Source:	**Nokia**
Title:	**Support of mobile originated and terminated transactions during LCS positioning**
Agenda item:	**7.17, WI LCS (to be handled with the tdocs NP-010099, 100, 101, 102 & 103)**
Document for:	**INFORMATION**

1. Introduction

In the last CN1 meeting (meeting #16 in Sophia Antipolis) some documents were presented to provide a solution for the T3240 problem in LCS. More specifically the Tdocs were *N1-010278*, *N1-010307*, *N1-010308*, *N1-010309* and *N1-010310*.

In the meeting is was agreed that T3240 expiry creates problems for LCS since the RR connection (which is used for LCS messages during positioning procedure) may be released by the MS when it would still be needed for LCS signalling.

The CRs with Tdoc numbers *N1-010307-310* propose to send a MS side RR-SAP primitive to MM layer to stop the T3240 timer and define a new state to handle both incoming and outgoing connections. These CRs were noted in the meeting and it was proposed to revise them and present the revised versions in CN plenary. The revised Tdoc numbers are *NP-010099, NP-010100, NP-010101, NP-010102* and *NP-010103*.

It was pointed out that as working assumption it should be possible to allow incoming and outgoing connections during positioning, and that related changes should be done to network side to make this possible.

2. Conclusion

From network point of view the MM connection towards the MS is still active. The network is aware that the MS has an active RR connection because it sends the *Perform Location Request* message to BSC after authentication is performed. Then if positioning procedures are being performed and a mobile terminated transaction should be indicated to the MS, a CM message is used by the network for this purpose (for example a MTC is indicated by sending SETUP message). For the case of mobile originated connections the MS uses CM SERVICE REQUEST.

The network also knows that the RR connection has been released since it receives the *Perform Location Response* from the BSC.

No new state is needed on the network side; instead the definition of the new state (in the MS side) MM RR CONNECTION RELEASE NOT ALLOWED already supports this requirement. This new state is defined in Tdocs *NP-010101, NP-010102* and *NP-010103*, see below **Annex A**.

Paragraph starting with "if a request for MM connection establishment is received:" provides support for outgoing connections during positioning; paragraph starting with "if a CM message is received from the network:" provides support for incoming connections during positioning.

4.2.7 Behaviour of the MS supporting LCS in MM RR CONNECTION RELEASE NOT ALLOWED state

The following requirements are only applicable for MS supporting LCS.

When in state MM RR CONNECTION RELEASE NOT ALLOWED;

if a request for MM connection establishment is received:
- timer T32xx is stopped and reset but not restarted and;
- CM SERVICE REQUEST is sent and;
- state WAIT FOR OUTGOING MM CONNECTION is entered

if RR-No-Abort-Ind (abort allowed) is received:
- timer T32xx is stopped and reset but not restarted and;
- timer T3240 is started and;
- state WAIT FOR NETWORK COMMAND is entered

if timer T32xx expires:
- timer T32xx is reset but not restarted and;
- RR connection is released and;
- MM IDLE state is entered

if a CM message is received from the network:
- timer T32xx is stopped and reset but not restarted and;
- MM CONNECTION ACTIVE state is entered (via Indicate MM connection sub-state).

if a radio channel release is initiated by the network:
- timer T32xx is reset but not restarted and;
- RR connection is released and;
- MM IDLE state is entered.