

Source: 3GPP S2 co-ordinator on location services in UMTS
Title: LCS in Release 99
Agenda item: 5.8.1
Document for: Information

General

The attached documents are the cover sheet for submitting *TS 23.171 Location services in UMTS* stage 2 specification to TSG-SA#7 for approval in Release 99, and a supporting SA2 document on location services in Release 99.

It is noted that some open issues belong to the TSG-CN area, as listed in the Release 99 submission form:

- Minor CRs to 23.007, 23.008 and 23.016 to point out that some paragraphs are applicable to GSM only
- GSM 04.30 is to be transferred to 3GPP, as 24.030, to cover LCS for GSM and UMTS in R99

TSG-CN is asked to recognise the need for completing this work item in R99.

Attachments

Annex 1, Coversheet for TS 23.171

Annex 2, S2-000577, Finalization of cell coverage based location services for UMTS R99

Annex 3, Tasks to finalize UMTS LCS (and also GSM LCS) in R99, CS domain

Source: TSG SA WG2
Title: Coversheet for 23.171
Agenda Item: 5.2.3

Release 1999 Submission form

Work Area / Item:		Location services in UMTS/ Specification TS 23.171, Functional stage 2 description of location services in UMTS			
Affects:	UE/MS: X	CN: X	UTRAN: X	Compatibility Issues:	Yes: X No:
Expected Completion Date:		23.171 by March 2000, minor CRs to core network specifications by June 2000.			
Services impacted:		Location services in UMTS			
Specifications affected:		TS 23.171 and TS 25.305 (UTRAN Stage 2), corresponding LCS Stage 3 specifications			
Tasks within work which are not complete:			GSM 04.30 to be transferred as 24.030 for GSM / UMTS in R99. Minor CRs to 23.007, 23.008 and 23.016 to point out GSM specific parts.		
Consequences if not included in Release 1999:			Discontinuity between LCS in GSM release (98) 99 and UMTS release 99. GSM LCS core network specifications, e.g. GMLC to MSC interface, are applicable to UMTS LCS by default, if no CRs are made.		
Accepted by TSG#		for late inclusion in Release 1999:			

Abstract of document:

The present document covers location services in UMTS with the overall goal of fulfilling the service requirements of location services in UMTS. This stage 2 service description is based on the corresponding GSM specification 03.71 and covers the LCS system functional model for the whole system, the LCS system architecture, state descriptions, message flows, exception procedures and information storage. The UTRAN stage 2 aspects of LCS are described in TS 25.305.

This specification now includes stage 2 descriptions of location services support in the packet switched domain of UMTS. Corresponding stage 3 specifications are not yet available, but TSG SA WG2 agreed to regard these descriptions of LCS in the packet switched domain as LCS "hooks" in the UMTS core network in release 99.

T1P1.5, SMG and the Core Network WGs have made "mirror" specifications of the GSM release 98 LCS Stage 3 specifications in release 1999. These mirror specifications do not distinguish between GSM and UMTS, and therefore support UMTS LCS in the circuit switched domain in Release 99 (e.g. GMLC-2G-MSC interface is identical to GMLC - 3G-MSC).

Contentious Issues:

None

(Additional information)

Plan to complete LCS in the UMTS packet switched domain and in GPRS in Release 2000:

The plan is to complete Location services in the UMTS packet switched domain in release 2000, including further development of the location services both for GSM (LCS Phase 2) and UMTS. GSM LCS Phase 2 includes LCS in GPRS and e.g. Camel support for LCS. The goals of the LCS work in release 2000 are:

- maximized synergy between GSM and UMTS using existing GSM LCS specifications for UMTS where applicable. GSM LCS Phase 2 and UMTS LCS should be aligned as feasible.
- common or well defined set of LCS specifications (Stage 1, 2 and 3) both for GSM and UMTS in release 2000.
- a simplified architecture for LCS in the UMTS release 2000 network configuration compared to GSM LCS in R98 /R99. GSM and UMTS may have different LCS architecture also in Release 2000.

A more detailed plan on the development of location services in 3GPP for release 2000 will be documented in the LCS Intergroup co-ordination project plan TS 30.(lcs).

**3GPP TSG-SA WG2 #12
6 – 9 March 2000, Tokyo, Japan**

Agenda Item: 6, 9

Source: **Nokia, Ericsson, Elisa Communications, Vodafone-Airtouch,
D2 Mannesmann**

Title: **Finalization of cell coverage based location services for UMTS R99**

Document: Discussion/ Decision

1. Background

In order to estimate the position of a mobile station, 3GPP will have support for three methods (Cell Id/RTT, OTDOA-IPDL and GPS). At the SA#6 plenary (December 1999), it was decided that the full set of LCS features would be completed as part of R00 timeframe.

But, to ensure backward compatibility in later releases and to minimize UE impacts, it was agreed that TSG-RAN should complete the necessary hooks for all three positioning methods in R99. Moreover, it was agreed that it is desirable to finalize at least the Cell coverage /RTT based solution for R99, without impacting the rest of the R99 work.

Accordingly, the hooks are now being specified in the RAN WGs, including the UTRAN LCS stage 2 specification TS 25.305 and selected Stage 3 specifications. Further, the Uu, Iub, Iur and Iu interfaces will have full support for the Cell coverage/RTT based method in R99.

The stage2 UMTS specifications already include support for location services. These specifications are based on the GSM LCS Stage 2 specification 03.71. The R99 GSM specifications are identical to (or a "mirror" of) the GSM R98 LCS specifications. Due to the specification numbering scheme, the "mirror" R99 GSM LCS specifications may be misinterpreted as UMTS LCS specifications.

This causes ambiguity regarding both GSM LCS and UMTS LCS in R99.

2. Proposal

In order to remove the ambiguity between GSM LCS and UMTS LCS for R99, some "editorial" changes would be required to the Network Architecture specification (23.002) based on the UMTS stage 2 LCS specification (23.171).

It is proposed that this change is done by clarifying which paragraphs in 23.002 apply to GSM only and by introducing general UMTS LCS descriptions according to 23.171.

The Network Architecture specification TS 23.002 and the LCS Stage 2 specification TS 23.171 are master specifications that describes how LCS and the LCS "hooks" are to be supported from the system point of view in R99. Most of the contents of 23.171 is identical or very close to the GSM stage 2 specification (03.71).

It should be noted that LCS stage 2 23.171 also includes some service descriptions for LCS support in the packet switched domain and additional descriptions are being proposed. These descriptions should be seen as core network "hooks" for compatibility with future releases. The complete LCS functionality including LCS support for packet switched services in the Release 2000 network configuration is to be done in Release 2000, as planned.

The tasks to finalize UMTS LCS (and also GSM LCS) in R99, CS domain were listed in the S2 LCS drafting group 7 March and are included in Annex 1 of this document.

3. Recommendation

With this approach it is easy and straightforward to include support for LCS for the circuit switched side of the UMTS core network in R99, thus enabling LCS service continuity and compatibility (from an end user perspective), between GSM and UMTS. It is realized that the cell coverage based location information in UMTS in R99 is less accurate than the time measurement based location information that can be achieved in GSM R99.

It is recommended that SA2 endorses the proposed changes and support the inclusion of the Cell-coverage /RTT based LCS functionality in release 99.

S2 LCS drafting session (S2-000577 Annex 1, meeting report Annex 4)
7 March 2000

Tasks to finalize UMTS LCS (and also GSM LCS) in R99, CS domain

Specifications under the responsibility of S2

23.002:

The Network Architecture specification should define GSM LCS in Release 99 and UMTS LCS in Release 99.

23.171:

The LCS System Stage 2 specification should be made applicable for Release 99, because it is the master LCS specification and also defines how the UTRAN LCS "hooks" fits in the system. If agreeable also core network LCS "hooks" could be included in the stage 2 specification to define the LCS functionality and architecture in the PS domain.

GSM LCS specification that are applicable also for UMTS

GSM 04.30 (will become 24.030 in R99):

"Location Services (LCS) supplementary service operations; Stage 3" specifies Mobile originated location request and location notification. This specification describes how operations defined in 24.080 should be used and is still only R98. It will be transferred from R98 to R99 GSM (mirror) and is then applicable also for UMTS. If seen necessary, some text could be added in 24.030, that certain functions are only applicable for GSM in R99.

24.080(common to GSM and UMTS):

This specification has been transferred to R99 and there is no need for any substantial changes because of UMTS LCS. The LCS additions in chapter 4 "Supplementary services operation specifications", are applicable also for UMTS. This specification also affects UE and air interface signaling.

03.32 and 23.032:

The geographical area description specification 03.32 has been changed in R98 and 23.032 should be updated for GSM R99. This specification is then applicable as such for UMTS.

CRs to core network LCS specifications

The core network specifications already now contain sufficient functionality to support UMTS LCS in the CS domain. The only thing that needs to be added is minor clarifications to highlight which parts are relevant only for GSM. This is due to the fact that GSM LCS architecture contains SMLC, whereas in UMTS this functionality is contained in SRNC. The following draft CRs are available:

Specifications under responsibility of N1:

24.007: No changes needed.

24.008: No changes needed.

Specifications under responsibility of N2:

23.008: A CR is needed to make some chapters relevant for GSM only.

23.016: A CR is needed to clarify which parts are GSM only.

29.002: The main changes would have been needed in chapter 4, but it has been decided in N2 to transfer this chapter to TS 23.002 Network Architecture. No further changes are needed.