Technical Specification Group Services and System Aspects

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From: TSG CN WG1

To: TSG RAN WG2

CC: TSG RAN WG4, TSG SA, TSG SA WG1, TSG GERAN, TSG GERAN WG1

Title: LS on PLMN Selection and Re-selection Issues

Date: 15-January-2001

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CN1 thanks RAN2 for their liaison statement on PLMN selection/re-selection issues, and asks RAN2 to consider this response prior to the joint workshop in Helsinki on 7th & 8th February 2001.

CN1 share's RAN2's concerns on the amount of time it may take the mobile to search through several technologies before finding the HPLMN or other PLMNs. Therefore, CN1 suggests that some of the issues listed by RAN2 ought to be left open to implementation, thus allowing for innovative methods of searching for PLMNs.

Open Issues Highlighted by RAN2:

1. *During the TSG-RAN WG4 and TSG-RAN WG2 joint meeting it was discussed if comparisons should be made between multiple technologies during the PLMN selection and reselection processes. i.e. once a suitable cell of the RPLMN is found may that cell be selected to perform registration rather than searching though all technologies for the optimum cell of that PLMN*

Response:
According to TS 23.122, the MS never needs to search through all access technologies to perform the registration. However the priority order in which the search is performed (GSM, UMTS) depends upon parameters stored in the USIM: "RPLMN last used access technology", "User Controlled PLMN Selector with Access Technology", "Operator Controlled PLMN Selector with Access Technology" and "HPLMN Selector with Access Technology". More details can be found in TS 23.122 section 4.4.3.1.

2. *In the case where no preference is shown between technologies on the USIM or RPLMN RAT preference field how should the order to the technologies to be searched be chosen?*

Response: CN1 believes that for the case where no RAT preference is shown on the USIM the order in which technologies are searched should be an implementation issue, as discussed at a workshop on PLMN selection last year, and as confirmed by the current version of 23.122:

"The PLMN/access technology combinations are listed in priority order. If an entry includes more than one access technology, then no priority is defined for the preferred access technology and the priority is an implementation issue. "

For the case where no preferred RAT for the last registered PLMN is available, 23.122 states that GSM bands shall be searched first:

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"...The MS shall start its search using the access technology type stored in the "RPLMN Last Used Access Technology" data field on the SIM. If the "RPLMN Last Used Access Technology" is not available then an MS capable of GSM access technology shall start its search using GSM access technology. "

3.   *In the case where UTRA is the radio access technology (RAT) preference, how is the order of the radio access modes (RAM) chosen?*

Response: According to the preference of the CN1 meeting, this should be implementation dependant. There appears to be no mention of individual Radio Access Modes (RAM) in 23.122, although for GSM the following note applies:

> "NOTE: Different GSM frequency bands (eg. 900, 1800, 1900, 400) are all considered GSM access technology. An MS supporting more than one band should scan all the bands it's supports when scanning for GSM frequencies. However GSM COMPACT systems which use GSM frequency bands but with the CBPCCH broadcast channel are considered as a separate access technology from GSM."

CN1 sees no reason to distinguish between the access modes in CN specifications. CN1 is of the opinion that the distinction between modes such as FDD and TDD depends on the viewpoint. For CN procedures such as PLMN selection they ought to be considered as variants of the same technology, just as the various GSM bands are grouped together. AS procedures such as cell selection and reselection are internal to RAN and GERAN groups to define and here CN1 can assume that different modes are treated in a different way.

CN1 also acknowledges the receipt of RAN2's LS on High quality cell criteria issues in the separate LS R2-002473. CN1 has replied to this in a separate LS.