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

**E-meeting, 19th April – 23th April 2021 *was C1-212362***

**Source: China Telecom, Huawei, HiSilicon**

**Title: New WID on IMS voice service support and network usability guarantee for UE’s E-UTRA capability disabled scenario in 5GS**

**Document for: Approval**

**Agenda Item: 17.1.1**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

# Title: New WID on IMS voice service support and network usability guarantee for UE’s E-UTRA capability disabled scenario in 5GS

## Acronym: ING\_5GS

## Unique identifier: TBD

Potential target Release: Rel-17.

## 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** |  | x |  | x |  |
| **No** | x |  | x |  | x |
| **Don't know** |  |  |  |  |  |

## 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This work item is a Feature *.*

|  |  |
| --- | --- |
| x | Feature |
|  | Building Block |
|  | *Work Task* |
|  | Study Item |

### 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
|  |  | *{optional free text}*  |

## 3 Justification

It has been observed in the field that, for a standalone (SA) 5G network which only relying on EPS fallback for IMS voice service, once a UE has disabled its E-UTRA capability for some reasons (see subclause 4.5 in TS  24.301) then moves to 5GS, all the IMS voice call in the 5GS will fail as the EPS fallback cannot be performed due to the UE’s E-UTRA capability is disabled. Situation gets worse since the UE does not know the failure reasons. The UE may re-attempt to initiate the IMS voice call in the current network while still keeping its E-UTRA capability disabled. Such kind of IMS voice failure has already happened in real deployment and needs to be solved in specifications.

The above problem has been discussed in SA WG2 meeting #143-e. In order to solve the problem for the legacy UEs, a network-based solution was approved through S2-2101055 at the expense of 5G network usability, since the AMF will indicate that the IMS voice over PS session over 3GPP access is not supported once the UE disables its E-UTRA capability, which leads the voice-centric UEs leave the 5G network and move to 2G/3G even if most of these UEs will not have the voice services at all.

It is valuable to further evaluate and provide improved solutions for above problem to avoid the voice-centric UEs leave the current 5G network and move to 2G/3G. Therefore, a CT work item is proposed to develop the stage-3 solution which not only resolves the IMS voice call failure problem, but also guarantees the 5G network usability for voice-centric UEs.

## 4 Objective

This work item is to implement following objectives:

1. Defining the behaviour of voice-centric UEs regarding how to obtain the IMS voice services without moving to 2G/3G when the UE’s E-UTRA capability is disabled and the network is capable to offer IMS voice over PS session over 3GPP access.
2. Potential impact on N1 5G NAS signalling message to allow the network to inform the UE about the VoNR support capability or the specific reasons of the IMS voice service non availability.

## 5 Expected Output and Time scale

|  |
| --- |
| **New specifications** *{One line per specification. Create/delete lines as needed}* |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |

|  |
| --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 24.501 | 1. Defining the UE behaviour to obtain the IMS voice services without going to 2G/3G when the UE’s E-UTRA capability is disabled and the network is capable to offer IMS voice over PS session over 3GPP access.
2. Potential impact on N1 5G NAS signalling message to allow the network to inform the UE about the VoNR support capability or the specific reasons of the IMS voice service non availability.
 | CT1#94 (December 2021) | CT1 |

## 6 Work item Rapporteur(s)

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## 7 Work item leadership

CT WG1

## 8 Aspects that involve other WGs

## 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| China Telecom |
| Huawei |
| HiSilicon |
| vivo |
| ZTE |
| Nokia? |
| China Unicom |
|  |