

**Agenda item:**

**Source:** Adhoc 17 chair  
**Title:** Adhoc 17 report to RAN WG1#7  
**Document for:** Approval

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**Summary:**

Coordination with SA will be done. The optional/mandatory discussion is currently out of scope for WG1. There are two classes of positioning methods discussed: those using WCDMA signals (RTD, OTDOA) and those using external signals (GPS). GPS based methods should be evolutionary to GPS based GSM positioning. Study on accuracy and complexity of different positioning methods to be continued.

**Agenda for physical AH17:**

1. Opening of meeting
2. Approval of agenda
3. Input documents (901, 902, a84, b79, b88, c23, c36, c37, c61) (see references)
4. Contact person for TSG SA: Ian Corden, Lucent
5. Define scope/workplan:

Ian Corden presented the Project plan for LCS in UMTS [10]. It was pointed out by Nortel that the version of this document is probably not the latest version and is not approved by TSG SA. The project plan was noted, but clarification is needed on the latest version and on the official status of this project plan. Ian Corden will contact SA about this.

It was agreed that the discussion on optional/mandatory positioning support should not be done now in this group. Instead RAN WG1 should concentrate to study the different positioning methods in terms of performance, complexity and impact on the standard.

6. Discussion on input documents
  - R1-99a84:Location services technologies for WCDMA [14] presented by Lucent. UTRAN assisted GPS (UAG) is proposed. It was agreed that GPS based positioning is one method using external signals for positioning. GPS based methods should be evolutionary to GPS based methods employed in GSM (which are currently discussed in T1P1). The mandatory UAG for the UE was not agreed.
  - R1-99c23: Text proposal for TS 25.231 [17] presented by Lucent. This text proposal needs further explanation on how UAG impacts the Physical Layer and was not accepted.
  - R1-99b79:Time Aligned IP-DL positioning technique [15] presented by Motorola. Some questions on the simulation method were raised and answered. Nokia pointed out that there might be some problem of coordinating the time-alignment of the idle periods. Nortel stated that the impact on Iub to coordinate the idle periods needs to be clarified. Philips comments that the time-alignment should be

much easier in a synchronised system. The benefit in an asynchronous system and the complexity need further analysis.

- R1-99b88: Answer to questions from Fujitsu on IPDL [17] presented by Ericsson. Regarding question 11 it was clarified that all sectors of one geographical site are idle at the same time.
- R1-99c36: Pilot signal coverage for Location Services [18] presented by Nortel. The different pilot signals are from different geographical sites. Idle periods should only be used when really necessary and should be controlled by UTRAN. The UE complexity for long measurement times was pointed out. Nokia and Ericsson commented that the success rate does not directly reflect accuracy because multipath is not considered in Nortel's simulations.
- R1-99c37: Measurements for LCS to be supported in R99 [19] presented by Nortel. The RTD measurement was already agreed in AH16. For RTD measurements to be used for positioning a higher accuracy might be required than for normal RTD measurements. The RTD accuracy is a parameter. Nokia asked about the frequency offset measurement. Nortel states that this is FFS. Lucent asked about the signalling overhead. Nortel answers that existing channels are used for measurement signalling, so no extra overhead is necessary.
- R1-99c61: Proposal for DL positioning [20] presented by Ericsson. Nortel remarks that this table could be similar to the one describing the compressed modes, but also text to define the measurements is necessary. Nokia states that this could lead to mandatory impacts on the UE which could lead to high complexity. Siemens adds that the number of options should be reduced as far as possible. It was noted that allowing 0 frequency (no idle periods) should not be seen as an additional method to IPDL and that the frequency of the idle periods is a necessary parameter. In general it is beneficial if different options to be included in the system can be parameterized in a single description. Which options should be included is FFS.
- R1-99901: Text Proposal for LCS [13] presented by Ericsson. The text proposal part for 25.231 section 8 was accepted. The text proposal part for 25.214 was not accepted.
- R1-99902: Draft answer to LCS liaison [14] presented by Ericsson. The liaison to WG2 was updated and a new version (R1-99d40) was accepted.

## 7. Simulation setup:

Some parameters for simulations were agreed, further discussion on the simulation setup should be discussed by email. The use of the T1P1 channel models was agreed. The CPICH relative power should be 4%. Lucent, Motorola and Ericsson are planning for further simulations. The FCC required accuracy (125m/67%) should be a minimum requirement. The 50m accuracy stated by SA needs some further clarification but should also be considered as target accuracy.

## 8. Conclusions:

The discussion will continue per email. The coordination with SA and the clarification on the workplan will be done by Ian Corden. Further study on accuracy and complexity of different positioning methods was requested.

## **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 (V3.5.0) Services & Service capabilities, SA
- [6] TS 25.302: Services provided by the physical layer, 3GPP RAN WG2
- [7] TS 25.923: Location services (LCS), 3GPP RAN WG2
- [8] Email from Adhoc 17 chair: Chair\_position, 3GPP RAN WG1
- [9] R2-99330: LS on Measurement Requirements for LCS, 3GPP RAN WG2
- [10] 3G PD 30.LCS: Project plan for LCS in UMTS
- [11] S2-99524: 3GPP Project Coordination for LCS in UMTS
- [12] R1-99901: Text Proposal for LCS, Ericsson, 3GPP RAN WG1
- [13] R1-99902: Draft answer to LCS liaison, Ericsson, 3GPP RAN WG1
- [14] R1-99a84: Location services technologies for WCDMA, Lucent, 3GPP RAN WG1
- [15] R1-99b79: Time Aligned IP-DL positioning technique, Motorola, 3GPP RAN WG1
- [16] R1-99b88: Answer to questions from Fujitsu on IPDL, Ericsson, 3GPP RAN WG1
- [17] R1-99c23: Text proposal for TS 25.231, Lucent, 3GPP RAN WG1
- [18] R1-99c36: Pilot signal coverage for Location Services, Nortel, 3GPP RAN WG1
- [19] R1-99c37: Measurements for LCS to be supported in R99, Nortel, 3GPP RAN WG1
- [20] R1-99c61: Ericsson: Proposal for DL positioning, Ericsson, 3GPP RAN WG1