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*Technical Specification*

**Digital cellular telecommunications system (Phase 2+);  
Location Services (LCS);  
Supplementary service operations - Stage 3  
(GSM 04.30 version 7.1.0 Release 1998)**

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## Foreword

This Technical Specification (TS) has been produced by the Special Mobile Group (SMG).

The present document specifies the stage 3 description of the LoCation Services (LCS) related supplementary service operations within the digital cellular telecommunications system.

The contents of the present document are subject to continuing work within SMG and T1P1 and may change following formal SMG and T1P1 approval. Should SMG or T1P1 modify the contents of the present document it will then be re-issued with an identifying change of release date and an increase in version number as follows:

Version 7.x.y

where:

- 7 GSM Phase 2+ Release 1998;
- x the second digit is incremented for all other types of changes, i.e. technical enhancements, corrections, updates, etc.;
- y the third digit is incremented when editorial only changes have been incorporated in the specification.

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# 1 Scope

The present document gives the stage 3 description of the Location Service (LCS) operations for mobile station.

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).

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# 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.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1998 document, references to GSM documents are for Release 1998 versions (version 7.x.y).

- [1] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms"
- [2] GSM 03.71: "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); (Functional description) - Stage 2"
- [3] GSM 04.80: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 supplementary services specification; Formats and coding"

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# 3 Abbreviations

Abbreviations used in the present document are listed in GSM 01.04 and GSM 03.71.

# 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 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 GSM 03.71 (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 GSM 04.80.

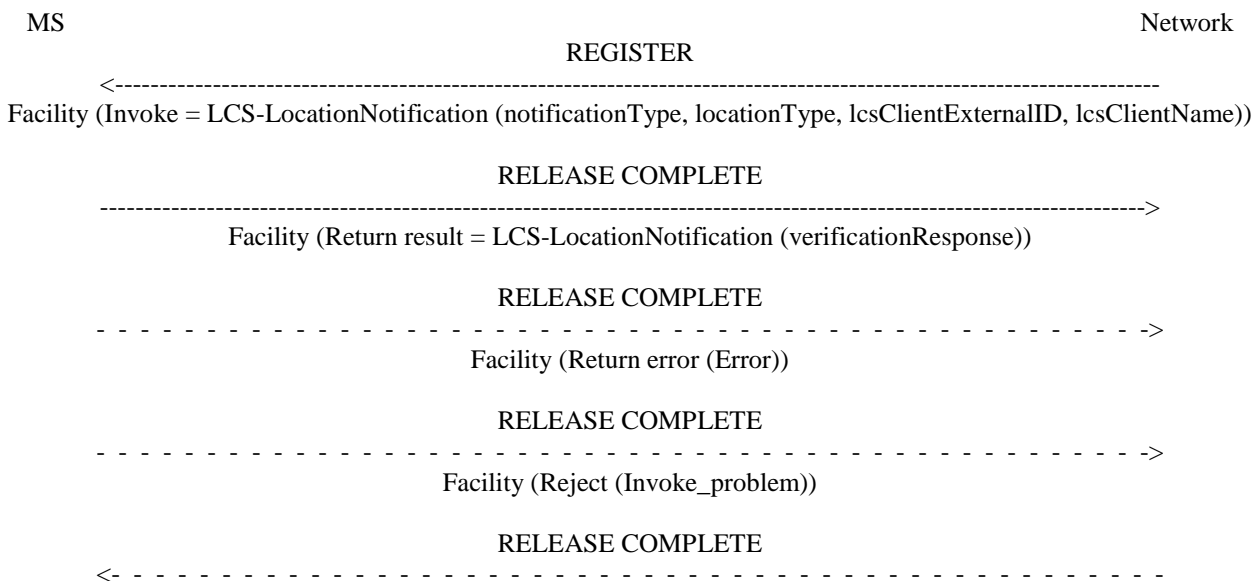


Figure 4.1: Location Notification

## 5 Mobile initiated location services operations

### 5.1 Mobile Originated Location Request (MO-LR)

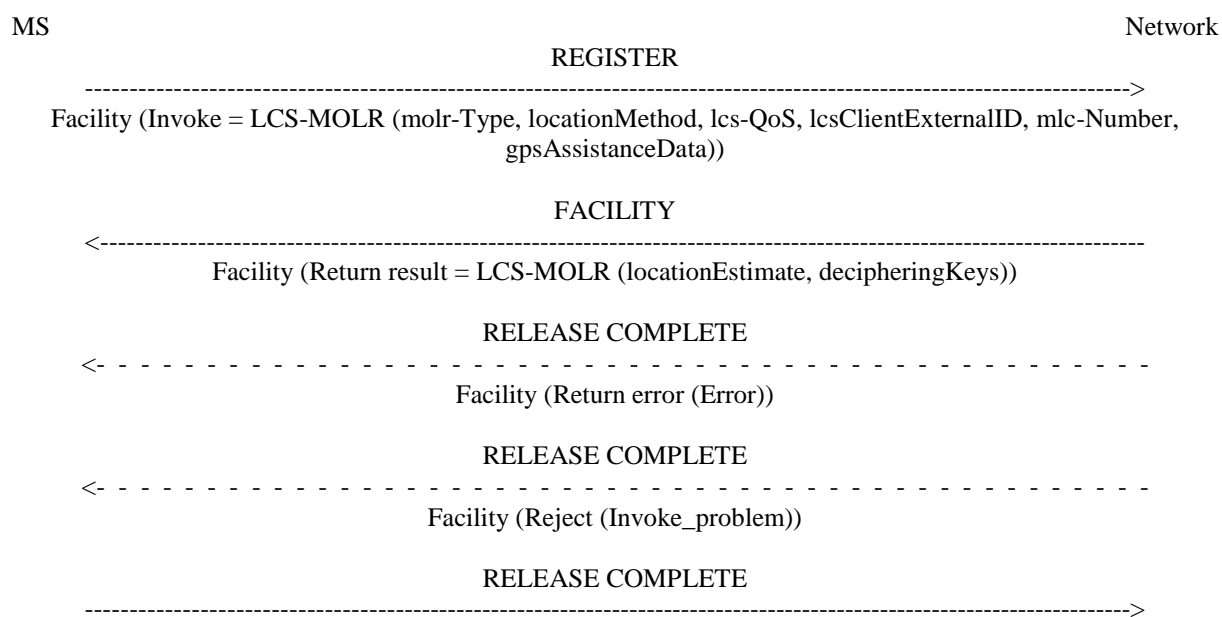
#### 5.1.1 Normal operation

The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component.

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 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 process the request 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 GSM 04.80.



**Figure 5.1: Single mobile originated location request**

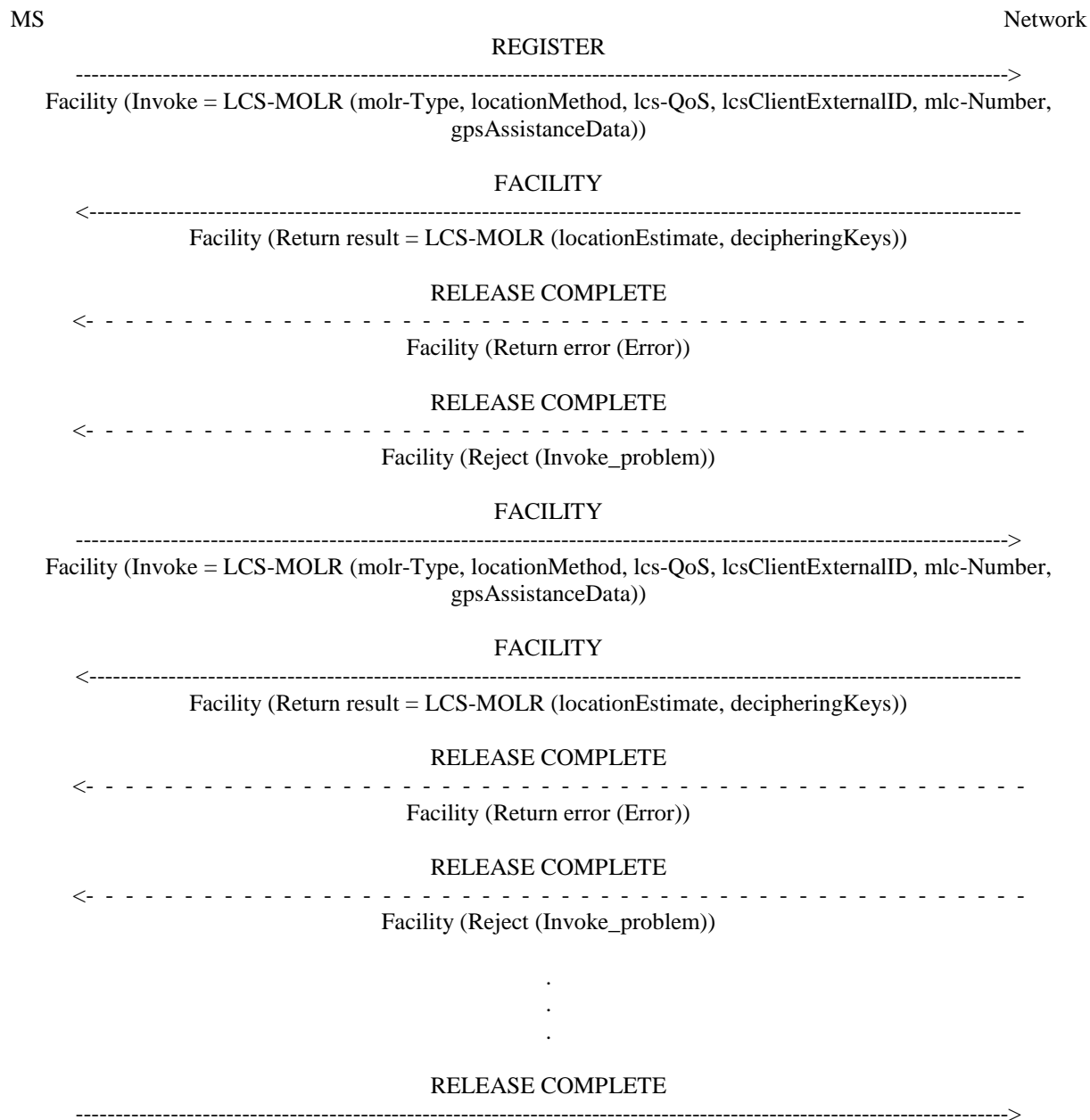


Figure 5.2: Multiple mobile originated location requests



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## Annex A (informative): Change History

Change history						
Meeting#	Spec	Version	CR	<Phase>	New Version	Subject/Comment
SMG#30bis	04.30		-	R98	7.0.1	Approved at SMG#30bis as Release 98
SMG#31	04.30	7.0.1	A001	R98	7.1.0	Parameters of the operations in figures 4.1, 5.1 and 5.2 (LCS)

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# History

<b>Document history</b>		
V7.0.1	January 2000	Publication
V7.1.0	February 2000	Publication