Technical Specification Group Services and System Aspects
Meeting #21, Frankfurt, Germany, 22-25 September 2003

TSGS#21(03)0459

Source: **SA1**

Title: **Assorted CRs to 22.071 on Location Services (Rel-6)**

Document for: **Approval**

Agenda Item: **7.1.3**

Meeting	SA Doc	TS No.	CR No	Rev	Rel	Cat	Subject	Vers. Current	Vers New	SA1 Doc
SP-21	SP-030459	22.071	057	-	Rel-6	C	Clarification of Mobile Originating Location	6.4.0	6.5.0	S1-030946
SP-21	SP-030459	22.071	058	-	Rel-6	B	A requirement of authentication to the Target UE user	6.4.0	6.5.0	S1-030947
SP-21	SP-030459	22.071	059	-	Rel-6	B	Introduction of LCS QoS Classes	6.4.0	6.5.0	S1-030948

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Tdoc ⌘S1-030946

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CHANGE REQUEST

⌘ **22.071** **CR** **057** ⌘ **rev** **-** ⌘ Current version: **6.4.0** ⌘

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

Title:	⌘	Clarification of Mobile Originating Location
Source:	⌘	Vodafone UK
Work item code:	⌘	TEI6
Date:	⌘	09/07/2003
Category:	⌘	**C**
Release:	⌘	Rel-6

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

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

Reason for change:	⌘	The definition of “Autonomous Self Location” is ambiguous. The first sentence implies that no interaction with a network may be necessary i.e. fully autonomous, to obtain a location estimate , whilst the following sentence states that a single interaction is necessary. It is assumed that the fully autonomous case is outside the scope of 3GPP e.g. non-assisted GPS, as no interaction with the network is required within the LCS architecture, and therefore this conflicting sentence should be deleted.
Summary of change:	⌘	Removes a sentence from the definition of “Autonomous Self Location” that directly conflicts with the sentence that comes after it and amend the term "autonmous" to "semi-autonomous". New definition of the term "Autonomous Location" added
Consequences if not approved:	⌘	Confusion may arise for the applicability of “Autonomous Self Location”.

Clauses affected:	⌘	4.16, 4.18, 6.4.5			
Other specs Affected:	⌘	**Y** / **N**	Other core specifications	⌘	TS 23.271, TS 29.002
		X /	Other core specifications		
		/ X	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘				

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Below is a brief summary:

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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 section

4.16 UE-Based Location Calculation

UE-Based Location Calculation may be supported on either a per-request basis or semi-autonomously whereby a single request from an UE subscriber enables UE based location calculation over an extended period without further interaction with the PLMN.

For Commercial Services, the following may be applicable for semi-autonomous location:

The network may broadcast location assistance information to mobiles, which enables mobiles to calculate their own location. The network may encrypt the location assistance information. If the location assistance information is encrypted, a single common standardized encryption algorithm shall be used.

The location assistance information may be available to the UE at all times, continuously in idle mode and during a call, without additional point to point signalling. The network may request location information from the UE for operator or for service provider applications. For this purpose a point to point signalling connection must be established.

Second changed section

4.18 Mobile Originating Location

Mobile Originating Location is the capability of the mobile station to obtain its own geographical location or have its own geographic location transferred to another LCS client.

For Value Added Services, the following may be applicable:

There are three classes of mobile originating location:

Basic Self Location - The mobile station needs to interact with the network for each separate location request

Semi-aAutonomous Self Location - ~~The mobile station does not need to interact with the network for each separate location request.~~ One interaction with the network ~~enables~~ assists the mobile station to obtain multiple location positionings over a predetermined period of time.

NOTE: Autonomous Self Location – The mobile needs no interaction with the network and is therefore considered to be outside the scope of this technical specification.

Transfer to Third Party – The location of the mobile station is transferred by request of the mobile station to another specified LCS client.

Third changed section

6.4.5 Subscription to Mobile Originating Location

The UE subscriber may subscribe to the following types of Mobile Originating Location (as defined in section 4):

A) Basic Self Location

B) Semi-a~~A~~utonomous Self Location

C) Transfer to Third Party

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CHANGE REQUEST

⌘ **22.071** **CR** **058** ⌘ **rev** **-** ⌘ Current version: **6.4.0** ⌘

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

Title:	⌘	A requirement of authentication to the Target UE user
Source:	⌘	SA1
Work item code:	⌘	LCS
Date:	⌘	25/06/2003
Category:	⌘	**B**
Release:	⌘	Rel-6

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Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	When the Target UE user initiates an operation to modify his LCS subscriber information, or query/cancel the ongoing LCS requests at any time, according to the current specification, there is no corresponding mechanism to check the validitiy of the Target UE user, in this case, the user LCS data and the LCS requests is not safe.
Summary of change:	⌘	A requirement of authentication to the Target UE user is added in the chapter 4.7.
Consequences if not approved:	⌘	This security hole may raise the problem that the subscriber LCS information and the LCS requests are attacked by other malicious user easily.

Clauses affected:	⌘	4.7

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

Other comments:	⌘	

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4.7 Security

Specific local, national, and regional security regulations must be complied with.

Position information should be safeguarded against unapproved disclosure or usage. Position information should also be provided in a secure and reliable manner that ensures the information is neither lost nor corrupted. Audit records should be maintained of positioning requests and responses to facilitate resolution of security violations.

The LCS Client may be authorized by the LCS Server. Existing security mechanisms as well as security mechanisms of the LCS Server shall be used for authorizing the LCS Client and its request for location information.

The target UE user shall be authenticated before being allowed to access (to modify/query) her personal data or query/cancel an LCS request.

For Value Added Services, the following is applicable:

Only authorized LCS Clients shall be able to access the LCS Server. Before providing the location of a Target UE to any authorized LCS Client, the LCS Server shall verify both the identity and authorization privileges of the LCS Client .

Once the LCS Server has verified that a particular LCS Client is authorized to locate a particular Target UE, any location estimate requested shall be provided to the LCS Client in a secure and reliable manner, such that the location information is neither lost, corrupted nor made available to any unauthorized third party.

For PLMN operator services, location information shall be provided in a secure and reliable manner. The ability to obtain location information shall depend on local regulatory laws and requirements in conjunction with requirements for UE privacy.

For Emergency Services (where required by local regulatory requirements) the following requirements shall be met:

Position information shall be provided to the Emergency Services Network as an authorized LCS client. Target UE authorization checks normally performed for value added services are not applicable (privacy is over-ridden). The position information shall be provided to the Emergency Services Network in a secure and reliable manner, such that the location information is neither lost, corrupted, nor made available to any unauthorized third party.

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

Title:	⌘	Introduction of LCS QoS Classes
Source:	⌘	Vodafone UK
Work item code:	⌘	LCS2
Date:	⌘	09/07/2003
Category:	⌘	**B**
Release:	⌘	Rel-6

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Rel-6	*(Release 6)*

Reason for change:	⌘	Currently any location estimate that does not satisfy the QoS requested in an original location request is discarded. The assumption is that in some cases that a location estimate even if it does not satisfy the QoS requirement is better than having no location estimate at all.
Summary of change:	⌘	Introduces a new concept of QoS Classes to LCS – Best Effort (i.e. allow location estimate of lower accuracy) and Assured (discard location estimate of lower accuracy)
Consequences if not approved:	⌘	Any location estimate that is obtained by RAN that does not meet the QoS requirement will always be discarded, thereby wasting network resources.

Clauses affected:	⌘	New Clause 4.3.4

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	23.271
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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******* NEW SECTION ********

4.3.4 LCS QoS Class

The LCS QoS Class defines the degree of adherence by the Location Service to the quality of service parameters (Accuracy and Response Time).

For Value Added Services and PLMN Operator Services, the following is applicable:

LCS QoS Class is a non-negotiable QoS parameter. Support of QoS Class by a Public Land Mobile Network (PLMN) is optional. The LCS Service may allow a LCS Client to specify the required QoS Class (in the context of immediate location request) either at provisioning or when the request is made. The LCS Service shall attempt to satisfy as closely as possible the other quality of service parameters regardless of the use of QoS Class.

For immediate location request response, LCS QoS Class options are:

a) "Assured": The other QoS parameters shall be adhered to strictly. The LCS Service shall obtain a Current Location with regard to fulfilling the requirements set by the other QoS parameters. If the location request response does not satisfy the other QoS parameters, the response shall be discarded by the LCS Service.

b) "Best Effort": The other QoS parameters do not have to be adhered to strictly. The LCS Service shall obtain a Current Location, using only one attempt with a single technology, with regard to fulfilling the requirements set by the other QoS parameters. Even if the location request response does not satisfy the other QoS parameters, the response may be forwarded to the LCS Client.

~~For Emergency Services (where required by local regulatory requirements), there may be no requirement to support the use QoS Class. The network shall attempt to obtain location and provide a response as quickly as possible and as accurately as possible.~~