TSG GERAN #2
Norrtälje, Sweden
06-10 Nov 2000

Source: LCS Rapporteur
Title: Work Item Description for Building block: Location Services (LCS) for GERAN in A/Gb Mode
Document for: Approval

Work Item Description

Title

Location Services (LCS) for GERAN in A/Gb Mode

1 3GPP Work Area

X	Radio Access
X	Core Network
X	Services

2 Linked work items

LCS work items for R2000 in TSG-SA, TSG-CN, TSG-RAN

3 Justification

LoCation Services provide the mechanisms to support mobile location services for operators, subscribers and third party service providers. Currently GSM LoCation Services (LCS) Release 98 and 99 supports only circuit switched case. In order to provide same services for packet switched case support for Packet Switched (PS) LCS domain should be included in the 3GPP GERAN LCS Release 4. Other enhancements will be considered in later 3GPP GERAN Releases. The alignment of GERAN LCS Release 4 with UMTS LCS in Release 4 is required, e.g. due to the common Core Network.

4 Objective

The purpose of this work item is to enhance GERAN LCS, i.e. to implement GERAN LCS Release 4. This includes introduction of LCS in packet switched GERAN including similar services that are available in circuit switched GSM, with reasonably small amount of changes to the existing GPRS specifications. Backward compatibility with GSM LCS R'98 & '99 BSS architecture is required. LCS support for GERAN also includes the support for circuit switched and packet switched modes (i.e. GPRS), which are not covered in GSM LCS R'98 & R'99. The LCS Stage 1 description TS 22.071 already include this requirement but should be further elaborated regarding LCS support in the packet switched domain. The three positioning mechanisms supported by GERAN LCS are Timing Advance (TA), Enhanced Observed Time Difference (E-OTD), and Global Positioning System (GPS).
There are two main efforts that can be identified for LCS in 3GPP TSG GERAN.

1. Support LCS in A/Gb mode: LCS support on packet-data channels and over the A/Gb interface.
2. Support LCS in Iu mode: LCS support over the Iu-ps, Iu-cs, Iur-g interfaces.

This building block describes support for LCS in GERAN for A/Gb mode.

In order to progress the LCS work, efficiently, emphasis on development of "LCS in A/Gb mode" work should be completed for the GERAN specifications by April 2001.

The following work tasks are identified as high priority items:
- GERAN LCS Stage Two (first release)
- Gb interface support for LCS
- A interface changes for LCS
- Broadcast of LCS data on packet channels
- RLC/MAC protocol support for LCS
- L3 protocol support for LCS
- Timing Advance based positioning on packet channels
- Class A and DTM MS impact (i.e. Air-interface impacts)
- Updates to existing protocols (RRLP, LLP, SMLCPP, BSSLAP, etc.) due to GPRS
- Ciphering of LCS in GPRS
- Lb interface support for LCS in GPRS
- Miscellaneous impacts from the new LCS Stage Two (23.271)

5 Service Aspects

- Provision of Velocity
- Privacy Control
- Location of All Mobiles in Geographical Area (LAMGA). This means that a LCS application can request locations and possibly identities of all mobiles in a certain geographical area. More exact definition of LAMGA is FFS.
- The Common LCS Stage 1 mentions Defined Geographical Areas (DEGA). For example it may be possible to identify and report when the user's terminal enters or leaves a specified geographic area. Also certain services might be available to mobiles within specified areas. Defined Geographical Areas should be specified in more detail in Stage 1 first. (FFS)
- Event Based Location Request - FFS

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

Affects:	SIM	ME	AN	CN	Others
Yes		X	X	X	
No	X				
Don't know					

10 Expected Output and Time scale (to be updated at each plenary)

New specifications						
Specification No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
43.059	Functional Stage 2 Description of Location Services in GERAN	GERAN				This specification describes the LCS support in GERAN for both Circuit Switched and Packet Switched services.
23.271	Functional stage 2 description of LCS [based on 23.171 and System and core network aspects from 03.71 +new features]	SA 2				This specification describes the system and core network aspects of LCS and is common to GSM and UMTS

Affected existing specifications				
Specification No.	CR	Subject	Approved at plenary#	Comments
44.018		Mobile radio interface layer 3 specification, Radio Resource Control Protocol		
44.031		Mobile Station (MS) Serving Mobile Location Centre (SMLC) Radio Resource LCS Protocol (RRLP)		
44.035		Broadcast Network Assistance for Enhanced Observed Time Difference (E-OTD) and Global Positioning System (GPS) Positioning Methods		
44.060		R adio Link Control/ Medium Access Control		
44.064		LLC specification GPRS		
44.071		Mobile radio interface layer 3 Location Services (LCS) specification;		
45.005 V4.0.1		Radio transmission and reception		
45.008 V4.0.1		Radio subsystem link control		
45.010		Radio subsystem synchronization		
45.050		Background for Radio Frequency (RF) requirements		
48.008		MSC-BSS interface; Layer 3 A i/f		
48.018		BSS GPRS protocol		
29.002		Mobile Application Part (MAP) Specification		
29.031		Base Station System Application Part LCS Extension (BSSAP-LE)		
22.071		3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Location Services (LCS); Service description, Stage 1		This specification is common to GSM and UMTS (/GERAN and UTRAN)

24.008		Mobile Radio Interface Layer 3 Specification		

11 Work item rapporteur

Nokia – Margaret Livingston

12 Work item leadership

GERAN

13 Supporting Companies

Nokia, Motorola, Ericsson, Siemens, Qualcomm, T-Mobil

14 Classification of the WI (if known)

	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature

Location Service (UMTS)

14c The WI is a Work Task: parent Building Block

(one Work Item identified as a building block)