TSG-RAN Working Group 1 meeting #8
New York, USA
October 12 - 15, 1999

TSGR1#8(99)h50

Agenda item:

Source: Adhoc 17 chair

Title: Adhoc 17 report to RAN WG1#8

Document for: Approval

Summary:

The LCS status in 3GPP and T1P1/GSM was presented. Based on the LS received from WG2 the work items were clarified. It was agreed to have the RTT and UE-RX_TX measurements in R99. The impact of GPS assisted methods on the WG1 specifications nedds further clarification. The handling of TA-IPDL for R99 will be decided at the next meeting. The Panasonic contribution on PEs was refered to WG2. The Samsung proposal on pilot structure is related to the TA-IPDL method and needs further study. LSs will be sent to WG2 and WG3 to inform them on our work and to ask for information.

Agenda for physical AH17:

1. Opening of meeting
2. Approval of agenda
3. Input documents (f51, f61, g15, g57, g88)
4. Status of LCS in RAN/SA/R2

   The chairman presented the status of the LCS discussion in the relevant 3GPP groups. The stage 2 description created in WG2 will become a technical specification. No conclusion on accuracy classes and optional/mandatory features yet. Lucent reported on the R2 LCS meeting.

5. Status of LCS in T1P1/GSM

   Lucent (Ian Corden) presented slides on the T1P1/GSM specification progress on LCS. The slides are available as Tdoc R1-99h05.

6. Scope/workplan

   - R1-99f61: LS on LCS from WG2

   The selection of three methods for R99 is described: cellbased, OTDOA with configurable IPDL and GPS assisted. WG1 is asked to specify the required measurements.

   It was agreed to send back a LS to WG2 answering f61, report the current status and planned work in WG1 and ask WG2 to include RTT and UE RX-TX measurements in R99. This includes information that the need to specify measurements for GPS assisted methods needs further clarification.

   Defined work items:

   - check GPS assisted method on WG1 specification. If there is an impact then collect contributions.

- update simulation setup (email discussion)

- define parameters for specification of OTDOA-IPDL

The 3GPP workplan on LCS is 3G PD 30.806 and the latest version is V0.1.5.

7. Discussion on input documents

- R1-99g15: Motorola simulation results (TA-IPDL)

It was clarified that the radial error is the distance between the actual and the estimated position of the UE. The simulation is based on ideal alignment of the IPs within the guard period over 5 symbols. The 10% CPICH power setting was questioned by Samsung. this power setting seems to be the current assumption in WG2. The LS to WG2 will ask for clarification on this. Additional simulations for 5% CPICH power would be interesting, but the priority to perform those simulations is not high. to compare different methods it is only important to use the same settings. It was pointed out that the CPICH power should be defined by the cell planning, not by LCS requirements. Increasing the measurement time does not directly relate to better accuracy. Due to multipath and NLOS the accuracy can not be improved by longer measurement times in some scenarios. The noise floor was -98 dBm in the simulations. The coherent integration time is over 5 symbols.

- R1-99g88: Ericsson simulation results (original IPDL and TA-IPDL)

The coherent integration time is over 1 symbol (256 chips). The different results for the rural environment need further discussion on email. Nokia commented that there is no reason using TA-IPDL if the performance is very similar. it was decided to send a LS to WG3 to check the impact of the methods on the interfaces. A decision on the use of TA-IPDL shall be made at the next WG1 meeting.

- R1-99g57: Panasonic proposal using PE (Positioning elements)

It was commented that the accuracy has to be shown by simulation results and whether this should be for R99. It was also commented that this is a new LCS method and that WG2 is responsible for the LCS methods. This method would also need new "cell" sites for the PEs. Those sites can be much more expensive than the equipement. Simulation results would be needed in order to evaluate this method. It was agreed to refer this contribution to WG2.

- R1-99f51: Samsung proposal on pilot structure

This scheme is only applicable for TA-IPDL because it needs to align the IP to the period of increased power. The power of 6 surrounding BTSs shall be increased during the IP. Simulation results were requested to show the benefit of this scheme.

8. Simulation setup:

The parameters for the simulation setup have been distributed by email on the reflector. The simulation results in g15 and g88 have been generated using this simulation setup.

It was agreed to add -99 dBm as noise floor. The CPICH power setting of 10% total power will be addressed in the LS to WG2. The movement of the mobile during the measurement time of 1 sec was included in the simulations. It was clearified after the Adhoc that this was included in the simulations from both Motorola and Ericsson. Further parameters like antenna gain will be discussed on the email reflector.

9. Conclusions:

LS to WG2 answering f61. Report the current status and planned work in WG1. Ask WG2 to include RTT and UE RX-TX measurements in R99. Panasonic contribution was noted and should be presented to WG2.

LS to WG3 asking about impact of different OTDOA methods (original IPDL, TA-IPDL) and impact of GPS assisted method on timing.

Defined work items:

- check GPS assisted method on WG1 specification. If there is an impact then collect contributions.
- update simulation setup (email discussion)
- define parameters for specification of OTDOA-IPDL

References:

[1] T1P1.5/98-110 Evaluation of Positioning Measurement Systems

[2] R1-99346 Recapitulation of the IPDL positioning method, 3GPP RAN WG1

[3] Tdoc SMG2 UMTS-L1 327/98, ETSI 1998

[4] AIF/SWG2-30-25, ARIB 1998

[5] TS 22.105 Services & Service capabilities, 3GPP SA

[6] TS 25.302: Services provided by the physical layer, 3GPP RAN WG2

[7] TR 25.923: Location services (LCS), 3GPP RAN WG2 (to be converted to a TS)

[8] 3G PD 30.806: Project plan on LCS and CBS in UMTS, 3GPP

[9] R1-99b18: AH 17 report from WG1#7, 3GPP RAN WG1

[10] R1-99f51: Pilot Channel Structure for Location Services, Samsung, 3GPP RAN WG1

[11] R1-99f61: LS on LCS, WG2, 3GPP RAN WG2

[12] R1-99g15: Evaluation Of Time Aligned IP-DL Positioning Technique Using Common Simulation Parameters, Motorola, 3GPP RAN WG1

[13] R1-99g57: Positioning method proposal, Panasonic, 3GPP RAN WG1

[14] R1-99g88: Evaluation Of IP-DL Positioning Techniques Using Common Simulation Parameters, Ericsson, 3GPP RAN WG1

[15] R1-99h05: Location services Phase 2 (for SMG3), 3GPP CN