

Source: TSG SA1
Title: CRs to 22.071 (R4)
Document for: Approval
Agenda Item: 7.1.3

Spec	CR	Rev	Phase	Cat	Subject	Vers	New Vers	SA1 Doc. No.
22.071	019		R4	A	Privacy Exception List	4.1.0	4.2.0	S1-000787
22.071	020		R4	B	Periodic Location Reporting	4.1.0	4.2.0	S1-000788
22.071	021		R4	B	Location Service Request	4.1.0	4.2.0	S1-000791
22.071	022		R4	C	Periodic Location Reporting amendment	4.1.0	4.2.0	S1-000851
22.071	023		R4	C	Addition of achieved location information accuracy with reference to TS 23.032	4.1.0	4.2.0	S1-000803

CHANGE REQUEST

22.071 CR 019 rev - Current version: 4.1.0

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:	Privacy Exception List		
Source:	SA1		
Work item code:	LCS	Date:	13 Nov. 2000
Category:	A	Release:	REL-4 (Release 4)

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: In the call/session related class of the Privacy Exception List, NTT DoCoMo would like to revive a part of requirements deleted by SP-000392 (S1-000671) in order to keep the backward compatibility.

Summary of change:

Consequences if not approved:

Clauses affected: 6.4.2

Other specs affected:

<input type="checkbox"/>	Other core specifications
<input type="checkbox"/>	Test specifications
<input type="checkbox"/>	O&M Specifications

Other comments:

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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 MS Subscription

6.4.2 Privacy Exception List

To support privacy, the LCS Server shall enable each Target MS Subscriber to subscribe to a “privacy exception list” containing the LCS Client identifiers, classes of LCS Clients, the target subscriber notification setting (with/without notification) and the default treatment, which is applicable in the absence of a response from the Target MS for each LCS Client identifiers. If the target subscriber notification is set as “notification with verification”, each positioning request from the LCS Client shall be notified to the target MS before positioning. The treatment for location request from the LCS Client, which is not registered in the privacy exception list, shall also be specified in the privacy exception list. An empty privacy exception list shall signify an intent to withhold location from all LCS Clients. The classes that can be included are as follows.

? Universal Class: location services may be provided to all LCS Clients;

? Call/session-related Class: location services may be provided to [any value added LCS clients or](#) a particular value added LCS client or particular group of value added LCS Clients – where each LCS Client or group of LCS Clients is identified by a unique international identification, e.g. E.164 or Access Point Name (APN) that currently has a temporary association with the Target MS in the form of an established voice, data call or PS session originated by the Target MS. [For each identified LCS Client or group of LCS Clients, one of the following geographical restrictions shall apply:](#)

a) Location request allowed from an LCS Client served by identified PLMN only;

b) Location request allowed from an LCS Client served in the home country only;

c) Location request allowed from any LCS Client;

? Call/session-unrelated Class:— location services may be provided to a particular value added LCS Client or particular group of value added LCS Clients – where each LCS Client or group of LCS Clients is identified by a unique international identification, e.g. E.164, number or Access Point Name (APN). For each identified LCS Client or group of LCS Clients, one of the following geographical restrictions shall apply:

a) Location request allowed from an LCS Client served by identified PLMN only;

b) Location request allowed from an LCS Client served in the home country only;

c) Location request allowed from any LCS Client;

? PLMN Operator Class: location services may be provided by particular types of LCS clients supported within the HPLMN or VPLMN. The following types of clients are distinguished (see note):

Clients broadcasting location related information to the MSs in a particular geographic area – e.g. on weather, traffic, hotels, restaurants;

a) O&M client (e.g. an Operations System) in the HPLMN

b) O&M client (e.g. an Operations System) in the VPLMN

c) Clients recording anonymous location information (i.e. without any MS identifiers) – e.g. for traffic engineering and statistical purposes

d) Clients enhancing or supporting any supplementary service, IN service, bearer service or teleservice subscribed to by the target MS subscriber.

NOTE: The definitions of the various PLMN operator categories may be supplemented by more precise language in contractual agreements both between MS subscribers and their home service providers and between individual network operators with inter-PLMN roaming agreements. Such classification of the PLMN operator categories is outside the scope of this specification.

CHANGE REQUEST

22.071 CR 020 rev - Current version: 4.1.0

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:	Periodic Location Reporting		
Source:	SA1		
Work item code:	LCS	Date:	13 Nov. 2000
Category:	B	Release:	REL-4 (Release 4)

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:	Add the some feature to "Periodic Location Reporting" concretely, and to clarify the interface definition between LCS server and client attached to periodic location reporting.
Summary of change:	
Consequences if not approved:	

Clauses affected:	4.15 5.3.1.1 5.3.1.2 7.1.3
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	

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4.15 Periodic Location Reporting

Periodic location reporting is the act of LCS Server initiating multiple position locations spread over a period of time. The periodic reporting function is generally applicable for asset management services and exists as several variants, each applicable to different value added services:

· Location reporting only within predetermined period	e.g. commercial asset tracking and, subject to provision of privacy, manpower planning.
· Periodic location reporting within specified period and reporting triggered by a specific event	e.g. high value asset security, stolen vehicle monitoring, home zone charging.
· Periodic location reporting triggered by a specific event	e.g. 24hr depot management, transit passenger information systems

Periodic location determination and reporting increases network traffic. However, scheduling the periods of location monitoring and reporting will reduce this. Finally, event-based logic provided by the network operator that monitors the asset (location and status) and only reports events that meet conditions agreed with the application may reduce network traffic further without reducing the QoS.

If this event-based or time-based decision process is the responsibility of the application and not the network operator then all of the above services can be regarded as periodic location reporting.

For value added services, and PLMN operator services, support of periodic location reporting may be provided by the PLMN

When an LCS client activates Periodic Location Reporting, the LCS server shall be able to inform the target Ms of this activation according to the Privacy Exception List.

It should be possible for the target MS at any time to inquire to the LCS server about any valid requests activated for that target MS, and/or cancel the request.

When a request is cancelled by the target MS, the LCS server shall inform the LCS client of this cancellation.

It should be possible for more than one LCS client to activate requests for the same target MS.

For Emergency Services (where required by local regulatory requirements), there is no requirement for the PLMN to support periodic location reporting.

5.3 Functional Interfaces

5.3.1 LCS Client / LCS Server Interface

The LCS client/server use LCS messages to exchange information. Each LCS message contains a set of parameters. In the case of MS Based positioning methods, if the LCS Client is located in the MS, then an internal LCS Client /LCS Server interface may be supported.

NOTE: Further regional/national specific interfaces between LCS clients and servers may need to be supported in addition to the interfaces described here.

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 MSs 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 <u>or unlimited</u>

When using the Deferred type with 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)

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

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.

5.3.1.2 Location Service Response

The Location Service Response provides the result of an Location Service Request from the LCS Server to the LCS Client.

A LCS response is either 'immediate' or 'deferred'. The LCS Request indicates the type of response the LCS Client wishes to receive. The two types of location response are described in table 2.

Table 2: Types of LCS Response

Response	Description
Immediate	A Location Response is referred to as 'immediate', when a response to a request for location information is answered immediately (within a set time). The response shall be single and not dependent to any event.
Deferred	A Location Response is referred to as 'deferred', when a response to a request for location information is returned after the occurrence of an event specified by the LCS client. The response can be single or periodic.

When the location positioning for the target MS has failed, the LCS server may be able to report the reason of failure and Last Known Location with the relevant timestamp.

5.3.1.3 Location Service Request Report

The Location Service Request Report provides the result of a deferred Location Service Request from the LCS Server to the LCS Client. The report is provided using a dialog between the LCS Client and the LCS Server that is initiated by the LCS Server.

7.1.3 Invocation

Invocation is an action to invoke the LCS feature, taken by the LCS Client (e.g. issuing a location request) or automatically by the LCS server as a result of a particular condition (e.g. periodic location request, mobile originating emergency call, etc.).

CHANGE REQUEST

22.071 CR 021 rev - Current version: 4.1.0

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:	Location Service Request		
Source:	SA1		
Work item code:	Location Services	Date:	13 Nov. 2000
Category:	B	Release:	REL-4 (Release 4)
<i>Use one of the following categories:</i>		<i>Use one of the following releases:</i>	
F (essential correction)		2 (GSM Phase 2)	
A (corresponds to a correction in an earlier release)		R96 (Release 1996)	
B (Addition of feature),		R97 (Release 1997)	
C (Functional modification of feature)		R98 (Release 1998)	
D (Editorial modification)		R99 (Release 1999)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)	
		REL-5 (Release 5)	

Reason for change:	Add the optional action to the Location Service Request to obtain more positive location information.
Summary of change:	Add the new feature to the Location Service Request.
Consequences if not approved:	

Clauses affected:	5.3.1.1		
Other specs affected:	<input type="checkbox"/> Other core specifications	<input type="checkbox"/>	
	<input type="checkbox"/> Test specifications	<input type="checkbox"/>	
	<input type="checkbox"/> O&M Specifications	<input type="checkbox"/>	
Other comments:			

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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.

4.4 Reliability

Reliability provides a measure of how often positioning requests that satisfy QoS requirements are successful. For some applications, such as cross-country vehicle tracking, this may not be especially critical. If a positioning attempt fails, due to lack of coverage or transient radio conditions, etc, another positioning attempt may be made. This attempt should be specified in Location Service Request. (see the section 5.3.1.1) However for other services, perhaps such as child tracking, reliability may be more important.

The network shall provide statistical reporting of reliability (QoS parameters) data.

5.3 Functional Interfaces

5.3.1 LCS Client / LCS Server Interface

The LCS client/server use LCS messages to exchange information. Each LCS message contains a set of parameters. In the case of MS Based positioning methods, if the LCS Client is located in the MS, then an internal LCS Client /LCS Server interface may be supported.

NOTE: Further regional/national specific interfaces between LCS clients and servers may need to be supported in addition to the interfaces described here.

5.3.1.1 Location Service Request

Using the Location Service Request, a LCS client communicates with the LCS server to request the location information for one or more target MSs 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 MS 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.

Editor's note: this functionality may be provided using one or more of the existing toolkits, including but not limited to CAMEL and OSA.

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.

CHANGE REQUEST

✂ **22.071** **CR** **022** ✂ rev **-** ✂ Current version: **4.1.0** ✂

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:	✂ Periodic Location Reporting		
Source:	✂ SA1		
Work item code:	✂ Location services enhancements	Date:	✂ 17 Nov. 2000
Category:	✂ C	Release:	✂ REL-4 (Release 4)
<p>Use <u>one</u> of the following categories:</p> <p>F (essential correction) A (corresponds to a correction in an earlier release) B (Addition of feature), C (Functional modification of feature) D (Editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)</p>	


Reason for change:	✂ Clarify that the LCS server can set the minimum time interval allowed for deferred location requests of Periodic Location Reporting. This is to avoid that an error causing an LCS Client to request periodic location reporting with an unreasonable short time interval, does not cause overload in the network. In the CR Tdoc S1-000788 the following text was added to section 5.3.1.1: “When using the Deferred type with event driven, the LCS client shall be able to set the following items; <ul style="list-style-type: none"> - Time interval of positioning - Number of responses (if needed) - Valid period of the request (if needed) It shall be possible for the LCS client to cancel the pre-arranged request.” The proposal is to add the following requirement: It shall be possible for the LCS server to set the minimum time interval of positioning allowed.
Summary of change:	✂
Consequences if not approved:	✂

Clauses affected:	✂ 5.3.1.1		
Other specs affected:	<input type="checkbox"/>	Other core specifications	✂
	<input type="checkbox"/>	Test specifications	
	<input type="checkbox"/>	O&M Specifications	
Other comments:	✂		

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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.

5.3 Functional Interfaces

5.3.1 LCS Client / LCS Server Interface

The LCS client/server use LCS messages to exchange information. Each LCS message contains a set of parameters. In the case of MS Based positioning methods, if the LCS Client is located in the MS, then an internal LCS Client /LCS Server interface may be supported.

NOTE: Further regional/national specific interfaces between LCS clients and servers may need to be supported in addition to the interfaces described here.

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 MSs 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

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

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.

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CHANGE REQUEST	
✎ 22.071 CR 023 ✎ rev - ✎ Current version: 4.1.0 ✎	

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:	✎ Addition of achieved location information accuracy with reference to TS 23.032		
Source:	✎ SA1		
Work item code:	✎ Location services enhancements	Date:	✎ 17/11/2000
Category:	✎ C	Release:	✎ REL-4
Use <u>one</u> 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 <u>one</u> 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:	✎ Requirements for future releases in chapter 9.2.2 is already covered elsewhere in 22.071 and in existing stage 2 and stage 3 specifications.
Summary of change:	✎ Addition of achieved accuracy, deletion of non-relevant text
Consequences if not approved:	✎ Would make the status of existing functional descriptions unclear, risk of causing unnecessary duplicated functionality.

Clauses affected:	✎ 4.3 and 9.2.2		
Other specs Affected:	<input type="checkbox"/> Other core specifications ✎ <input type="checkbox"/> Test specifications ✎ <input type="checkbox"/> O&M Specifications ✎		
Other comments:	✎		

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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 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%) U.S. FCC mandate (99-245) for wireless emergency calls using network based positioning methods
- 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%) U.S. FCC mandate (99-245) for wireless emergency calls using handset based positioning methods
- 150m (95%) U.S. FCC mandate (99-245) for wireless emergency calls using handset based positioning methods
- 10m-50m Asset Location, route guidance, navigation

Accuracy may be independently considered with respect to horizontal and vertical positioning estimates. Some location services may not require both, others may require both, but with different degrees of accuracy.

Given that the location estimate is the best possible within the bounds of required response time, the location estimates of a fixed position MS (assuming several estimates are made) will reveal a 'spread' of estimates around the actual MS position. The distribution of locations can be described by normal statistical parameters and suggests that a small proportion of location estimates may lie outside of the acceptable Quality of Service (QoS) parameters for specific services (as determined by the network operator).

It may be possible to provide information on the confidence that can be associated with a location estimate. This may be used by location services to decide if a position update should be requested, for example, if the reported accuracy falls below a threshold determined by the LCS Client or Network Operator for a specific service.

It may also be possible to determine velocity (speed and heading) information from a single location request. (i.e. the response to a single request may provide the results of multiple positionings).

When delivered with a location estimate, the confidence region parameters, speed and heading may allow an application to improve the service delivered to the MS user. Some examples are given below:

- (a) Confidence Region: Simple measure of uncertainty that specifies the size and orientation of the ellipse in which an MS is likely to lie with a predetermined confidence (e.g. 67%). The size of the confidence region may be used by the network operator or the LCS Client to request an updated location estimate.
- (b) Speed: enables e.g. congestion monitoring, and average travel time estimates between locations.
- (c) Heading: the location estimate of a vehicle may be improved to identify the appropriate side of the highway. This may enable the provision of traffic information that relates only to the user's direction of travel.

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

Accuracy is application driven and is one of the negotiable Quality of Service (QoS) parameters.

The precision of the location shall be network design dependent, i.e., should be an operator's choice. This precision

requirement may vary from one part of a network to another.

The LCS shall allow an LCS Client to specify or negotiate the required horizontal accuracy. The LCS shall normally attempt to satisfy or approach as closely as possible the requested or negotiated accuracy when other quality of service parameters are not in conflict. The achieved accuracy level of location information shall be indicated using the shapes and uncertainty areas defined in TS 23.032 [3].

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

- The LCS Server shall attempt to obtain the horizontal location of the calling MS, in terms of universal latitude and longitude coordinates, and shall provide this to an Emergency Service Provider. The accuracy shall be defined by local regulatory requirements. Annex A shows such requirements as exist in the United States.

NOTE: The LCS Server provides the location service capabilities but the mechanism by which location is reported to an emergency service provider is outside the scope of this service.

4.3.2 Vertical Accuracy

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

The LCS Server may provide the vertical location of an MS in terms of either absolute height/depth or relative height/depth to local ground level. The LCS Server shall allow a LCS Client to specify or negotiate the required vertical accuracy. The LCS Server shall normally attempt to satisfy or approach as closely as possible the requested or negotiated accuracy when other quality of service parameters are not in conflict.

The vertical accuracy may range from a about ten metres (e.g. to resolve within 1 floor of a building) to hundreds of metres.

For Emergency Services (where required by local regulatory requirements) there is no requirement for the support of vertical positioning.

4.3.3 Response Time

Different location based services, or different LCS Clients, may have different requirements (depending on the urgency of the positioning request) for obtaining a response. The location server may need to make trade-offs between requirements for positioning accuracy and response time.

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

Response Time is one of the negotiable QoS parameters. Support of response time by a Public Land Mobile Network (PLMN) is optional. The LCS Server may allow a LCS Client to specify or negotiate the required response time (in the context of immediate location request, see table 1) either at provisioning or when the request is made. The LCS Server may optionally ignore any response time specified by the LCS Client that was not negotiated. If response time is not ignored, the LCS Server shall attempt to satisfy or approach it as closely as possible when other quality of service parameters are not in conflict.

For immediate location request response time options are as follows::

- a) “no delay”: the server should immediately return any location estimate that it currently has. The LCS Server shall return either Initial or Last Known Location of the Target MS. If no estimate is available, the LCS Server shall return the failure indication and may optionally initiate procedures to obtain a location estimate (e.g. to be available for a later request).
- b) “low delay”: fulfillment of the response time requirement takes precedence over fulfillment of the accuracy requirement. The LCS Server shall return the Current Location with minimum delay. The LCS shall attempt to fulfill any accuracy requirement, but in doing so shall not add any additional delay (i.e. a quick response with lower accuracy is more desirable than waiting for a more accurate response).
- c) “delay tolerant”: fulfillment of the accuracy requirement takes precedence over fulfillment of the response time requirement. If necessary, the server should delay providing a response until the accuracy requirement of the requesting application is met. The LCS Server shall obtain a Current Location with regard to fulfilling the accuracy requirement.

For Emergency Services (where required by local regulatory requirements) there may be no requirement to support negotiation of response time. The network shall then provide a response as quickly as possible with minimum delay. Response time supervision is implementation dependent.

<< First part of chapter 9.2.2 deleted >>

9.2.2 Location identification in UTRAN and/or UE

~~When location identification is supported by UTRAN, the following apply,~~

~~It shall be possible to report the [estimated achieved] accuracy level of the location report as a resolution that will be limited by the accuracy capability of the local serving UTRAN and the capability of the ME. Note that certain effects, such as multipath propagation, may lead to one-sided errors and thus a non-circular location error zone is likely.~~

Location information is always at least obtained from UTRAN by the appropriate edge node(s) at the activation of a Call/PDP Context. A mechanism to make it possible to obtain the location information at the release of a Call/PDP Context should be specified. Location information sent to the edge node at other occasions is on the basis of asynchronous requests from the edge node to UTRAN. An edge node can request UTRAN to send the location information with the two types of requests, Type 1 (Direct request) where UTRAN sends location information only once at the request and Type 2 (Event request) where UTRAN sends location information at each specified event (e.g. Cell Update) requested by the edge node.