

ETSI TS 124 030 V6.2.0 (2004-12)

Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
Location Services (LCS);
Supplementary service operations;
Stage 3
(3GPP TS 24.030 version 6.2.0 Release 6)**



Reference

RTS/TSGN-0424030v620

Keywords

GSM, UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

http://portal.etsi.org/chaicor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2004.
All rights reserved.

DECTTM, **PLUGTESTS**TM and **UMTS**TM are Trade Marks of ETSI registered for the benefit of its Members.
TIPHONTM and the **TIPHON logo** are Trade Marks currently being registered by ETSI for the benefit of its Members.
3GPPTM is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://webapp.etsi.org/IPR/home.asp>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Contents

Intellectual Property Rights	2
Foreword.....	2
Foreword.....	4
1 Scope	5
2 References	5
3 Definitions and abbreviations.....	5
4 Network initiated location services operations.....	6
4.1 Location Notification	6
4.1.1 Normal operation	6
4.2 Deferred MT-LR Area Event	6
4.2.1 Area Event Request	6
4.2.2 Area Event Report	7
4.2.3 Area Event Cancellation	9
5 Mobile initiated location services operations	9
5.1 Mobile Originated Location Request (MO-LR)	9
5.1.1 Normal operation	9
Annex A (informative): Change History	12
History	13

Foreword

This Technical Specification (TS) has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document gives the stage 3 description of the Location Service (LCS) operations for mobile station. These operations shall apply to both CS and PS domain.

The group of location services operations is divided into two different classes:

- Network initiated location services operations (clause 4);
- Mobile initiated location services operations (clause 5).

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 21.905: "Abbreviations and acronyms".
- [2] 3GPP TS 23.271: "Functional stage 2 description of LCS".
- [3] 3GPP TS 24.080: "Mobile radio interface layer 3 supplementary services specification; Formats and coding".
- [4] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)"

3 Definitions and abbreviations

Abbreviations used in the present document are listed in 3GPP TS 21.905 and 3GPP TS 23.271.

The following terms are used in the present document:

- **MS**, Mobile Station. The present document makes no distinction between MS and UE.

4 Network initiated location services operations

4.1 Location Notification

4.1.1 Normal operation

The network invokes a location notification procedure by sending a REGISTER message containing a LCS-LocationNotification invoke component to the MS. This may be sent either to request verification for MT-LR or to notify about already authorized MT-LR.

In case of privacy verification the MS shall respond to the request by sending a RELEASE COMPLETE message containing the mobile subscriber's response in a return result component (figure 4.1).

If the timer T(LCSN) expires in the network before any response from the MS (e.g. due to no response from the user), the network shall interpret this by applying the default treatment defined in TS 23.271 (i.e. disallow location if barred by subscription and allow location if allowed by subscription).

In the case of location notification no response is required from the MS, the MS shall terminate the dialogue by sending a RELEASE COMPLETE message containing a LocationNotification return result.

If the MS is unable to process the request received from the network, it shall return an error indication by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080

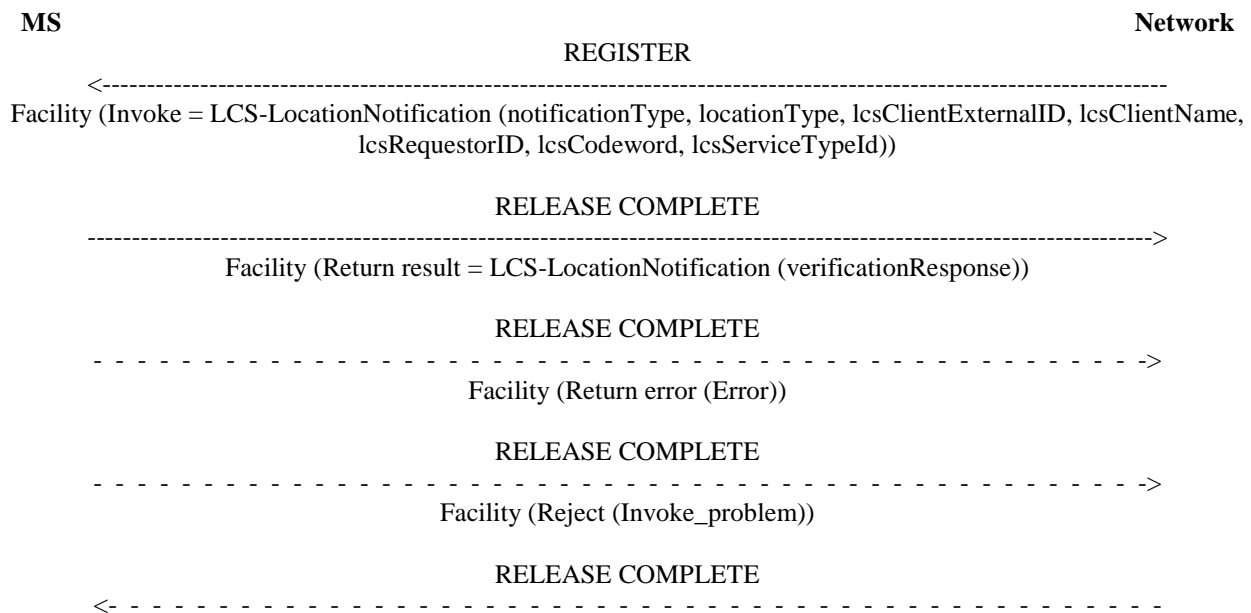


Figure 4.1: Location Notification

4.2 Deferred MT-LR Area Event

4.2.1 Area Event Request

The network invokes a Deferred MT-LR Area Event procedure by sending a REGISTER message containing an LCS-Area Event invoke component to the MS.

If the MS is unable to process the request received from the network, it shall return an error indication by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080

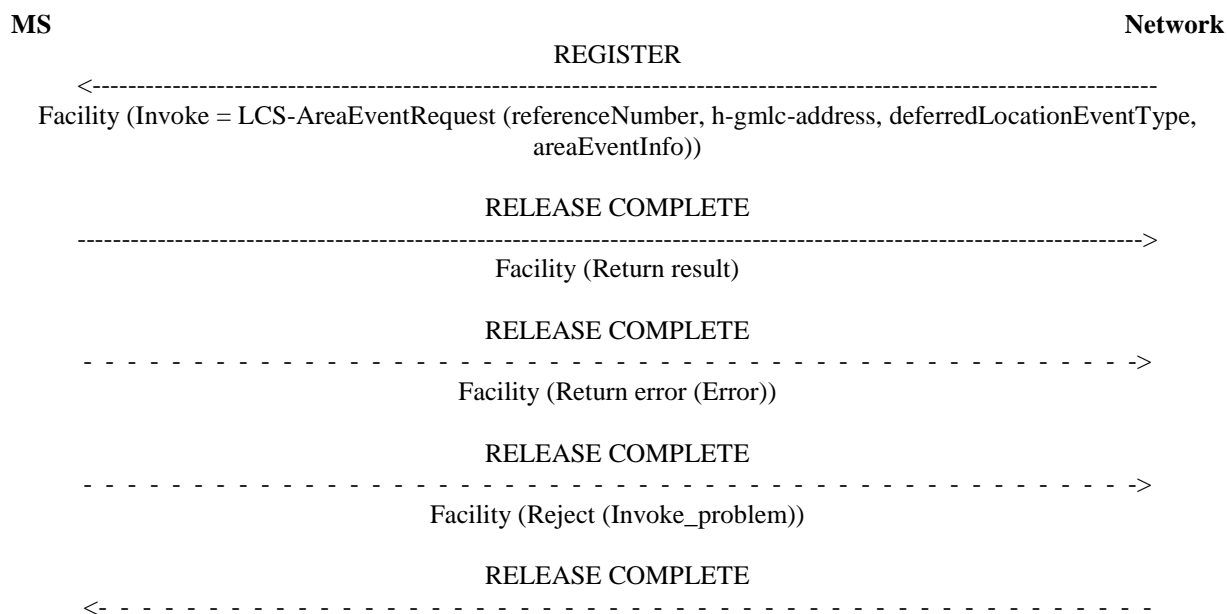


Figure 4.2: Area Event Request

4.2.2 Area Event Report

The MS invokes an Area Event Report by sending a REGISTER message to the network containing an LCS-AreaEventReport invoke component. SS Version Indicator value 1 or above shall be used.

The MS may use the Area Event Report also when cancelling the Area Event Request while monitoring the event.

The receiving network entity shall forward the Area Event Report to the H-GMLC which was included in the invoke component directly or via its associated V-GMLC.

The MS may terminate the dialogue by sending a RELEASE COMPLETE message for a single location request (see figure 4.3). The MS may also initiate another Area Event Report operation by sending a FACILITY message to the network containing an LCS-AreaEventReport invoke component (see figure 4.4). After the Area Event Report operation the MS shall terminate the dialogue by sending a RELEASE COMPLETE message.

If the network cannot successfully process the Area Event Report received from the MS, 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 has returned a result to the MS in a FACILITY message but, after some PLMN administered time period has elapsed, the network has not received either a new Area Event Report 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.

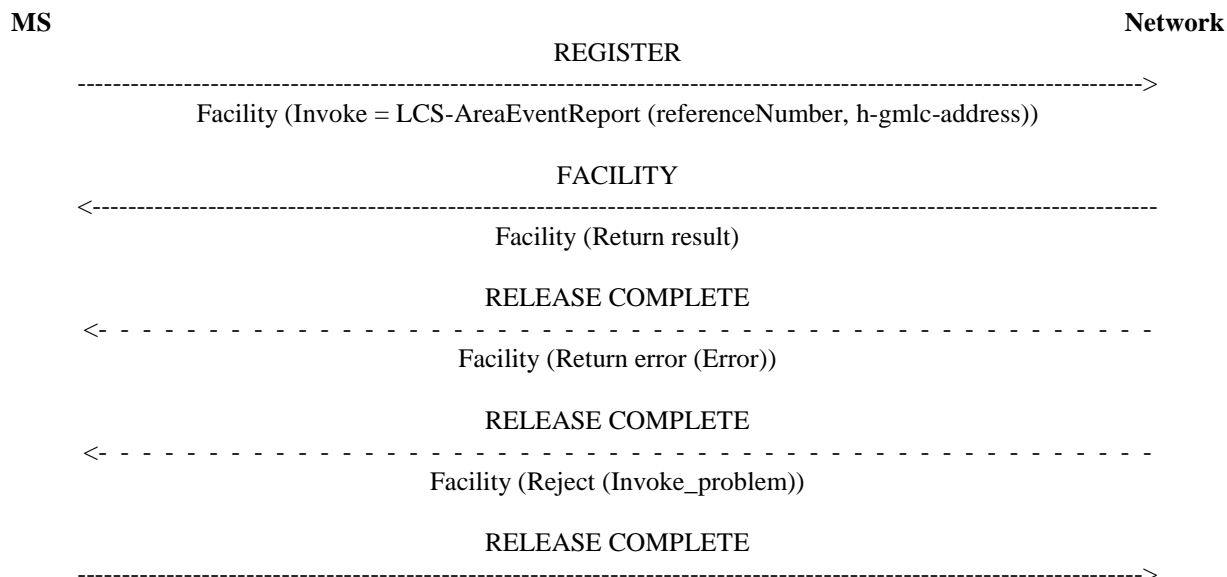


Figure 4.3: Single Area Event Report

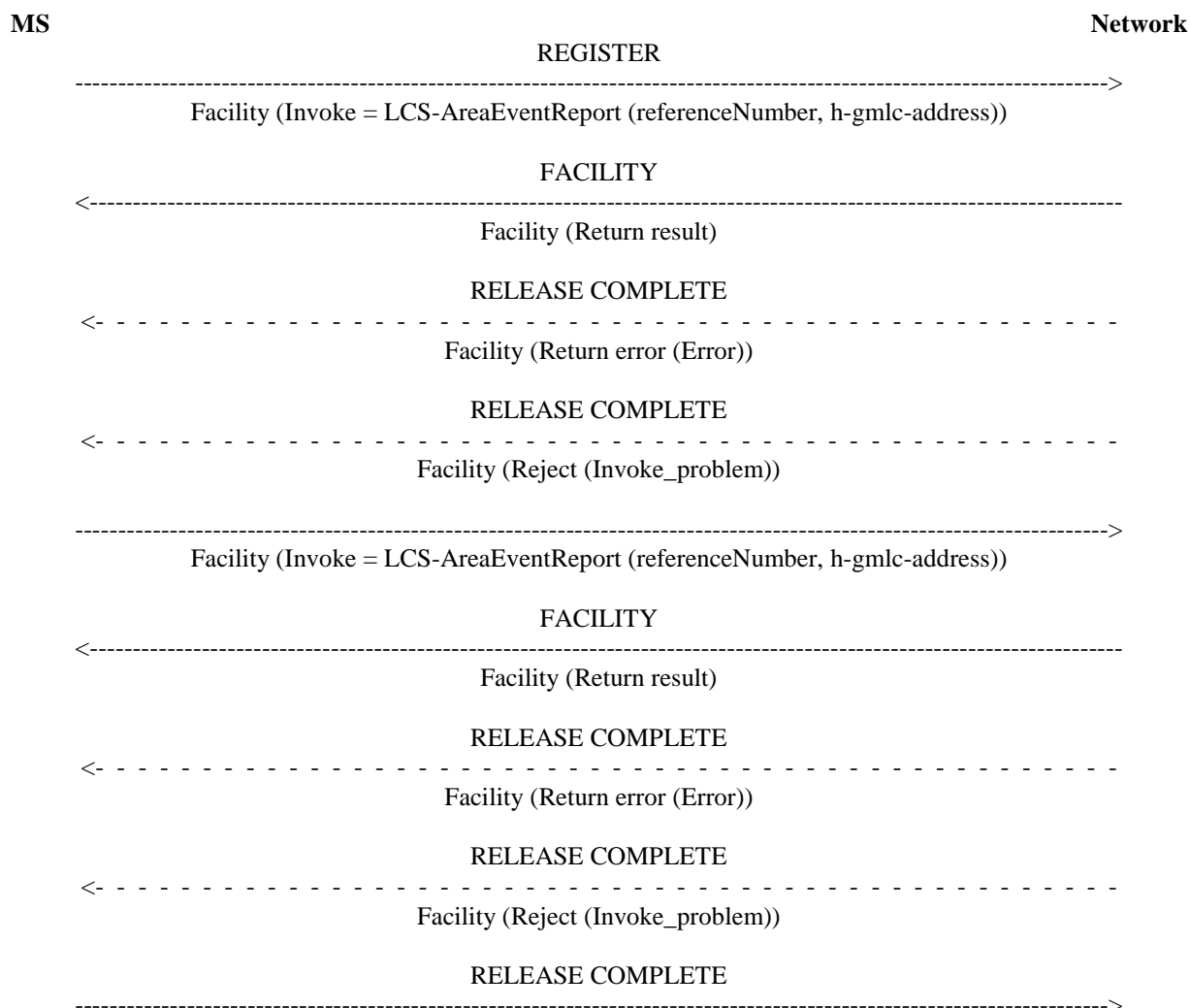


Figure 4.4: Multiple Area Event Reports

4.2.3 Area Event Cancellation

The network invokes a Deferred MT-LR Area Event Cancellation procedure by sending a REGISTER message containing an LCS-Area Event Cancellation invoke component to the MS.

If the MS is unable to process the request received from the network, it shall return an error indication by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080

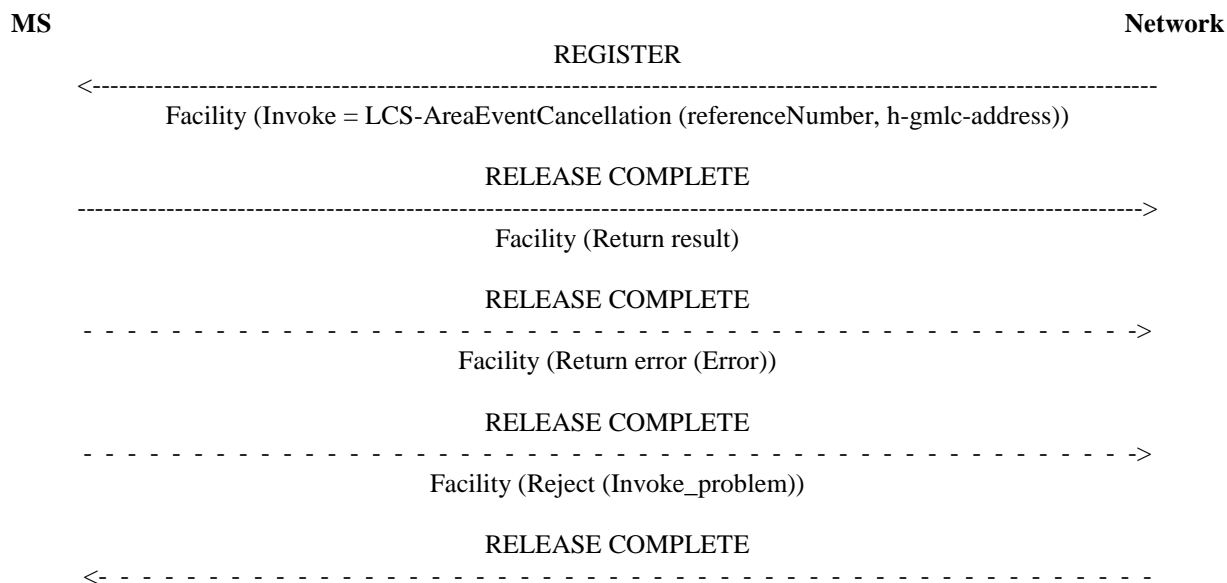


Figure 4.5: Area Event Cancellation

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.

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.

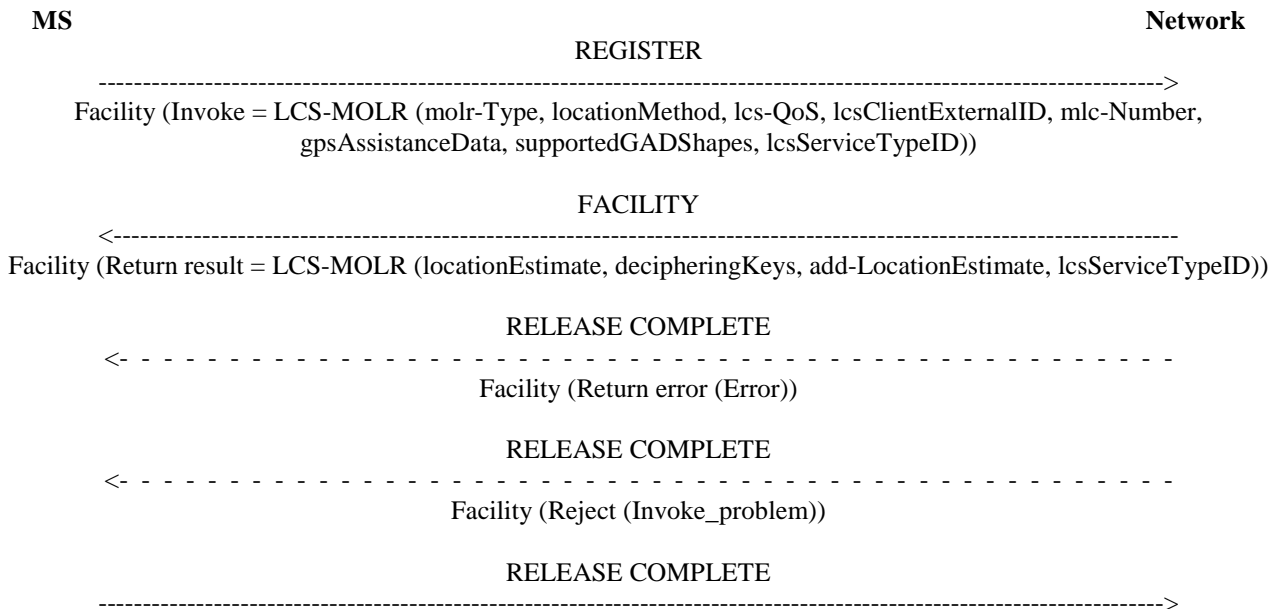


Figure 5.1: Single mobile originated location request

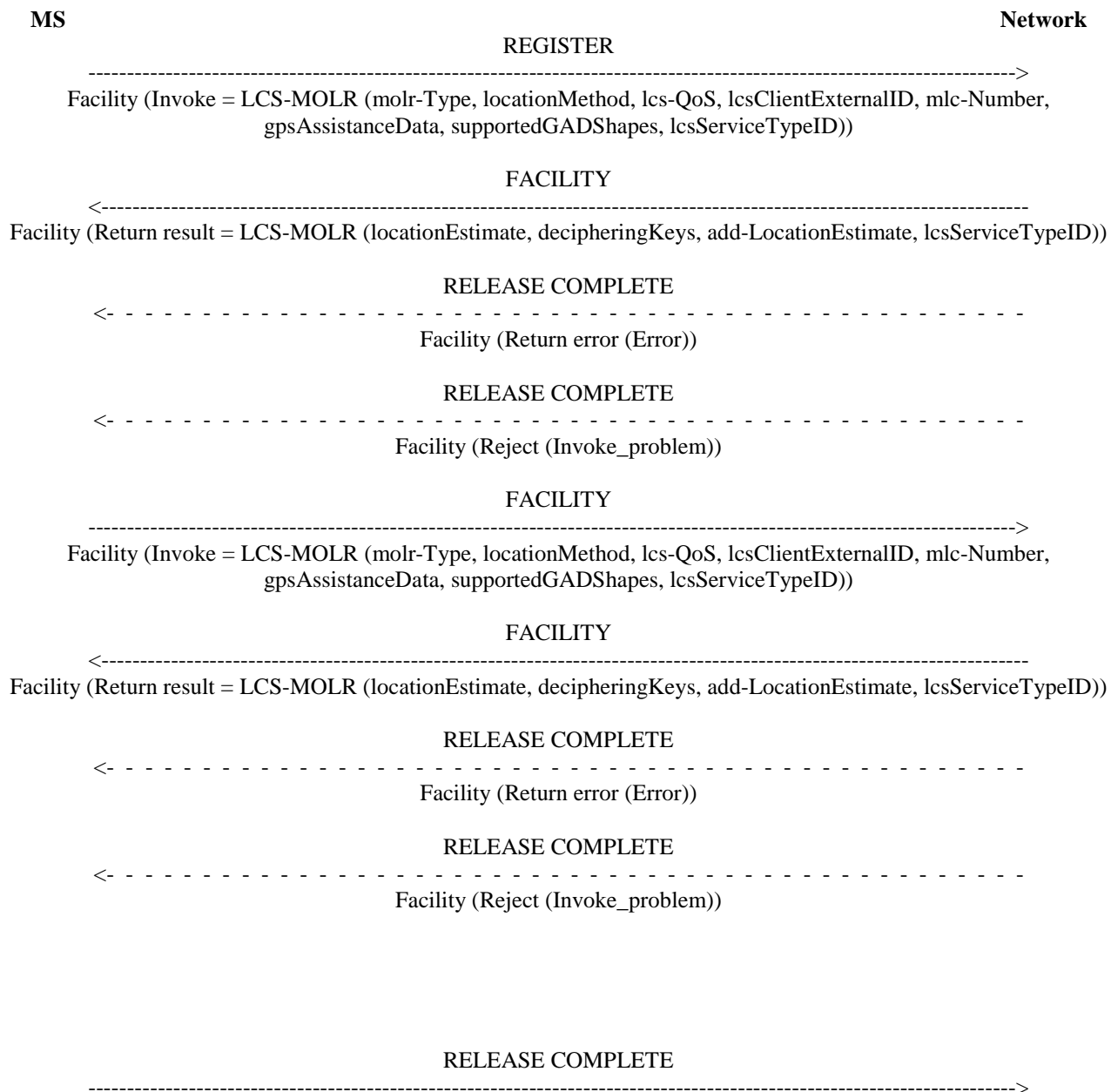


Figure 5.2: Multiple mobile originated location requests

Annex A (informative): Change History

Change history						
Meeting#	Spec	Version	CR	<Phase>	New Version	Subject/Comment
CN#07	24.030	-	-	R99	3.0.0	04.30 v7.1.0 - Transferred to 3GPP
CN#08	24.030	3.0.0	001r1	R99	3.1.0	Clarifications on GSM vs. UMTS specific parts
CN#08	24.030	3.0.0	002	R99	3.1.0	Correction of MO-LR procedure for LCS
CN#11	24.030	3.1.0		Rel-4	4.0.0	Version increased from R99 to Rel-4 after CN#11
CN#11	24.030	3.1.0	003r1	Rel-4	4.0.0	Adaptation of SS to PS domain
CN#12	24.030	4.0.0	005	Rel-4	4.1.0	Handle new parameters in LCS-MOLR
CN#14	24.030	4.1.0	009	Rel-4	4.2.0	Specify usage of SS Version Indicator
CN#14	24.030	4.1.0	011	Rel-4	4.2.0	Correction of MO-LR procedure
CN#15	24.030	4.2.0	012	Rel-5	5.0.0	Introduction of the 'Requestor ID'
CN#16	24.030	5.0.0	013	Rel-5	5.1.0	LCS: Codeword and Service Type
CN#22	24.030	5.1.0	014r1	Rel-6	6.0.0	Deferred MT-LR Area Event
CN#23	24.030	6.0.0	015	Rel-6	6.1.0	Removal of R-GMLC Address
CN#23	24.030	6.0.0	016	Rel-6	6.1.0	MO-LR Service Identity support
CN#26	24.030	6.1.0	020r1	Rel-6	6.2.0	Correction of missing description for T(LCSN) and T(LCSL)

History

Document history		
V6.2.0	December 2004	Publication