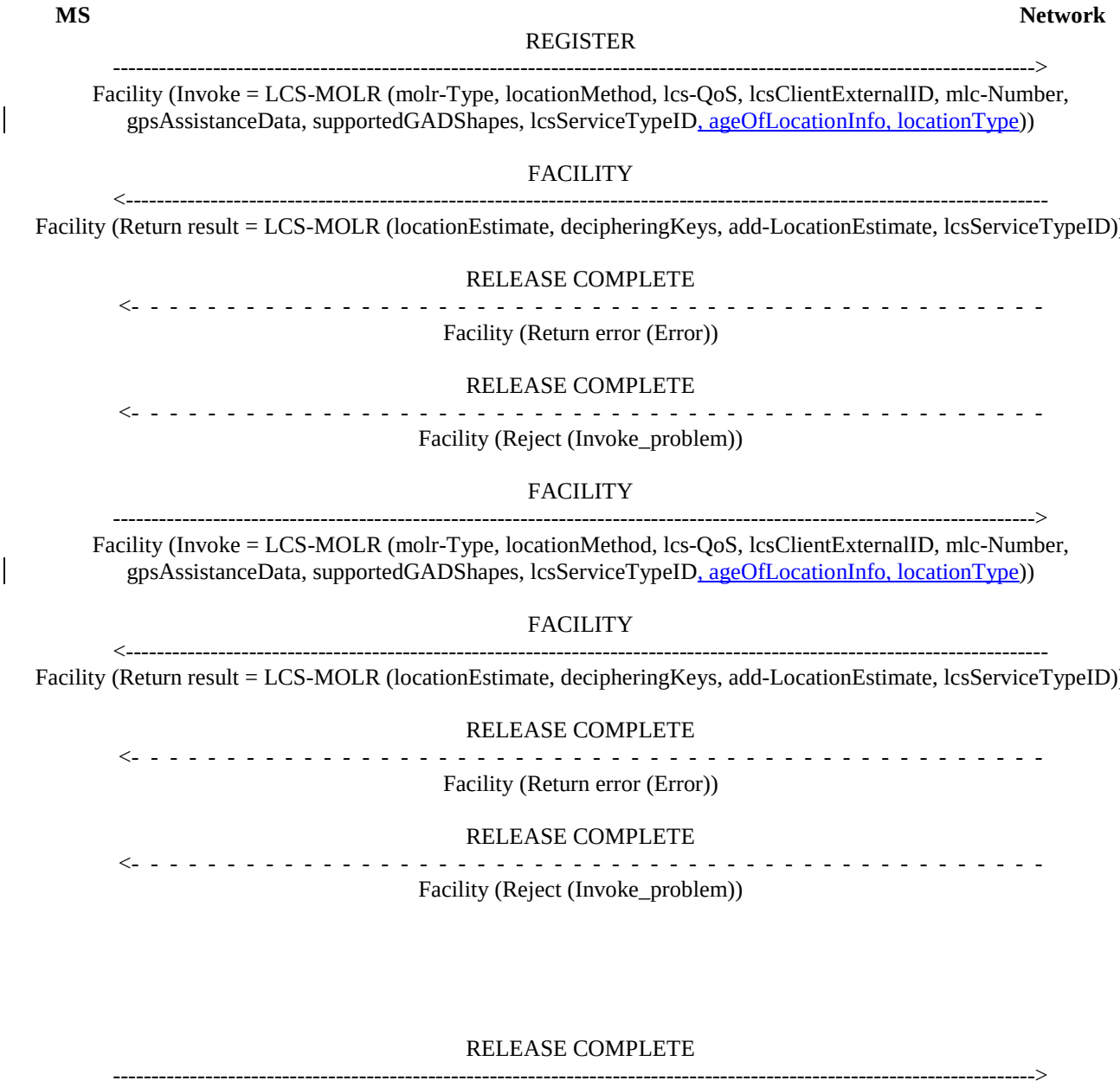

Figure 5.2: Multiple mobile originated location requests

End of First Changes

3GPP TSG-CN4 Meeting #26 **Tdoc N4-050365**
Sydney, Australia, 14-18 Feburary 2005

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.080** **CR** **043** ⌘**rev** **1** ⌘ Current version: **6.2.0** ⌘

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Reason for change:	⌘	Reuse of UE's location mechanism was introduced to 3GPP LCS as the release 6 function in SA2 (Tdoc: S2-030350). This mechanism makes it possible to avoid heavy unnecessary signalling load caused frequent location requests. While this function requires small protocol updates in several LCS interfaces, it seems UE-CN interface updates are missing.
Summary of change:	⌘	Add "requested maximum age of location" and "the requested type of location" to the Service invoke message that is sent from UE to CN in MO-LR procedure. Note that this message is described in both 4th flow in section 9.2.1 and 2nd flow in section 9.2.2.1 in TS 23.271 (LCS stage 2)
Consequences if not approved:	⌘	Frequent location requests may cause serious signalling traffic problem to the network.

Clauses affected:	⌘	4.4.2			
Other specs affected:	⌘	Y: X / N:	Other core specifications	⌘	24.030-CR022
		Y: / N: X	Test specifications		
		Y: / N: X	O&M Specifications		
Other comments:	⌘	The compile work for ASN.1 is nessesary in order to update Annex A.			

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First Changes

4.4.2 ASN.1 data types

This subclause provides an ASN.1 module defining the abstract data types in operations and errors specification. Only data types which are specific for this specification are defined. All other data types are imported from MAP together with the import of operations and errors.

```
SS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Access (2) modules (3)
   ss-DataTypes (2) version9 (9)}

DEFINITIONS

IMPLICIT TAGS ::=

BEGIN

-- exports all data types defined in this module

IMPORTS

SS-Code
FROM MAP-SS-Code {
   itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-SS-Code (15) version9 (9)}

-- imports MAP-SS-DataTypes
SS-Status, USSD-DataCodingScheme, USSD-String, CCBS-Feature
-- USSD-DataCodingScheme, USSD-String were introduced because of CNAP.
FROM MAP-SS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-SS-DataTypes (14) version9 (9)}

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

maxSignalInfoLength,
ISDN-AddressString,
ISDN-SubaddressString,
AlertingPattern,
LCSClientExternalID,
AddressString,
LCSServiceTypeID,
AgeOfLocationInformation
FROM MAP-CommonDataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0) gsm-Network (1) modules (3)
   map-CommonDataTypes (18) version9 (9)}

LocationType,
DeferredLocationEventType,
LCSClientName,
LCS-QoS,
Horizontal-Accuracy,
ResponseTime,
Ext-GeographicalInformation,
SupportedGADShapes,
Add-GeographicalInformation,
LCSRequestorID,
LCS-ReferenceNumber,
LCSCodeword,
AreaEventInfo
FROM MAP-LCS-DataTypes {
   itu-t identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-LCS-DataTypes (25) version9 (9)}

;

-- data types definition
```

```
SS-UserData ::= IA5String (SIZE (1.. maxSignalInfoLength))

NotifySS-Arg ::= SEQUENCE{
    ss-Code                     [1]     SS-Code OPTIONAL,
    ss-Status                   [4]     SS-Status OPTIONAL,
    ss-Notification             [5]     SS-Notification OPTIONAL,
    callIsWaiting-Indicator     [14]    NULL OPTIONAL,
    callOnHold-Indicator        [15]    CallOnHold-Indicator OPTIONAL,
    mpty-Indicator              [16]    NULL OPTIONAL,
    cug-Index                   [17]    CUG-Index OPTIONAL,
    clirSuppressionRejected     [18]    NULL OPTIONAL,
    ... ,
    ect-Indicator               [19]    ECT-Indicator OPTIONAL,
    nameIndicator               [20]    NameIndicator OPTIONAL,
    ccbs-Feature                [21]    CCBS-Feature OPTIONAL,
    alertingPattern             [22]    AlertingPattern OPTIONAL,
    multicall-Indicator         [23]    Multicall-Indicator OPTIONAL}

--  The nameIndicator is defined because of CNAP.

Multicall-Indicator ::= ENUMERATED {
        nbr-SNexceeded (0),
        nbr-Userexceeded (1)}

ForwardChargeAdviceArg ::= SEQUENCE{
    ss-Code                     [0]     SS-Code,
    chargingInformation         [1]     ChargingInformation,
    ...}

SS-Notification ::= OCTET STRING (SIZE (1))

--    Bit 8 7 6 5 4 00000 (Unused)

--  Bit 3   Call is forwarded indication to A-subscriber
--      (calling subscriber)
--  0   No information content
--  1   Outgoing call has been forwarded to C

--  Bit 2   Call is forwarded indication to B-subscriber
--      (forwarding subscriber)
--  0   No information content
--  1   Incoming call has been forwarded to C

--  Bit 1   Call is forwarded indication to C-subscriber
--      (forwarded-to subscriber)
--  0   No information content
--  1   Incoming call is a forwarded call

ChargingInformation ::= SEQUENCE{
    e1  [1] E1 OPTIONAL,
    e2  [2] E2 OPTIONAL,
    e3  [3] E3 OPTIONAL,
    e4  [4] E4 OPTIONAL,
    e5  [5] E5 OPTIONAL,
    e6  [6] E6 OPTIONAL,
    e7  [7] E7 OPTIONAL,
    ...}

E1 ::= INTEGER (0..max10TimesUnitsPerTime)
max10TimesUnitsPerTime INTEGER ::= 8191

E2 ::= INTEGER (0..max10TimesTimeInterval)
max10TimesTimeInterval INTEGER ::= 8191

E3 ::= INTEGER (0..max100TimesScalingFactor)
max100TimesScalingFactor INTEGER ::= 8191

E4 ::= INTEGER (0..max10TimesIncrement)
max10TimesIncrement INTEGER ::= 8191

E5 ::= INTEGER (0..max10TimesIncrementPerDataInterval)
max10TimesIncrementPerDataInterval INTEGER ::= 8191

E6 ::= INTEGER (0..maxNumberOfSegmentsPerDataInterval)
maxNumberOfSegmentsPerDataInterval INTEGER ::= 8191

E7 ::= INTEGER (0..max10TimesInitialTime)
max10TimesInitialTime INTEGER ::= 8191
```

```
CallOnHold-Indicator    ::= ENUMERATED {
            callRetrieved (0),
            callOnHold (1)}

ForwardCUG-InfoArg ::= SEQUENCE {
    cug-Index           [0] CUG-Index OPTIONAL,
    suppressPrefCUG     [1] NULL OPTIONAL,
    suppressOA          [2] NULL OPTIONAL,
    ...}

ECT-Indicator   ::= SEQUENCE {
    ect-CallState       [0] ECT-CallState,
    rdn [1] RDN OPTIONAL,
    ...}

ECT-CallState   ::= ENUMERATED {
        alerting (0),
        active (1)}

    NameIndicator ::= SEQUENCE {
        callingName     [0] Name OPTIONAL,
        ...}

    Name ::= CHOICE {
        namePresentationAllowed     [0] NameSet,
        presentationRestricted      [1] NULL,
        nameUnavailable             [2] NULL,
        namePresentationRestricted  [3] NameSet}

    NameSet ::= SEQUENCE {
        dataCodingScheme        [0] USSD-DataCodingScheme,
        lengthInCharacters      [1] INTEGER,
        nameString              [2] USSD-String,
        ...}

-- NameIndicator, Name and NameSet are defined because of CNAP.
-- 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|

RDN ::= CHOICE {
    presentationAllowedAddress              [0] RemotePartyNumber,
    presentationRestricted                  [1] NULL,
    numberNotAvailableDueToInterworking     [2] NULL,
    presentationRestrictedAddress           [3] RemotePartyNumber}

RemotePartyNumber   ::= SEQUENCE {
    partyNumber             [0] ISDN-AddressString,
    partyNumberSubaddress   [1] ISDN-SubaddressString OPTIONAL,
    ...}

AccessRegisterCCEntryArg    ::= SEQUENCE {
    ...}

CallDeflectionArg   ::= SEQUENCE {
    deflectedToNumber       [0] AddressString,
    deflectedToSubaddress   [1] ISDN-SubaddressString OPTIONAL,
    ...}

UserUserServiceArg ::= SEQUENCE {
    uUS-Service     [0] UUS-Service,
    uUS-Required    [1] BOOLEAN,
    ... }

UUS-Service ::= ENUMERATED {
    uUS1 (1),
    uUS2 (2),
    uUS3 (3),
    ... }

-- exception handling:
-- In case of UUS-Service with any other value, indicated as "UUS required",
-- but not understood by the MS, the call will be cleared.

LocationNotificationArg ::= SEQUENCE {
    notificationType    [0] NotificationToMSUser,
```

```
    locationType        [1] LocationType,
    lcsClientExternalID [2] LCSClientExternalID     OPTIONAL,
    lcsClientName       [3] LCSClientName           OPTIONAL,
    ... ,
    lcsRequestorID      [4] LCSRequestorID          OPTIONAL,
    lcsCodeword         [5] LCSCodeword             OPTIONAL,
    lcsServiceTypeID    [6] LCSServiceTypeID        OPTIONAL }
-- exception handling:
-- At reception of an unrecognised notificationType value the receiver shall reject the
-- operation with a return error cause of unexpected data value.
-- At reception of an unrecognised locationType value the receiver shall reject the
-- operation with a return error cause of unexpected data value.


LocationNotificationRes ::= SEQUENCE {
    verificationResponse        [0] VerificationResponse OPTIONAL,
    ...}

VerificationResponse::= ENUMERATED {
    permissionDenied    (0),
    permissionGranted   (1),
    ... }

-- exception handling:
-- an unrecognized value shall be treated the same as value 0 (permissionDenied)

LCS-MOLRArg ::= SEQUENCE {
    molr-Type           [0] MOLR-Type,
    locationMethod      [1] LocationMethod          OPTIONAL,
    lcs-QoS             [2] LCS-QoS                 OPTIONAL,
    lcsClientExternalID [3] LCSClientExternalID     OPTIONAL,
    mlc-Number          [4] ISDN-AddressString      OPTIONAL,
    gpsAssistanceData   [5] GPSAssistanceData       OPTIONAL,
    ...,
    supportedGADShapes  [6] SupportedGADShapes      OPTIONAL,
    lcsServiceTypeID    [7] LCSServiceTypeID        OPTIONAL,
    ageOfLocationInfo   [x] AgeOfLocationInformation    OPTIONAL,
    locationType        [y] LocationType            OPTIONAL }
-- The parameter locationMethod shall be included if and only if the molr-Type is set to value
-- deCipheringKeys or assistanceData.
-- The parameter gpsAssistanceData shall be included if and only if the molr-Type is set to value
-- assistanceData and locationMethod is set to value assistedGPS.

MOLR-Type::= ENUMERATED {
    locationEstimate            (0),
    assistanceData              (1),
    deCipheringKeys             (2),
    ... }
-- exception handling:
-- an unrecognized value shall be rejected by the receiver with a return error cause of
-- unexpected data value.

LocationMethod::= ENUMERATED {
    msBasedEOTD         (0),
    msAssistedEOTD      (1),
    assistedGPS         (2),
    ...,
    msBasedOTDOA        (3)
    }
-- exception handling:
-- When this parameter is received with value msBasedEOTD or msAssistedEOTD and the MS
-- is camped on an UMTS Service Area then the receiver shall reject it
-- with a return error cause of unexpected data value.
-- When this parameter is received with value msBasedOTDOA and the MS
-- is camped on a GSM Cell then the receiver shall reject it with a return error cause of
-- unexpected data value.
-- an unrecognized value shall be rejected by the receiver with a return error cause of
-- unexpected data value.

GPSAssistanceData::= OCTET STRING (SIZE (1..38))
-- Octets 1 to 38 are coded in the same way as the octets 3 to 7+2n of Requested GPS Data IE
-- in 3GPP TS 49.031.

LCS-MOLRRes::= SEQUENCE {
    locationEstimate        [0] Ext-GeographicalInformation     OPTIONAL,
    decipheringKeys         [1] DecipheringKeys                 OPTIONAL,
    ...,
    add-LocationEstimate    [2] Add-GeographicalInformation         OPTIONAL}
```

```
-- Parameters locationEstimate or add-LocationEstimate (one but not both)
-- shall be included if and only if the
-- molr-Type in LocationRequestArg was set to value locationEstimate.
-- Parameter add-LocationEstimate shall not be included if the supportedGADShapes
-- parameter was not received in the LCS-MOLRArg.
-- The locationEstimate and the add-locationEstimate parameters shall not be sent if
-- the supportedGADShapes parameter has been received in LCS-MOLRArg
-- and the shape encoded in locationEstimate or add-LocationEstimate is not marked
-- as supported in supportedGADShapes. In such a case LCS-MOLRArg
-- shall be rejected with error FacilityNotSupported with additional indication
-- shapeOfLocationEstimateNotSupported.
-- Parameter decipheringKeys shall be included if and only if the molr-Type
-- in LocationRequestArg was set to value deCipheringKeys.


DecipheringKeys::= OCTET STRING (SIZE (15))
-- Octets in DecipheringKeys are coded in the same way as the octets 3 to 17 of Deciphering Key IE
-- in 3GPP TS 49.031. I.e. these octets contain Current Deciphering Key, Next Deciphering Key and
-- Ciphering Key Flag.
LCS-AreaEventRequestArg ::= SEQUENCE {
    referenceNumber             [0] LCS-ReferenceNumber,
    h-gmlc-address              [1] GSN-Address,
    deferredLocationEventType   [3] DeferredLocationEventType,
    areaEventInfo               [4] AreaEventInfo,
    ... }

-- the msAvailableValue in the DeferredLocationEventType is not applicable for this procedure

LCS-AreaEventReportArg  ::= SEQUENCE {
    referenceNumber             [0] LCS-ReferenceNumber,
    h-gmlc-address              [1] GSN-Address,
    ... }

LCS-AreaEventCancellationArg    ::= SEQUENCE {
    referenceNumber             [0] LCS-ReferenceNumber,
    h-gmlc-address              [1] GSN-Address,
    ... }

END
```

End of First Changes

3GPP TSG CN WG4 Meeting #26
Sydney, Australia, February 14-18, 2005

Tdoc ⌘ N4-050366
Revised N4-050246

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.030** **CR** **23** ⌘ **rev** **1** ⌘ Current version: **6.2.0** ⌘

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

Title:	⌘	Pseudonym indicator support in MO-LR
Source:	⌘	CN4
Work item code:	⌘	LCS2
Date:	⌘	16/02/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

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Rel-7	*(Release 7)*

Reason for change:	⌘	In the current stage 2 specification TS 23.271, it shall be possible for the UE to indicate the network to assign a pseudonym and send it to the LCS Client as the UE's identity. This functionality shall be supported in stage 3. In TS 24.030, the LCS-MOLR operation should be enhanced to fulfil this requirement.
Summary of change:	⌘	Add the parameter "pseudonymIndicator" to the LCS-MOLR operation.
Consequences if not approved:	⌘	The stage 3 cannot support pseudonym indicator in MO-LR procedure, which causes misalignment between stage 2 and state 3 specifications.

Clauses affected:	⌘	5.1.1

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		TS 24.080 CR 44, TS 29.002 CR 763
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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<< First changed clause >>

5.1.1 Normal operation

The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component. SS Version Indicator value 1 or above shall be used.

The receiving network entity shall initiate the handling of location request in the network. The network shall pass the result of the location procedure to the MS by sending a FACILITY message to the MS containing a LCS-MOLR return result component.

The network shall pass the result of the location procedure to the MS only if the location estimate is given in a format that the MS supports, as indicated by either the presence (and content) or the absence of the parameter supportedGADShapes, which may be sent by the MS in the LCS-MOLR operation.

The MS may terminate the dialogue by sending a RELEASE COMPLETE message in the case of single location request (see figure 5.1). The MS may also initiate another location request operation by sending a FACILITY message to the network containing a LCS-MOLR invoke component (see figure 5.2). After the last location request operation the MS shall terminate the dialogue by sending a RELEASE COMPLETE message.

If the network is unable to successfully fulfil the request received from the MS (e.g. to provide a location estimate or location assistance information), it shall clear the transaction by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080. If the network is unable to provide a location estimate due to lack of support in the MS for the type of shape of the location estimate, then it shall use the error Facility Not Supported.

If the network has returned a result to the MS in a FACILITY message but, after some PLMN administered time period has elapsed, has not received either a new location request operation in a FACILITY message or a RELEASE COMPLETE message from the MS, the network may clear the transaction by sending a RELEASE COMPLETE message.

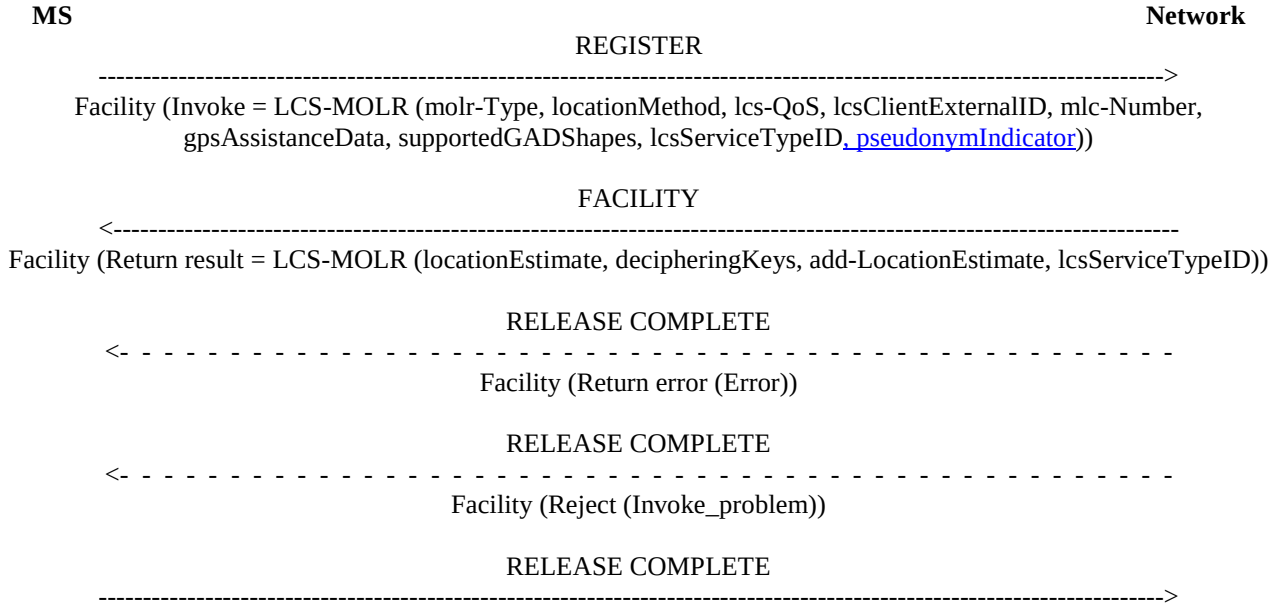

Figure 5.1: Single mobile originated location request

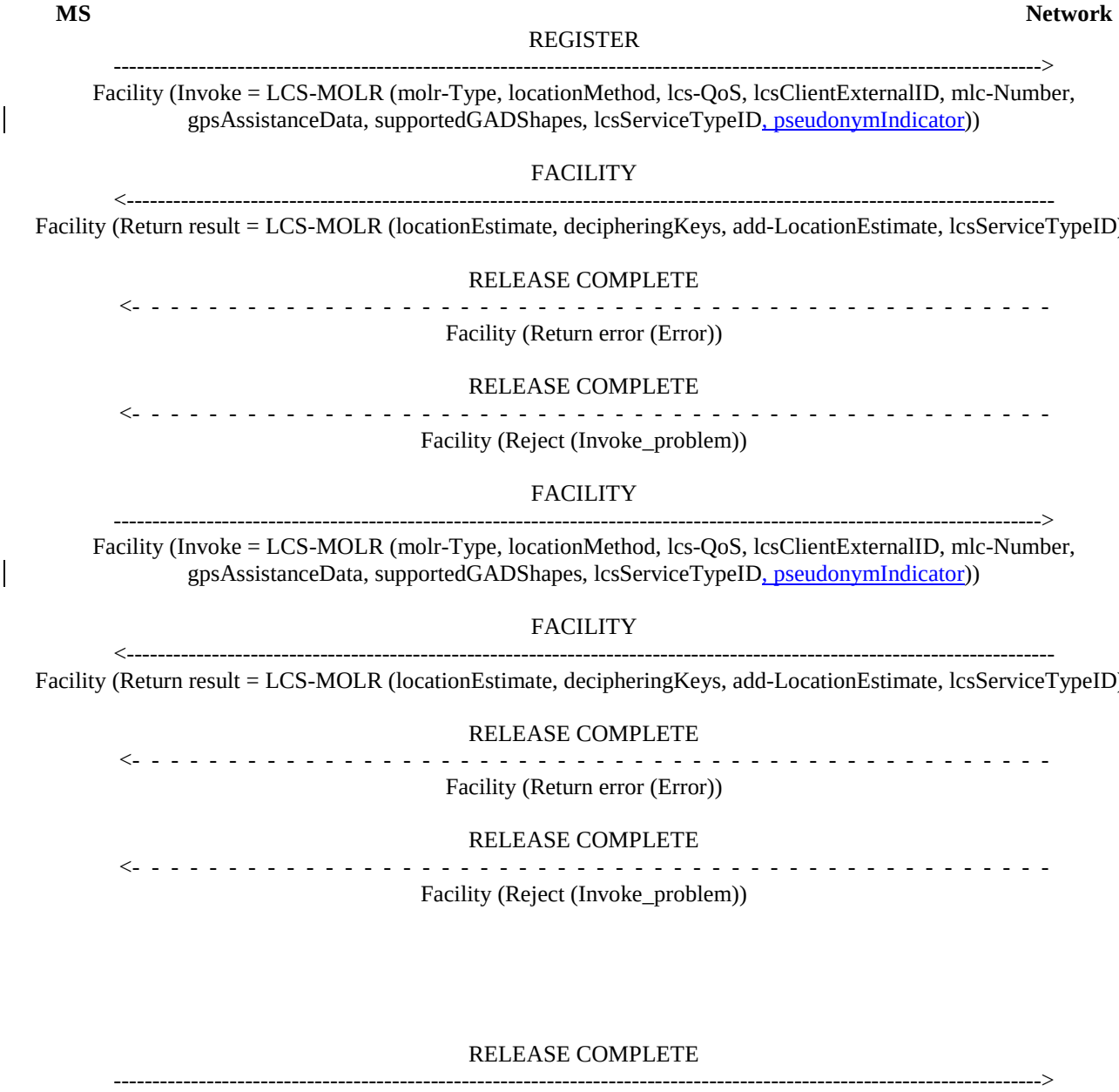

Figure 5.2: Multiple mobile originated location requests

<< End of changed clause >>

3GPP TSG CN WG4 Meeting #26
Sydney, Australia, February 14-18, 2005

Tdoc ⌘ N4-050367
Revised N4-050247

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.080** **CR** **44** ⌘ **rev** **1** ⌘ Current version: **6.2.0** ⌘

*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:	⌘	Pseudonym indicator support in MO-LR
Source:	⌘	CN4
Work item code:	⌘	LCS2
Date:	⌘	16/02/2005
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:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	In the current stage 2 specification TS 23.271, it shall be possible for the UE to indicate the network to assign a pseudonym and send it to the LCS Client as the UE's identity. This functionality shall be supported in stage 3. In TS 24.080, the lcs-MOLRArg message should be enhanced to fulfil this requirement.
Summary of change:	⌘	Add the parameter "pseudonymIndicator" to the lcs-MOLRArg.
Consequences if not approved:	⌘	The stage 3 cannot support pseudonym indicator in MO-LR procedure, which causes misalignment between stage 2 and state 3 specifications.

Clauses affected:	⌘	4.4.2, 4.4.3

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	TS 24.030 CR 23, TS 29.002 CR 763
			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 changed clause >>

4.4.2 ASN.1 data types

```
LCS-MOLRArg ::= SEQUENCE {
    molr-Type           [0] MOLR-Type,
    locationMethod      [1] LocationMethod          OPTIONAL,
    lcs-QoS             [2] LCS-QoS                 OPTIONAL,
    lcsClientExternalID [3] LCSClientExternalID     OPTIONAL,
    mlc-Number          [4] ISDN-AddressString      OPTIONAL,
    gpsAssistanceData   [5] GPSAssistanceData       OPTIONAL,
    ...,
    supportedGADShapes  [6] SupportedGADShapes      OPTIONAL,
    lcsServiceTypeID    [7] LCSServiceTypeID        OPTIONAL,
    pseudonymIndicator  [8] NULL                    OPTIONAL}
-- The parameter locationMethod shall be included if and only if the molr-Type is set to value
-- deCipheringKeys or assistanceData.
-- The parameter gpsAssistanceData shall be included if and only if the molr-Type is set to value
-- assistanceData and locationMethod is set to value assistedGPS.

MOLR-Type::= ENUMERATED {
    locationEstimate            (0),
    assistanceData              (1),
    deCipheringKeys             (2),
    ... }
-- exception handling:
-- an unrecognized value shall be rejected by the receiver with a return error cause of
-- unexpected data value.

LocationMethod::= ENUMERATED {
    msBasedEOTD         (0),
    msAssistedEOTD      (1),
    assistedGPS         (2),
    ...,
    msBasedOTDOA        (3)
    }
-- exception handling:
-- When this parameter is received with value msBasedEOTD or msAssistedEOTD and the MS
-- is camped on an UMTS Service Area then the receiver shall reject it
-- with a return error cause of unexpected data value.
-- When this parameter is received with value msBasedOTDOA and the MS
-- is camped on a GSM Cell then the receiver shall reject it with a return error cause of
-- unexpected data value.
-- an unrecognized value shall be rejected by the receiver with a return error cause of
-- unexpected data value.

GPSAssistanceData::= OCTET STRING (SIZE (1..38))
-- Octets 1 to 38 are coded in the same way as the octets 3 to 7+2n of Requested GPS Data IE
-- in 3GPP TS 49.031.

LCS-MOLRRes::= SEQUENCE {
    locationEstimate        [0] Ext-GeographicalInformation     OPTIONAL,
    decipheringKeys         [1] DecipheringKeys                 OPTIONAL,
    ...,
    add-LocationEstimate    [2] Add-GeographicalInformation         OPTIONAL}
-- Parameters locationEstimate or add-LocationEstimate (one but not both)
-- shall be included if and only if the
-- molr-Type in LocationRequestArg was set to value locationEstimate.
-- Parameter add-LocationEstimate shall not be included if the supportedGADShapes
-- parameter was not received in the LCS-MOLRArg.
-- The locationEstimate and the add-locationEstimate parameters shall not be sent if
-- the supportedGADShapes parameter has been received in LCS-MOLRArg
-- and the shape encoded in locationEstimate or add-LocationEstimate is not marked
-- as supported in supportedGADShapes. In such a case LCS-MOLRArg
-- shall be rejected with error FacilityNotSupported with additional indication
-- shapeOfLocationEstimateNotSupported.
-- Parameter decipheringKeys shall be included if and only if the molr-Type
-- in LocationRequestArg was set to value deCipheringKeys.


DecipheringKeys::= OCTET STRING (SIZE (15))
-- Octets in DecipheringKeys are coded in the same way as the octets 3 to 17 of Deciphering Key IE
-- in 3GPP TS 49.031. I.e. these octets contain Current Deciphering Key, Next Deciphering Key and
-- Ciphering Key Flag.
LCS-AreaEventRequestArg ::= SEQUENCE {
```

```
    referenceNumber             [0] LCS-ReferenceNumber,
    h-gmlc-address              [1] GSN-Address,
    deferredLocationEventType   [3] DeferredLocationEventType,
    areaEventInfo               [4] AreaEventInfo,
    ... }

-- the msAvailableValue in the DeferredLocationEventType is not applicable for this procedure

LCS-AreaEventReportArg  ::= SEQUENCE {
    referenceNumber             [0] LCS-ReferenceNumber,
    h-gmlc-address              [1] GSN-Address,
    ... }

LCS-AreaEventCancellationArg    ::= SEQUENCE {
    referenceNumber             [0] LCS-ReferenceNumber,
    h-gmlc-address              [1] GSN-Address,
    ... }

END
```

<< Next changed clause >>

4.4.3 Identifiers definition

The parameters which are described in the following subclauses correspond to the identifiers used in operation and error descriptions.

4.4.3.1 chargingInformation

The chargingInformation identifier refers to the necessary information for the Advice of Charge supplementary service (see TS 22.024).

4.4.3.2 e1

The e1 identifier refers to 10 times the number of LPLMN units per time interval in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.3 e2

The e2 identifier refers to 10 times the length of the time interval in seconds in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.4 e3

The e3 identifier refers to 100 times the scaling factor to convert from LPLMN units to HPLMN units in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.5 e4

The e4 identifier refers to 10 times the LPLMN increment in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.6 e5

The e5 identifier refers to 10 times the number of LPLMN units incremented per data interval in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.7 e6

The e6 identifier refers to the number of segments per data interval in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.8 e7

The e7 identifier refers to 10 times the length of the initial time interval in seconds in connection with the Advice of Charge supplementary service, see TS 22.024.

4.4.3.9 ss-Code

The ss-Code identifier refers to the code which identify a supplementary service or a group of supplementary services.

4.4.3.10 ss-Notification

The ss-Notification identifier refers to one or several supplementary service notifications which have to be forwarded to a mobile subscriber.

4.4.3.11 ss-Status

The ss-Status identifier refers to the status of a supplementary service.

4.4.3.12 callIsWaiting-Indicator

The callIsWaiting-Indicator identifier refers to the indication given to the mobile station that the call is waiting.

4.4.3.13 callOnhold-Indicator

The callOnHold-Indicator identifier refers to the indication given to the mobile station that the call has been put on hold or has been retrieved.

4.4.3.14 mpty-Indicator

The mpty-Indicator identifier refers to the indication given to the mobile station that the multi party call has been invoked.

4.4.3.15 forwardCUG-InfoArg

The forwardCUG-InfoArg identifier refers to the indication given from the mobile subscriber to the network in connection with explicit invocation of a CUG call.

4.4.3.16 cug-Index

The cug-Index identifier refers to the index of a CUG given in an explicit invocation of a CUG call.

4.4.3.17 suppressPrefCUG

The suppressPrefCUG identifier refers to the mobile subscribers request to the network to prohibit the use of the preferential CUG.

4.4.3.18 suppressOA

The suppressOA identifier refers to the mobile subscribers request to the network to prohibit the use of the subscriber option "OA allowed".

4.4.3.19 clirSuppressionRejected

The clirSuppressionRejected identifier refers to the indication given to the mobile station that the CLIR suppression request has been rejected.

4.4.3.20 ect-Indicator

The ect-Indicator identifier refers to the indication given to the mobile station that the call was transferred.

4.4.3.21 ect-CallState

The ect-CallState identifier refers to the state of the call to the other remote party in which Explicit Call Transfer was invoked.

4.4.3.22 rdn

The Rdn identifier refers to the line identity information of the other remote party.

4.4.3.23 presentationAllowedAddress

The presentationAllowedAddress identifier refers to the line identity of the other remote party that is allowed to be presented.

4.4.3.24 presentationRestricted

The presentationRestricted identifier refers to the restriction of presentation of the line identity of the other remote party.

Also, the identifier refers to the restriction of presentation of the name identity of the calling party to the called party.

4.4.3.25 numberNotAvailableDueToInterworking

The numberNotAvailableDueToInterworking identifier refers to the unavailability of the line identity of the other remote party.

4.4.3.26 presentationRestrictedAddress

The presentationRestrictedAddress identifier refers to the line identity of the other remote party which presentation restriction is overridden.

4.4.3.27 partyNumber

The partyNumber identifier refers to the remote party number.

4.4.3.28 partyNumberSubaddress

The partyNumberSubaddress identifier refers to remote party number subaddress.

4.4.3.29 nameIndicator

The nameIndicator identifier refers to the indication given to the mobile station that the name presentation has been invoked.

4.4.3.30 namePresentationAllowed

The namePresentationAllowed identifier refers to the presentation of the calling party’s name identity to the called party.

4.4.3.31 nameUnavailable

The nameUnavailable identifier refers to the unavailability of the calling party’s name identity to be offered to the called party.

4.4.3.32 namePresentationRestricted

The namePresentationRestricted identifier refers to the calling party's name identity to be offered to the called party with which presentation restriction is overridden.

4.4.3.33 deflectedToNumber

The DeflectedToNumber identifier refers to a party an incoming shall be deflected to.

4.4.3.34 deflectedToSubaddress

The DeflectedToSubaddress identifier refers to a subaddress an incoming call shall be deflected to.

4.4.3.35 uUS-Service

The uUS-Service identifier refers to the UUS service (service 1, service 2 or service 3) to be requested.

4.4.3.36 uUS-Required

The uUS-Required identifier refers to the option ("UUS required" or "UUS not required") given when requesting the UUS service.

4.4.3.37 locationNotificationArg

The locationNotificationArg identifier refers to the location notification request which is sent to the MS by the network.

4.4.3.38 notificationType

The notificationType identifier refers to the type of location notification (notification or privacy verification).

4.4.3.39 locationNotificationRes

The locationNotificationRes identifier refers to the location notification response which is sent to the network by the MS.

4.4.3.40 verificationResponse

The VerificationResponse identifier refers to the privacy verification response given by the MS user.

4.4.3.41 lcs-MOLRArg

The lcs-MOLRArg identifier refers to the MO-LR request parameters which are sent to the network by the MS.

4.4.3.42 molr-Type

The molr-Type identifier refers to the type of MO-LR.

4.4.3.43 locationMethod

The locationMethod identifier refers to the location method, for which assistance data is requested by the MS.

4.4.3.44 gpsAssistanceData

The gpsAssistanceData identifier refers to the indication, which GPS assistance data is requested by the MS.

4.4.3.45 lcs-MOLRRes

The lcs-MOLRRes identifier refers to the MO-LR response parameters which are sent to the MS by the network.

4.4.3.46 decipheringKeys

The decipheringKeys identifier refers to the set of deciphering keys, that contains Current Deciphering Key, Next Deciphering Key and Ciphering Key Flag.

4.4.3.47 multicall-Indicator

The multicall-Indicator identifier refers to the indication given to the mobile station that the number of active bearers has exceeded the maximum number.

4.4.3.48 pseudonymIndicator

The pseudonymIndicator identifier refers to the indication given to the LCS server that the pseudonym is needed.

<< End of changed clause >>

3GPP TSG CN WG4 Meeting #26
Sydney, Australia, February 14-18, 2005

Tdoc ⌘ N4-050467
Revised N4-050368, N4-050248

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.002** **CR** **763** ⌘ **rev** **2** ⌘ Current version: **6.8.0** ⌘

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

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

Title:	⌘	Pseudonym indicator support in MO-LR
Source:	⌘	CN4
Work item code:	⌘	LCS2
Date:	⌘	18/02/2005
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:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	In the current stage 2 specification TS 23.271, it shall be possible for the UE to indicate the network to assign a pseudonym and send it to the LCS Client as the UE's identity. This functionality shall be supported in stage 3. In TS 29.002, the MAP-SUBSCRIBER-LOCATION-REPORT message should be enhanced to fulfil this requirement.
Summary of change:	⌘	Add the parameter "Pseudonym Indicator" to the MAP-SUBSCRIBER-LOCATION-REPORT.
Consequences if not approved:	⌘	The stage 3 cannot support pseudonym indicator in MO-LR procedure, which causes misalignment between stage 2 and state 3 specifications.

Clauses affected:	⌘	13A.3.2, 13A.3.3, 17.7.13

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		TS 24.030 CR 23, TS 24.080 CR 44
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

How to create CRs using this form:
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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 changed clause >>

13A.3.2 Service Primitives

Table 13A.3/1: Subscriber_Location_Report

Parameter name	Request	Indication	Response	Confirm
Invoke id	M	M(=)	M(=)	M(=)
LCS Event	M	M(=)		
LCS Client ID	M	M(=)		
Network Node Number	M	M(=)		
IMSI	C	C(=)		
MSISDN	C	C(=)		
NA-ESRD	C	C(=)		
NA-ESRK	C	C(=)	C	C(=)
IMEI	U	C(=)		
Location Estimate	C	C(=)		
GERAN Positioning Data	C	C(=)		
UTRAN Positioning Data	C	C(=)		
Age of Location Estimate	C	C(=)		
LMSI	U	C(=)		
GPRS Node Indicator	C	C(=)		
Additional Location Estimate	C	C(=)		
Deferred MT-LR Data	C	C(=)		
LCS-Reference Number	C	C(=)		
NA-ESRK Request	C	C(=)		
Cell Id Or SAI	C	C(=)		
H-GMLC Address	C	C(=)		
LCS Service Type Id	C	C(=)		
Pseudonym Indicator	C	C(=)		
User error			C	C(=)
Provider error				O

<< Second changed clause >>

13A.3.3 Parameter Definition and Use

All parameters are defined in clause 7.6. The use of these parameters and the requirements for their presence are specified in. 3GPP TS 23.271 [26a].

LCS Event

This parameter indicates the event that triggered the Subscriber Location Report.

LCS Client ID

This parameter provides information related to the identity of the recipient LCS client.

Network Node Number

See definition in clause 7.6.2. This parameter provides the address of the sending node.

IMSI

The IMSI shall be provided if available to the VMSC or SGSN.

MSISDN

The MSISDN shall be provided if available to the VMSC or SGSN.

NA-ESRD

If the target MS has originated an emergency service call in North America, the NA-ESRD shall be provided by the VMSC if available.

NA-ESRK

If the target MS has originated an emergency service call in North America, the NA-ESRK shall be provided by the VMSC if assigned.

If the target MS has originated an emergency service call in North America and NA-ESRK Request is included in Subscriber_Location_Report-Arg, NA-ESRK may also be included in the response to the MSC, see 3GPP TS 23.271 [26a].

IMEI

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

Location Estimate

This parameter provides the location estimate. The absence of this parameter implies that a location estimate was not available or could not be successfully obtained. If the obtained location estimate is not encoded in one of the supported geographical shapes then this parameter shall consist of one octet, which shall be discarded by the receiving node.

GERAN Positioning Data

This parameter indicates the usage of each positioning method that was attempted to determine the location estimate either successfully or unsuccessfully. If Positioning Data received from the RAN contains no Positioning Methods, Positioning Data is excluded from the MAP message. It may be included in the message only if the access network is GERAN, see 3GPP TS 23.271 [26a].

UTRAN Positioning Data

This parameter indicates the usage of each positioning method that was successfullyattempted to determine the location estimate. If Position Data received from the RAN contains no Positioning Methods, UTRAN Positioning Data is excluded from the MAP message. It may be included in the message only if the access network is UTRAN, see 3GPP TS 23.271 [26a].

Age of Location Estimate

This parameter indicates how long ago the location estimate was obtained.

LMSI

The LMSI may be provided if assigned by the VLR.

GPRS Node Indicator

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

Additional Location Estimate

This parameter provides the location estimate when not provided by the Location Estimate parameter..

Deferred MT-LR Data

See definition in clause 7.6.11.3.

LCS-Reference Number

This parameter shall be included if the Subscriber Location Report is the response to a deferred MT location request.

NA-ESRK Request

If the target MS has originated an emergency service call in North America, NA-ESRK Request may be included to indicate that the MSC is able to accept NA-ESRK in the Response message, see section 7.6.11.19.

Cell Id Or SAI

For GERAN access, this parameter indicates Global Cell Identifier of the cell that the served subscriber is currently attached to. For UTRAN access, this parameter contains the Service Area Identifier for the cell that the subscriber is currently attached to. This parameter is included only for North American Emergency Calls as described in 3GPP TS 23.271 [26a].

H-GMLC address

See definition in clause 7.6.2. The parameter shall be included if the Subscriber Location Report is the response to a deferred MT location request for a UE available event or an area event.

LCS Service Type Id

See definition in clause 7.6.11.15. The requirements for its presence are specified in 3GPP TS 23.271 [26a].

Pseudonym Indicator

This parameter indicates by its presence that the pseudonym is required. Refer to 3GPP TS 23.271 [26a].

User error

This parameter is sent by the responder when the received message contains an error, cannot be forwarded or stored for an LCS client or cannot be accepted for some other reason and if present, takes one of the following values defined in clause 7.6.1.

- System Failure;
- Data Missing;
- Unexpected Data Value;
- Resource Limitation;
- Unknown Subscriber;
- Unauthorised requesting network;
- Unknown or unreachable LCS Client.

Provider error

These are defined in clause 7.6.1.

<< Third changed clause >>

17.7.13 Location service data types

```
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                     [17] NULL                         OPTIONAL,
    pseudonymIndicator              [18] 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.
```

<< End of changed clause >>