**3GPP TSG-CT WG1 Meeting #128-eC1-21xxxx**

**Electronic meeting; 25 February – 5 March 2021 Revision of C1-210699**

**Source: China Mobile**

**Title: Solution to KI#7-About camping on an acceptable cell**

**Spec: 3GPP TR 24.821 v0.3.0**

**Agenda item: 17.2.4**

**Document for: Agreement**

**1. Introduction**

In C1-210914, the following issue is suggested to be added to KI#7:

- What modifications in automatic PLMN selection mode are necessary for a UE using satellite access unable to obtain normal service from a PLMN?

 to address the following part related to the above issue

- Under what situations and conditions the UE using satellite access can make an emergency call and what is the acceptable cell for it?

**2. Reason for Change**

A solution to the issue proposed in C1-210914 is provided.

**3. Proposal**

It is proposed to agree the following changes to 3GPP TR 24.821 v0.3.0.

\* \* \* First Change \* \* \* \*

## 6.1 Mapping of solutions to key issues

Table 6.1-1: Mapping of solutions to key issues

|  |  |
| --- | --- |
|  | Key issue |
| Solution | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | X |  |  |  |  |  |  |
| 2 |  | X |  |  |  |  |  |
| 3 |  | X |  |  |  |  |  |
| 4 |  |  | X |  |  |  |  |
| 5 |  |  | X |  |  |  |  |
| 6 |  |  |  | X |  |  |  |
| 7 |  |  |  | X |  |  |  |
| 8 |  |  |  |  |  | X |  |
| x |  |  |  |  |  |  | X |

\* \* \* Next Change \* \* \* \*

## 6.x Solution <x>

### 6.x.1 Target key issue

This solution addresses key issue #7.

### 6.x.2 Solution Description

This is a solution to the issue in Key Issue 7:

According to the clause 2 of the TS 23.122[3], if the MS is unable to find a suitable cell to camp on, or the SIM is not inserted, or if it receives certain responses to an LR request, it attempts to camp on a cell irrespective of the PLMN identity, and enters a "limited service" state in which it can only attempt to make emergency calls or to access RLOS.

On the other hand, for a UE using satellite access, according to TR 23.737[5] solution #13, which is selected as the way forward for key issue #10, the network should verify the UE location first during registration procedure over satellite access to route either the normal service or the emergency service. So, camping on a cell irrespective of the PLMN identity may cause a rejection to the registration request. In addition, receiving a cause other than the one “telling the UE the selected PLMN is not allowed in the present UE location” means the selected PLMN has already verified the UE’s location and the cell UE camps on is an acceptable cell.

Based on the above considerations, it is suggested to distinguish the situations listed in the clause 3.5 of the TS 23.122[3] when UE attemping to camp on an acceptable cell to enter a "limited service" state in which it can make emergency calls:

- For the UE using satellite access and unable to find a suitable cell to camp on, it may camp on an acceptable cell with the PLMN identity containing the MCC matching the country it locates;

- For the UE using satellite access and the USIM is not inserted, while a new PLMN selection is not triggered, it may camp on an acceptable cell irrespective of the PLMN identity;

- For the UE using satellite access and receiving a cause “telling the UE the selected PLMN is not allowed in the present UE location” during the registration procedure, it may camp on an acceptable cell with the PLMN identity containing the MCC matching the country it locates;

- For the UE using satellite access and a cause other than “telling the UE the selected PLMN is not allowed in the present UE location” during the registration procedure, it may camp on an acceptable cell of the selected PLMN.

### 6.x.3 Impacts

UE impacts:

- Distinguish the situations listed in the clause 3.5 of the TS 23.122[3] when UE attemping to camp on an acceptable cell to enter a "limited service" state in which it can make emergency calls.

Editor’s note: The impacts on camping on acceptable cell and the definition of an acceptable cell need to be confirmed by RAN2.

- Need to verify the UE location first during emergency registration procedure over satellite access.

- Need to respond with REGISTRATION REJECT, including suitable cause value to tell the UE that the selected PLMN is not allowed in the present UE location, as it is requesting emergency registration in a country that is different from its location.