Technical Specification Group Services and System Aspects
Meeting #15, Cheju Island, Korea, 11-14 March 2002

TSGS#15(02)0047

Source: SA1

Title: CRs to 22.071 Location Service Rel-5 on various issues

Document for: Approval

Agenda Item: 7.1.3

SA Doc	Spec	CR	Rev	Phase	Cat	Subject	Old Vers	New Vers	SA1 Doc
SP-020047	22.071	030		Rel-5	B	CR 22.071 Rel.5 B Requestor	5.0.0	5.1.0	S1-020467
SP-020047	22.071	031		Rel-5	B	CR 22.071 Rel.5 B Introducing service type privacy for location services	5.0.0	5.1.0	S1-020478
SP-020047	22.071	032		Rel-5	C	Introduction of a Codeword Setting	5.0.0	5.1.0	S1-020479
SP-020047	22.071	033		Rel-5	B	CR to 22.071 on Clarifying checking of requester ID	5.0.0	5.1.0	S1-020632
SP-020047	22.071	037		Rel-5	B	CR 22.071 Rel.5 B Deferred Location Request with Change of Area Event	5.0.0	5.1.0	S1-020466

CR-Form-v4

CHANGE REQUEST

⌘ **22.071** **CR** **030** ⌘ ev **-** ⌘ Current version: **5.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Introduction of a "Requestor" to LCS Stage1
Source:	⌘	SA1
Work item code:	⌘	LCS
Date:	⌘	12 Feb 2002
Category:	⌘	**B**
Release:	⌘	REL-5

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)*

Reason for change:	⌘	There may be the originating entity, which has requested the location of the target UE from the LCS client. The target UE users may require the information about the entity, but in the current specification there is no description about this entity.
Summary of change:	⌘	Add description about the originating entity named "Requestor".
Consequences if not approved:	⌘	The target UE users could not get the information of the originating entity.

Clauses affected:	⌘	3.2, 5.2.1		
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.271, 29.002, 24.080, 24.030
Other comments:	⌘	New parameter named Requestor for some interfaces and privacy settings should be specified in the Stage2 and 3.		

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.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.

***** NEXT MODIFIED SECTION *****

3 Definitions and abbreviations

3.1 Abbreviations

For the purposes of the present document, in addition to GSM 01.04 [1] and TR.21.905, the following abbreviations apply:

LCS	Location Service
NA-ESRD	North American Emergency Services Routing Digits
NA-ESRK	North American Emergency Services Routing Key
NANP	North American Numbering Plan

NOTE: In the present document, acronyms are used in the text as if they are read either in their fully expanded form or in their alphabet names with no consistent principle.

3.2 Definitions

For the purposes of the present document the following definitions apply:

Current Location: after a location attempt has successfully delivered a location estimate and its associated time stamp, the location estimate and time stamp are referred to as the 'current location' at that point in time.

Deferred location request: a location request where the location response (responses) is (are) not required immediately.

Immediate location request: a location request where a single location response only is required immediately.

Initial Location: in the context of an originating emergency call the location estimate and the associated time stamp at the commencement of the call set-up is referred to as 'initial location'.

Last Known Location: The current location estimate and its associated time stamp for Target UE stored in the LCS Server is referred to as the 'last known location' and until replaced by a later location estimate and a new time stamp is referred to as the 'last known location'.

LCS Client: a software and/or hardware entity that interacts with a LCS Server for the purpose of obtaining location information for one or more Mobile Stations. LCS Clients subscribe to LCS in order to obtain location information. LCS Clients may or may not interact with human users. The LCS Client is responsible for formatting and presenting data and managing the user interface (dialogue). The LCS Client is identified by a unique international identification, e.g. E.164, number or Access Point Name (APN).

NOTE: The LCS Client may reside inside or outside the PLMN.

LCS Client Access barring list: an optional list of MSISDNs per LCS Client where the LCS Client is not allowed to locate any MSISDN therein.

LCS Client Subscription Profile: a collection of subscription attributes of LCS related parameters that have been agreed for a contractual period of time between the LCS client and the service provider.

LCS Feature: the capability of a PLMN to support LCS Client/server interactions for locating Target UEs.

LCS Server: a software and/or hardware entity offering LCS capabilities. The LCS Server accepts requests, services requests, and sends back responses to the received requests. The LCS server consists of LCS components which are distributed to one or more PLMN and/or service provider.

Location Estimate: the geographic location of a UE and/or a valid Mobile Equipment (ME), expressed in latitude and longitude data. The Location Estimate shall be represented in a well-defined universal format. Translation from this

universal format to another geographic location system may be supported, although the details are considered outside the scope of the primitive services.

North American Emergency Services Routing Digits (NA-ESRD): a telephone number in the North American Numbering Plan (NANP) that can be used to identify a North American emergency services provider and its associated LCS client. The ESRD also identifies the base station, cell site or sector from which a North American emergency call originates.

North American Emergency Services Routing Key (NA-ESRK): a telephone number in the North American Numbering Plan (NANP) assigned to an emergency services call by a North American VPLMN for the duration of the call. The NA-ESRK is used to identify (e.g. route to) both the emergency services provider and the switch in the VPLMN currently serving the emergency caller. During the lifetime of an emergency services call, the NA-ESRK also identifies the calling mobile subscriber.

PLMN Access barring list: an optional list of MSISDN per PLMN where any LCS Client is not allowed to locate any MSISDN therein except for certain exceptional cases.

Privacy Class: list of LCS Clients defined within a privacy exception class to which permission may be granted to locate the target UE. The permission shall be granted either on activation by the target UE or permanently for a contractual period of time agreed between the target UE and the service provider.

Privacy Exception List: a list consisting of various types of privacy classes (i.e. operator related, personal etc.). Certain types of classes may require agreement between the service provider and the target MS.**Target MS:** The UE being positioned.

Requestor: an originating entity, which has requested the location of the target UE from the LCS client.

Target UE: The UE being positioned.

Target UE Subscription Profile: the profile detailing the subscription to various types of privacy classes.

***** NEXT MODIFIED SECTION *****

5 Logical Description

5.1 Logical Reference Model

Figure 1 shows the logical reference model for LCS whereby an LCS Client is enabled to request location information for one or more certain target UEs from the LCS Server supported by a PLMN. The LCS Server employs a positioning function to obtain the location information and furnish the information to the LCS Client. The particular requirements and characteristics of an LCS Client are made known to the LCS Server by its LCS Client Subscription Profile. The particular LCS-related restrictions associated with each Target UE are detailed in the Target UE Subscription Profile. The LCS feature shall allow a Target UE to be positioned within a specified Quality of Service. The LCS feature shall allow the location of a Target UE to be determined at any time whilst the UE is attached.

The LCS feature shall support conveyance of both the location Quality of Service (QoS) requirements of the LCS Client and the location information returned to the LCS Client in a universal standard format.

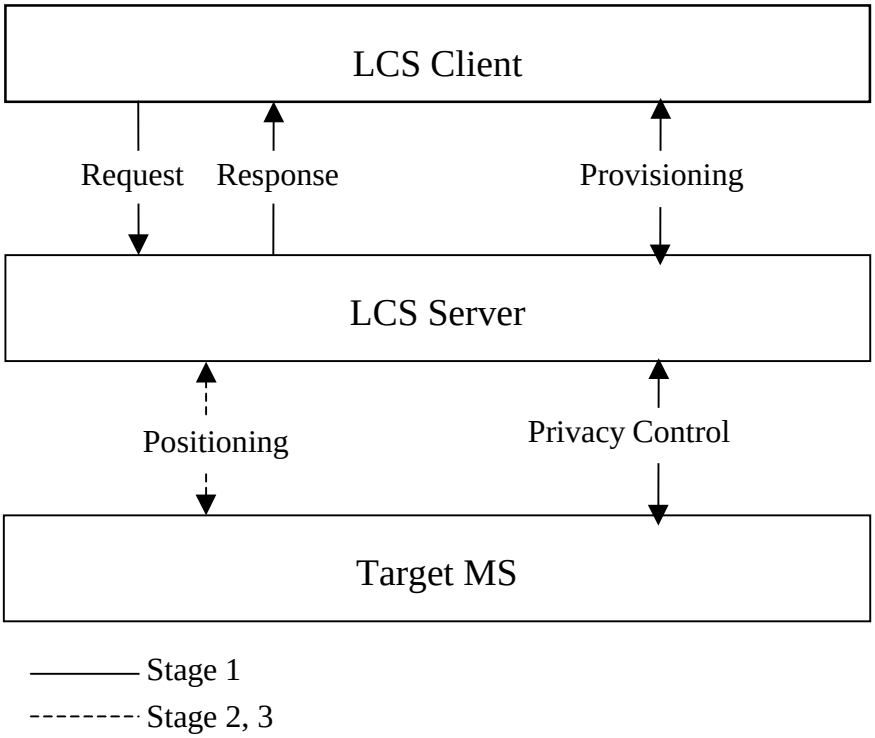

Figure 1. LCS Logical Reference Model

5.2 Functional Entities

5.2.1 LCS Client

An LCS Client is a logical functional entity that makes a request to the PLMN LCS server for the location information of one or more than one target UEs within a specified set of parameters such as QoS. The LCS Client may reside in an entity (including an UE) within the PLMN or in an entity external to the PLMN. When the LCS client resides in an entity external to the PLMN, the LCS client may be connected to several Requestors who originate the location requests. The specification of the LCS Client's internal logic and its relationship to any external user (e.g. Requestor) is outside the scope of this document.

3GPP TSG-SA1 Meeting #22
Phoenix, USA, 14 – 18 January, 2002

Tdoc S1-020466
(Revision of S1-020290, S1-020121, S1-020166)

CR-Form-v3

CHANGE REQUEST

⌘ **22.071** **CR** **037** ⌘ rev ⌘ Current version: **5.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Deferred Location Request with Change of Area Event
Source:	⌘	SA1
Work item code:	⌘	LCS1
Date:	⌘	08/02/02
Category:	⌘	**B**
Release:	⌘	Rel-5

Use one of the following categories:
F *(essential 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)*

Reason for change:	⌘	LDR (Location Deferred Request) does not allow GMLC to request LCS Service with Change of Area event, although the network would be able to provide this information (inform GMLC when MS/UE changes its location).
Summary of change:	⌘	New event for Deferred Location Request Proposed. New event is called 'Change of Area'.
Consequences if not approved:	⌘	Corresponding information would have to be generated in RAN and in the Core Network, e.g. by using heavy periodic LCS positioning methods which would load the network much more.

Clauses affected:	⌘	3.2, 5.3.1.1		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.271, 29.002
Other comments:	⌘	Impact to other groups: stage 2 changes in SA2 and stage 3 changes in CN4		

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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 MODIFIED SECTION *****

3.2 Definitions

For the purposes of the present document the following definitions apply:

Change of Area: is one event supported for deferred Location Requests. Change of Area means that the network is required to report the location or the occurrence of the event of the requested subscriber in triggered fashion immediately after the network (MSC/SGSN) processes the mobility event for the the new location of the subscriber. Usually new location is noticed after the Location Update, Handover, RAU, Registration or RANAP Location Report, e.g. when the SAI changes.

Current Location: after a location attempt has successfully delivered a location estimate and its associated time stamp, the location estimate and time stamp are referred to as the 'current location' at that point in time.

Deferred location request: a location request where the location response (responses) is (are) ~~not required immediately.~~required after specific event has occurred. Event may or may not occur immediately. In addition event may occur many times.

Immediate location request: a location request where a single location response only is required immediately.

Initial Location: in the context of an originating ~~-~~emergency call the location estimate and the associated time stamp at the commencement of the call set-up is referred to as 'initial location'.

Last Known Location: The current location estimate and its associated time stamp for Target UE stored in the LCS Server is referred to as the 'last known location' and until replaced by a later location estimate and a new time stamp is referred to as the 'last known location'.

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NOTE: The LCS Client may reside inside or outside the PLMN.

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Location Estimate: the geographic location of a UE and/or a valid Mobile Equipment (ME), expressed in latitude and longitude data. The Location Estimate shall be represented in a well-defined universal format. Translation from this universal format to another geographic location system may be supported, although the details are considered outside the scope of the primitive services.

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PLMN Access barring list: an optional list of MSISDN per PLMN where any LCS Client is not allowed to locate any MSISDN therein except for certain exceptional cases.

Privacy Class: list of LCS Clients defined within a privacy exception class to which permission may be granted to locate the target UE. The permission shall be granted either on activation by the target UE or permanently for a contractual period of time agreed between the target UE and the service provider.

Privacy Exception List: a list consisting of various types of privacy classes (i.e. operator related, personal etc.). Certain types of classes may require agreement between the service provider and the target MS.**Target MS:** The UE being positioned.

Target UE: The UE being positioned.

Target UE Subscription Profile: the profile detailing the subscription to various types of privacy classes.

UE available: deferred Location Request event in which the MSC/SGSN has established a contact with the UE. Note, this event is considered to be applicable when the UE is temporarily unavailable due to inaction by the UE user, temporarily loss of radio connectivity or IMSI detach and so on. Note that IMSI detach is only applicable in the case UE has previously been registered and information is still kept in the node.

***** NEXT MODIFIED SECTION *****

5.3.1.1 Location Service Request

Using the Location Service Request, an LCS client communicates with the LCS server to request the location information for one or more target UEs within a specified set of quality of service parameters.

As shown in Table 1, a location service may be specified as immediate or deferred.

Table 1: Location Service Requests

Request Type	Response Time	Number of Responses
Immediate	Immediate	Single
Deferred	Delayed (event driven)	One or More

If a positioning attempt fails, the LCS server may make another positioning attempt. This attempt should be made when the target UE can be detected by the network. It may be possible for the LCS client to set this action as an option. This optional action should be applied for both request types.

Note: This functionality may be provided using one or more of the existing toolkits, including but not limited to CAMEL and OSA.

When using the Deferred type (event driven), the LCS client shall be able to set the following items:

- Time interval of positioning
- Number of responses (if needed)
- Valid period of the request (if needed)
- Type of event

Currently following events are introduced:

- UE available
- Change of Area

It shall be possible for the LCS client to cancel the pre-arranged request.

It shall be possible for the LCS server to set the minimum time interval of positioning allowed.

It shall be possible to limit the area where the Change of Area event will be reported e.g use the OSA messages defined in TS 29.198.

For Emergency Services, LCS shall support requests for the initial, the current (updated), or the last known position of an ME while a voice connection is established.

TSG-SA WG 1 (Services) meeting #15 **S1-020632**
Saalfelden, Austria, 11-15th February 2002 **Agenda Item:**

CR-Form-v4

CHANGE REQUEST

⌘ **22.071** **CR** **033** ⌘ ev **-** ⌘ Current version: **5.0.0** ⌘

Spec Title: Location Services (LCS); Service description, Stage 1 ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Service requirements for Requestor
Source:	⌘	SA1
Work item code:	⌘	LCS1
Date:	⌘	14/02/02
Category:	⌘	**B**
Release:	⌘	Rel-5

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)*

Reason for change:	⌘	The service requirements for enhanced user privacy in location services is currently described in TR 23.871. This CR moves and clarifies the service requirements on requestor to TS 22.071.
Summary of change:	⌘	Addition of a new section in the chapter 6 in clarifying the service requirements for requestor.
Consequences if not approved:	⌘	The requestor concept remains unclear.

Clauses affected:	⌘	6.4.2			
Other specs affected:	⌘	**X**	Other core specifications	⌘	23.071
		☐	Test specifications		
		☐	O&M Specifications		
Other comments:	⌘				

How to create CRs using this form:
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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.

6.4 Target UE Subscription

6.4.1 Privacy Subscription Options

It shall be possible for a Target UE Subscriber to subscribe to various types of privacy classes. The default treatment in the absence of the information to the contrary in the Target UE Subscription Profile shall be to assume that access is restricted to all LCS Clients (unless using privacy overriding, or otherwise overridden by local regulatory requirements).

Privacy Attributes consist of:

Privacy Exception List: determines which LCS Clients and classes of LCS Clients may position a Target UE;

Privacy Override Indicator: determines applicability of the Privacy Exception List.

6.4.2 Requestor

The Location Request issued by the LCS client to GMLC shall optionally include also the identity of the originator of the location request, i.e. the Requestor, not only the identity of the LCS client.

The requestor shall be authenticated by the LCS client and/or the network.

The identity of the Requestor shall be included in the privacy interrogation request. It may be either checked by an entity in the network, the Target UE or the user.

TSG-SA WG 1 (Services) LCS **S1-020479**
Saalfelden, Austria, February 2002

CR-Form-v4

CHANGE REQUEST

⌘ **TS22.071 CR 032** ⌘ ev **-** ⌘ Current version: **5.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	**CR to TS22.071 for introduction of a Codeword setting**
Source:	⌘	SA1
Work item code:	⌘	LCS
Date:	⌘	Feb 2002
Category:	⌘	C
Release:	⌘	REL-5

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)

Reason for change:	⌘	These changes make it possible to protect the privacy of a Target UE user against monitoring of the Target UE's location by third parties.
Summary of change:	⌘	Add the definition "Codeword" to chapter 3 and make a new section in the chapter 6 in order to introduce the new Codeword concept. Codeword and Requestor have been added to the clause covering User Control.
Consequences if not approved:	⌘	There is no means to protect the Target UE user against unwelcome location requests from third parties.

Clauses affected:	⌘	3.2 6.4.1 6.4.2 7.2.3
Other specs affected:	⌘	☒ Other core specifications ⌘ 23.071 ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	A new parameter named the Codeword for some interfaces and privacy settings should be specified in the stage2 and 3. This Codeword concept had already agreed at the SA1 LCS SWG in Phoenix.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.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.

3.2 Definitions

Codeword: access code, which is used by a Requestor or LCS Client in order to gain acceptance of a location request for a Target UE. The codeword is part of the privacy information that may be registered by a Target UE user.

< Skip to the next change>

6.4 Target UE Subscription

6.4.1 Privacy Subscription Options

It shall be possible for a Target UE Subscriber to subscribe to various types of privacy classes. The default treatment in the absence of the information to the contrary in the Target UE Subscription Profile shall be to assume that access is restricted to all LCS Clients (unless using privacy overriding, or otherwise overridden by local regulatory requirements).

Privacy Attributes consist of:

Codeword: an additional level of security that may be set by a Target UE user to determine which Requestors are allowed to request location information;

Privacy Exception List: determines which LCS Clients and classes of LCS Clients may position a Target UE;

Privacy Override Indicator: determines applicability of the Privacy Exception List.

6.4.2 Codeword

It shall be possible for a Requestor to request location information by indicating a Codeword associated with the Target UE user. The codeword may be either checked by the Target UE/user or by any entity in the network. In the former case, the codword supplied by the requestor and forwarded by the LCS client with the request shall be forwarded to the TargetUE/user for verification and acceptance. In the latter case, the codeword shall be registered by the Target UE subscriber in advance. A comparision of the codeward sent by the requestor and the registered codeword shall be performed. A location request shall only be accepted if this comparision is successful. In the case where the Target UE/user does not check the codeword, the codeword need not be sent to the Target UE/user. In the case where the codeword is checked by the Target UE/user, the Target UE subscriber need not register the codeword in advance.

The other privacy settings should also be checked even when the codeword has been checked.

The Target UE Subscriber may register multiple codewords for multiple requestors. Once the codeword has been set and properly distributed, the Target UE user would be protected against location requests from third parties, which do not know the appropriate codeword.

It should be possible for a Target UE subscriber to enable and disable codeword checking.

The codeword is applicable to the value added services only.

6.4.2~~3~~ Privacy Exception List

< Skip to the next change>

7.2.3 User Control

The user shall be able to change the following settings in the privacy exception list.

- the LCS Client and/or group of LCS Clients list
- the codeword
- the requestor
- the target subscriber notification setting (with/without notification)
- the default treatment, which is applicable in the absence of a response from the Target UE for each LCS Client identifiers

TSG-SA WG 1 (Services) meeting #15 **S1-020478**
Saalfelden, Austria, 11-15th February 2002 **Agenda Item:LCS**

CR-Form-v4

CHANGE REQUEST

⌘	22.071	CR	031	⌘	rev	-	⌘	Current version:	5.0.0	⌘

Spec Title: Location Services (LCS); Service description, Stage 1 ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Introducing service type privacy for location services
Source:	⌘	SA1
Work item code:	⌘	LCS1
Date:	⌘	14.2.2002
Category:	⌘	**B**
Release:	⌘	REL-5

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)*

Reason for change:	⌘	This CR adds the service requirements on service type privacy to TS 22.071. The user may wish to differentiate between privacy requirements even with one LCS Client, depending on which service the user requests from this LCS client or which service the LCS client offers to the user.
Summary of change:	⌘	Added new chapter on service type privacy
Consequences if not approved:	⌘	The user can only define privacy setting for the LCS client without differentiating between different types of services.

Clauses affected:	⌘	4.3 4.8 6.4.1 7.2.3			
Other specs affected:	⌘	☒ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	23.271	
Other comments:	⌘	Impact on SA2 LCS work			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at:
http://www.3gpp.org/3G_Specs/CRs.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 modified section ***

4.3 Quality of Service

4.3.1 Horizontal Accuracy

The accuracy that can be provided with various positioning technologies depends on a number of factors, many of which are dynamic in nature. As such the accuracy that will be realistically achievable in an operational system will vary due to such factors as the dynamically varying radio environments (considering signal attenuation and multipath propagation), network topography in terms of base station density and geography, and positioning equipment available.

The accuracy for location services can be expressed in terms of a range of values that reflect the general accuracy level needed for the application. Different services require different levels of positioning accuracy. The range may vary from tens of meters (navigation services) to perhaps kilometers (fleet management).

The majority of attractive value added location services are enabled when location accuracies of between 25m and 200m can be provided.

Based on decreasing accuracy requirement some examples of location services are provided in table 4.1~~below~~:

· Location-independent	Most existing cellular services, Stock prices, sports reports
· PLMN or country	Services that are restricted to one country or one PLMN
· Regional (up to 200km)	Weather reports, localized weather warnings, traffic information (pre-trip)
· District (up to 20km)	Local news, traffic reports
· Up to 1 km	Vehicle asset management, targeted congestion avoidance advice
· 500m to 1km	Rural and suburban emergency services, manpower planning, information services (where are?)
· 100m (67%) · 300m (95%)	U.S. FCC mandate (99-245) for wireless emergency calls using network based positioning methods
· 75m-125m	Urban SOS, localized advertising, home zone pricing, network maintenance, network demand monitoring, asset tracking, information services (where is the nearest?)
· 50m (67%) · 150m (95%)	U.S. FCC mandate (99-245) for wireless emergency calls using handset based positioning methods
· 10m-50m	Asset Location, route guidance, navigation

Table 4.1; Example of location services with decreasing accuracy requirement

[No further changes in chapter 4.3]

*** Next modified section ***

4.8 Privacy

Specific local, national, and regional privacy regulations must be complied with, and multiple layers of permissions may be required.

Location information must always be available to the network service provider.

Means shall be provided for the UE subscriber to control privacy for value added services.

The user shall be able to change the setting of the Privacy exception list at any time.

Unless required by local regulatory requirements, or overridden by the target UE User, the target UE may be positioned only if allowed in the UE subscription profile. In general, for valued added location services, the target UE being positioned should be afforded the maximum possible privacy, and should not be positioned unless the positioning attempt is explicitly authorized. In the absence of specific permission to position the target UE, the target UE should not be positioned.

It may also be possible for a target UE to authorize positioning attempts after the target UE is notified of a positioning request and the target UE grants permission for positioning This notification condition (notification with privacy verification) shall be specified in the Target UE Subscription Profile. (See the subsequent "target subscriber notification" section of this document for charging and billing aspects.)

The privacy of an inanimate asset for an embedded target UE may be completely defined by the UE subscriber.

Additionally, specific privacy exceptions may exist for compliance with mandated location based services (such as for emergency services or lawful intercept) which are required by national or local regulatory requirements.

For Value Added Services, the following is applicable:

The Target UE Subscriber shall be able to restrict access to the Location Information (permanently or on a per attempt basis). The LCS Client access shall be restricted unless otherwise stated in the Target UE Subscription Profile. The home network shall have the capability of defining the default circumstances in which the Target UE's Location Information is allowed to be provided - as required by various administrations and/or network requirements.

It shall be possible for location services to support conditional positioning. Under these conditions, an application that is granted conditional positioning authorization must notify and obtain positioning authorization from the user of the target UE prior to performing the positioning process. Thus the user of the target UE shall be able to accept or reject the positioning attempt.

The default treatment, which is applicable in the absence of a response from the Target UE, shall be specified in the Target UE Subscription Profile. Thus for some location services the default treatment may be to accept the positioning request, whereas for other location services the default treatment may be to reject the positioning attempt.

However, considering that in general, users shall be afforded the maximum possible privacy, and shall not be positioned unless the target subscriber authorizes the requesting location application to perform positioning, the default condition shall normally be to deny the positioning attempt.

For PLMN operator services, the target UE subscriber may be able to restrict access to location information used to enhance or support particular types of service. The LCS client access shall be restricted unless stated otherwise in the Target UE subscription profile. The target UE user shall not be notified of any authorized location attempt.

For Emergency Services (where required by local regulatory requirements) Target UEs making an emergency call may be positioned regardless of the privacy attribute value of the subscriber associated with the Target UE (or ME) making the call.

For Lawful Interception Services (where required by local regulatory requirements), target UEs may be positioned under all circumstances required by local regulatory requirements. The target UE user shall not be notified of any location attempt.

4.8.1 Service Type Privacy

The user may wish to differentiate between privacy requirements even with one LCS Client, depending on which service the user requests from this LCS client or which service the LCS client offers to the user.

The users shall be able to allow or deny their location information to be given to LCS clients providing an indicated type of service. The user could e.g. allow all dating type services to get location information but decline other types of services to get the user's location. The location request message issued by the LCS client may include a service identity, and the LCS Server may interpret that the indicated service belong to a certain Service Type. The subscriber shall be able to define and set privacy rules based on service type, so that services belonging to that service type shall be handled according to the corresponding service type privacy setting.

It shall be possible to verify that the service type indicated by the LCS client is correct. The service type privacy check may be done by the LCS server or by the user of the target mobile.

The LCS Server shall be aware of what service types a certain LCS Client supports. The LCS Server shall map the service identity given by the LCS client to a service type, as described below. The PLMN operator defines to what service type the given service identity belongs to.

4.8.1.1 Standardized Service Types

Annex C lists the attributes of specific location based services as determined by the GSM Alliance Services Working Group. The standardized Service Types to be used in privacy checking are listed in table 4.2 and are based on the services listed in Annex C. It is noted that not all services listed in Annex C need belong to a standardized service type.

It should be noted that only the names and identities (number) of the Service Types are standardized.

It shall be possible for the network operator/service provider to define additional, non-standardised service types that need not be globally unique.

Location based services categories	**Standardized Service Types**
Public Safety Services	Emergency Services
	Emergency Alert Services
Location Sensitive Charging	
Tracking Services	Person Tracking
	Fleet Management.
	Asset Management
Traffic Monitoring	Traffic Congestion Reporting
Enhanced Call Routing	Roadside Assistance
	Routing to Nearest Commercial Enterprise
Location Based Information Services	Navigation
	City Sightseeing
	Localized Advertising

	Mobile Yellow Pages
Service Provider Specific Services	

Note: It should not be possible for the target UE subscriber to block the emergency services Service Type, so maybe this Service Type is not needed, this is FFS.

Table 4.2, Standardized Service Types

*** Next modified section ***

6.4 Target UE Subscription

6.4.1 Privacy Subscription Options

It shall be possible for a Target UE Subscriber to subscribe to various types of privacy classes. The default treatment in the absence of the information to the contrary in the Target UE Subscription Profile shall be to assume that access is restricted to all LCS Clients (unless using privacy overriding, or otherwise overridden by local regulatory requirements).

Privacy Attributes consist of:

Privacy Exception List: determines which LCS Clients and classes of LCS Clients may position a Target UE;

Service Type Privacy: determines whether the service type allows the LCS Clients to get the position of a Target UE;

Privacy Override Indicator: determines applicability of the Privacy Exception List.

*** Next modified section ***

7.2.3 User Control

The user shall be able to change the following settings in the privacy exception list.

- the LCS Client and/or group of LCS Clients list
- the service types
- the target subscriber notification setting (with/without notification)
- the default treatment, which is applicable in the absence of a response from the Target UE for each LCS Client identifiers