**3GPP TSG-RAN5 Meeting #99 Draft R5-233310**

**Incheon, Korea, May 22nd – 26th, 2023**

**3GPP TSG RAN meeting #100 RP-23xxxx**

**Taipei, June 12-14, 2023**

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

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

**Document for: Endorsement**

**Agenda Item: 4.1**

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: UE Conformance - IMS voice service support and network usability guarantee for UE’s E-UTRA capability disabled scenario in 5GS

## Acronym: ING\_5GS-UEConTest

## Unique identifier:

|  |  |
| --- | --- |
| **This WID includes a Testing part** | **X** |
| **and it addresses the following 3GPP work area:** | **Radio Access** |  |
| **Core Network** | **X** |
| **Services** |  |

Potential target Release: Rel-17

## 1 Impacts

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

# 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This description is a

|  |
| --- |
| Normative Work Item:*tick applicable boxes below* |
|  | Stage 1 |
|  | Stage 2 |
|  | Stage 3 |
| X | Other (e.g. testing) |

### 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| ING\_5GS | C1 | 930047 | CT1 aspects of IMS voice service support and network usability guarantee for UE's E-UTRA capability disabled scenario in SA 5GS |
|  |  |  |  |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work/Study Items (if any) |
| **Acronym** | Unique ID | Title | Nature of relationship |
|  |  |  |  |

# 3 Justification

For a standalone (SA) 5G network which only relies on EPS fallback for IMS voice service, one kind of IMS voice failure has already happened in real deployments and needs to be solved. The typical scenario is UE initiates the EPS Attach procedure, but it failed for 5 times due to for instance “bad” 4G coverage such as in a tunnel, the UE will start T3402 (default value 12mins) disables its E-UTRA capability. If the UE moves to the 5G coverage for instance after moving out of a tunnel, it selects the NG-RAN radio access technology and proceeds with the registration procedure. Because the UE has to indicate “S1 mode not supported” during the registration procedure as a result of disabling the E-UTRA capability, the network then indicates "IMS voice over PS over 3GPP not supported “. Consequently, the IMS voice call relying on the EPS fallback mechanism will not work for the UE. Furthermore, since a "voice centric" UE will disable the N1 mode capability subsequently, it will not get the 5G services either. That is to say, because of the coverage holes in 4G, the UE will lose IMS voice and 5G services for about T3402 (default value 12mins) even if the UE moves back to the 4G and 5G coverage during T3402.

3GPP had introduced a WI ING\_5GS to address the solutions to this issue is Rel-17, evaluating and defining the conditions in which the 5G UE can maintain or re-enable the E-UTRA capability and defining the handling of T3402 which allows the UE to reselect from 5GS to EPS or be handed over/redirected from 5GS to EPS by the network.

The completion level of core part of the 3GPP Rel-17 work item on ING\_5GS had achieved 100% in December 2022. Therefore, there is a need to introduce an associated RAN5 work item to enable UE conformance testing for ING\_5GS to solve the problems which the real network occurred.

# 4 Objective

### 4.1 Objective of SI or Core part WI or Testing part WI

The objective of this work item is to define the UE conformance requirements corresponding to the WID ING\_5GS to solve the IMS voice service support and network usability guarantee for UE’s E-UTRA capability disabled scenario in 5GS.

# 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# | Remarks |
|  |  |  |  |  |  |

|  |
| --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 38.508-1 | Definition of common test environment for Rel-17 ING\_5GS | TSG RAN#103(Mar-24) |  |
| 38.508-2 | Definition of physical implementation capabilities for Rel-17 ING\_5GS | TSG RAN#103(Mar-24) |  |
| 38.523-1 | Introduction of signalling test cases for Rel-17 ING\_5GS | TSG RAN#103(Mar-24) |  |
| 38.523-2 | Introduction of test applicability for Rel-17 ING\_5GS | TSG RAN#103(Mar-24) |  |
| 38.523-3 | Introduction of test model for Rel-17 ING\_5GS | TSG RAN#103(Mar-24) | Progress of TTCN development of the new protocol test cases is tracked in MCC TF160 reports to RAN5/RAN. |

# 6 Work item Rapporteur(s)

Jing Zhao (China Telecom)

Zhaoj16@chinatelecom.cn

Zhaobing yang（Huawei, HiSilicon）

yangzhaobing@hisilicon.com

Yogesh Tugnawat( Qualcomm)

yogesht@qti.qualcomm.com

# 7 Work item leadership

RAN5

# 8 Aspects that involve other WGs

None

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| China telecom |
| Huawei |
| HiSilicon |
| Qualcomm |
| Media Tek |
| ZTE Corporation |
| NTT DOCOMO, INC. |
| CAICT |
| CATT |
| Telecom Italia |
|  |
|  |
|  |