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**3GPP TSG-RAN WG2 Meeting #45**

**R2-042741**

**Shin Yokohama, 15th -19th November 2004**

**Title:** Reply LS (to N1-042069) on Selected PLMN and Network Sharing  
**Source:** RAN WG2  
**To:** RAN, CN, CN1, GERAN, SA1  
**Cc:**  
**Release:** Rel-6

**Contact Person:**

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**Attachments:** Original LS from CN1 attached for convenience[R2-042651]:

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**1. Overall Description:**

RAN2 thanks CN1 for their liaison on Selected PLMN and network sharing. RAN2 considers the issue on network sharing resolved, but has still concerns about selected PLMN. RAN2 understands that CN1 does not use the term selected PLMN after registration has taken place when the term Registered PLMN is used instead. In contrast, RAN2 currently uses the term selected PLMN within the definition of suitable cell and therefore considers that the selected PLMN exists even after registration.

Based on the feedback from CN1, RAN2 has discussed to update its specifications from release 6 such that the term "selected PLMN" is used in the same way as used by CN1. The discussion in RAN2 showed that the adaptation to the CN1 used way is not simple as also GERAN need to use the terminology "selected PLMN" inline with CN1.

As it was not possible to find agreement on any CR to RAN2 specs, it is recommended to discuss this topic also in SA1 and GERAN to find a complete and consistent solution covering CN, GERAN and RAN. Furthermore it is recommended that experts start the discussion during CN and RAN December plenary.

Note that RAN2 also believes the above decision has an implication on the inter-PLMN handover case (which from a RAN2 perspective includes inter-PLMN inter-RAT handover to UTRAN and inter-PLMN SRNS relocation). After an inter-PLMN handover of a CS call, the new SRNC will typically provide LA/RA information to the UE which may trigger UE NAS to perform a RAU and therefore allow continuation of PS services. This RAU will result in a new Registered PLMN and so at the end of the call the UE will attempt to select a cell of this new PLMN. If no LA/RA information is provided to the UE by the new SRNC, or UE NAS does not trigger RAU, then the UE will, in addition to not being able to access the PS domain, remain registered with the source PLMN and therefore attempt to select a cell of this PLMN at the end of the call. RAN2 leaves it to CN1 to decide on 1) the criteria for triggering RAU, 2) if specific behaviour is required for the case that the RAU is rejected by the network and 3) if specific behaviour for the case that the call ends between reception of the LA/RA information from the SRNS but before completion of the RAU.

RAN2 has an additional question regarding the AS/NAS model for emergency camping. When the AS can not find a suitable cell, it will attempt to camp on an acceptable cell. RAN2 understanding is that the acceptable cell and therefore the PLMN is chosen by AS, and the NAS will not set a new Selected PLMN for this case. If the UE was in RRC connected mode when loosing coverage then it will maintain its RRC connection to the

Registered PLMN while camping on an acceptable cell, but if NAS sets a new Selected PLMN this RRC connection will be release locally in the UE.

## **2. Actions:**

### **To CN group.**

**ACTION:** RAN2 asks TSG CN, CN1 and SA1 to inform TSG RAN and RAN2 how the use of "selected PLMN" is intended and how this should be modelled in NAS and AS.

**ACTION:** RAN2 asks CN1 to confirm whether they have the same understanding of the AS/NAS model for emergency camping.

**ACTION:** RAN2 asks GERAN consider whether the above discussion has any implication for its specifications.

## **3. Date of Next RAN2 Meetings:**

RAN2#45bis            10-14 Jan 2005            Sophia-Antipolis, France

RAN2#46              14-18 Feb 2005            Scottsdale, USA

## **4. Attachments:**

Original LS from CN1 attached for convenience [R2-042651]:

**3GPP RAN WG2 Meeting #45**  
**Shin Yokohama, Japan, 15-19 November 2004**

**R2-042651**

(N1-042069, to RAN2). Reply LS (to R2-042272) on selected PLMN and network sharing

**3GPP TSG-CN1 Meeting #36**  
**Seoul, Korea, 15-19 November 2004**

**Tdoc N1-042069**  
Revision of Tdoc N1-042028

**Title:** Reply LS on selected PLMN and network sharing  
**Response to:** LS (R2-042272/N1-041671) on selected PLMN and network sharing from RAN2  
**Release:** Rel-6

**Source:** CN1  
**To:** RAN2  
**Cc:** GERAN

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**Attachments:** None

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**1. Overall Description:**

CN1 would like to thank RAN2 for their liaison statement on selected PLMN and network sharing and give the following answers to RAN2's questions.

**Question from RAN2:**

1 - Confirm the conclusion of RAN2 that it is the responsibility of NAS to select and maintain the Selected PLMN and inform this to AS, and therefore this is something to be covered by CN1 specifications rather than RAN2 specifications.

**Answer from CN1:**

In CN the Selected PLMN is not used after registration, and therefore it is not necessarily updated or maintained by NAS. Instead the Registered PLMN is used within the CN procedures.

NAS indicates to AS when the PLMN selection procedure selects a new PLMN, and when the equivalent PLMN list is changed, deleted or has become invalid, but AS will need to update the selected PLMN, for its own purposes, each time the PLMN is changed due to cell re-selection etc.

In the case of handover, when a PLMN is received in the dedicated RR signalling (e.g. in the RRC "CN information info" IE (lu mode) or in the RR "DTM INFORMATION" message (A/Gb mode)) provided to NAS by AS, there appear to be two possible implementations. Either the NAS may update the selected PLMN before initiating registration towards this new selected PLMN, or alternatively NAS may choose not to update the selected PLMN and when returning to idle mode will attempt to return to the registered PLMN.

CN1 would note that due to the existence of the Equivalent PLMN list the above mentioned behaviour exists from Release 99 onwards and not only to network sharing.

**Question from RAN2:**

2 - Confirm whether the principles of AS-NAS interaction described in section 4 are in line with CN1s understanding.

**Answer from CN1:**

The general principles of AS-NAS interaction as described by RAN2 in the LS are in line with CN1 understanding except for the updating of the Selected PLMN. Please see the answer to the first question.

**Question from RAN2:**

3 - Inform RAN2 whether the scenario that more than one PLMN makes the cell suitable is a realistic network sharing case that needs to be supported by the specifications? If it is a realistic case, then RAN2 would like confirmation that it is a NAS responsibility to choose one PLMN from the PLMNs that make the cell suitable to which to perform registration, and therefore this will be covered by CN1 specifications.

**Answer from CN1:**

Combining network sharing with national roaming, it is possible to construct scenarios where more than one PLMN make a cell suitable. Such scenarios may be considered unlikely, but in order not to prevent any future needs or developments CN1 still think that this case should be supported by the specifications. CN1 can confirm that NAS will be responsible for choosing one PLMN from the PLMNs that make a cell suitable if the RPLMN is no longer available.

**2. Actions:**

**To RAN2 group.**

**ACTION:** CN1 asks RAN2 to take these answers into account when further discussing their CRs on Network Sharing.

**3. Date of Next TSG-CN1 Meetings:**

CN1_37	14th – 18th February 2005	Sidney, Australia
CN1_38	25th -30th April 2005	Cancun, Mexico