**3GPP TSG-CT WG1 Meeting #129-eC1-21xxxx**

**Electronic meeting; 19–23 April 2021 Revision of C1-212060**

**Source: China Mobile**

**Title: Considering the case “the USIM is not inserted” in KI#7**

**Spec: 3GPP TR 24.821 v1.0.0**

**Agenda item: 17.2.4**

**Document for: Agreement**

**1. Introduction**

In TR 24.821, Key issue #1 "Determination of the country of the UE’s location" and #2 "Use of core network of PLMN in country where UE is located" aim to study how the UE determines the country of its physical location and how it determines which PLMN(s) can be selected in determined country of its physical location. In these two key issues, the case “the USIM is not inserted” is not included, and whether a ME can determine the country of its physical location and determine which PLMN(s) can be selected in determined country of its physical location are not mentioned.

As we know, the solutions to KI#1 and #2 based on the USIM and network don't support the case “the USIM is not inserted”, and the solutions not relevant to the USIM and the network also don’t assure or require a ME to support it. So, it is suggested to consider the following question in KI#7:

- Whether it is necessary for the UE without a USIM to determine the country of its physical location and which PLMN(s) can be selected in determined country of its physical location? Should the UE with USIM not inserted behave the same as the UE with USIM inserted when camping on an acceptable cell with "satellite NG-RAN" access technology?

**2. Reason for Change**

It is suggested to consider " Whether it is necessary for the UE without a USIM needs to determine the country of its physical location and determine which PLMN(s) can be selected in determined country of its physical location?Should the UE with USIM not inserted behave the same as the UE with USIM inserted when camping on an acceptable cell with "satellite NG-RAN" access technology? " in KI#7.

**3. Proposal**

It is proposed to agree the following changes to 3GPP TR 24.821 v1.0.0.

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

## 5.7 Key issue #7: Emergency calls

Satellite access networks are expected to cover the large geographical areas which cover some countries and several PLMNs from the legacy communication system perspective. To support emergency call services for UE might be influenced by adopting satellite access. Therefore, it is needed to study for the routing of emergency call to appropriate PSAP in the case of adopting satellite access.

The following questions are expected to be studied within this key issue:

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

- Whether it is necessary for the UE without a USIM needs to determine the country of its physical location and determine which PLMN(s) can be selected in determined country of its physical location?Should the UE with USIM not inserted behave the same as the UE with USIM inserted when camping on an acceptable cell with "satellite NG-RAN" access technology?

\* \* \* 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 following question in Key Issue 7:

- Whether it is necessary for the UE without a USIM needs to determine the country of its physical location and determine which PLMN(s) can be selected in determined country of its physical location?Should the UE with USIM not inserted behave the same as the UE with USIM inserted when camping on an acceptable cell with "satellite NG-RAN" access technology?

Considering that SA2 specifies the network should verify the UE's location during emergency registration procedure over satellite access, the UE without a USIM is not obliged to determine the country of its physical location and which PLMN(s) can be selected in determined country of its physical location by itself.

Moreover, the requirement of supporting for the scenario "the USIM is not inserted" makes the solutions to KI#1 and #2 complicated to use, such as:

1. The mechanisms based on the USIM and network need to coexist with those not relying on them.
2. The mechanisms not relying on the USIM and network need to assure a ME to support that.
3. The mechanisms could be changed when the USIM is inserted or removed.

Therefore, it is suggested whether the UE without a USIM determines the country of its physical location and which PLMN(s) can be selected in determined country of its physical location or not depends on the UE implementation.

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

## 7.7 Evaluation of Solutions for Key Issue #7

Key issue #7 " Emergency calls " identifies the following issue in subclause 5.7:

1. What modifications in automatic PLMN selection mode are necessary for a UE using satellite access unable to obtain normal service from a PLMN?
2. Whether it is necessary for the UE without a USIM needs to determine the country of its physical location and which PLMN(s) can be selected in determined country of its physical location? Should the UE with USIM not inserted behave the same as the UE with USIM inserted when camping on an acceptable cell with "satellite NG-RAN" access technology?

The evalution of the solution to the issue b) is as follows.

Table 7.7-1  Evaluation of the solutions to KI#7

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|  | The issue addressed | Solution Summary | Evaluation(supplementary) |
| Solution#16 | b) | The UE without a USIM determine the country of its physical location and which PLMN(s) can be selected in determined country of its physical location, i.e. the UE with USIM not inserted should behave the same as the UE with USIM inserted when camping on an acceptable cell with "satellite NG-RAN" access technology. | This solution can help to decrease the risk of reject for potential emergency service.This solution has the following requirements on the solutions to KI#1 and #2:1. An ME is mandatory to support the mechanisms not relying on the USIM and network.2. The mechanisms based on the USIM and network need to coexist with those not relying on them. |
| Solution x | b) | Whether the UE without a USIM determines the country of its physical location and which PLMN(s) can be selected in determined country of its physical location or not depends on the UE implementation. i.e. the UE with USIM not inserted is not obliged to behave the same as the UE with USIM inserted when camping on an acceptable cell with "satellite NG-RAN" access technology. | This solution doesn’t need to modify the logic for the UE without a USIM when camping an acceptable cell.This solution has no restriction to the application of the solutions to KI#1 and #2.This solution is not compatible with Solution#16. |

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