**3GPP TSG-CT WG1 Meeting #149 C1-243523**

**Hyderabad, India, 27 – 31 May 2024**

Source: Vodafone

Title: New WID on enhancement of controlling RAT utilization

Document for: Approval

Agenda Item: 19.1.1

**3GPP TSG-CT WG4 Meeting #123 C4-242303**

**Hyderabad, India, 27 – 31 May 2024**

Source: Vodafone

Title: New WID on enhancement of controlling RAT utilization

Document for: Approval

Agenda Item: 5.2

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: Enhancement of controlling RAT utilization

Acronym: ECRATU

Unique identifier: TBD

Potential target Release: Rel-19

# 1 Impacts

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

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Study  |
|  | Normative – Stage 1 |
|  | Normative – Stage 2 |
| X | Normative – Stage 3 |
|  | Normative – Other\* |

\* Other = e.g. testing

## 2.2 Parent Work Item

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

### 2.3 Other related Work Items and dependencies

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

# 3 Justification

National roaming services are vital for ensuring seamless connectivity, especially in areas where the primary network operator lacks coverage. Allowing unrestricted use of Radio Access Technologies (RAT) for national roamers can result in technical challenges including interoperability issues, quality of service concerns and network congestion concerns.

NOTE: The RAT within this work item is defined in 3GPP TS 36.304 and 3GPP TS 38.304, respectively.

The current mechanism to limit the UEs utilization of certain RAT employed by the network operators involves rejecting the UE’s attach/TAU request or the registration request with CC#15 or #27 upon the UE attempts to attach/register via a specific RAT. However, this existing mechanism resulted in:

1. higher signaling loads within the network;
2. service outage until the UE selects another RAT; and
3. UE keeping re-attempting on the same PLMN/RAT upon the UE re-enabling the corresponding RAT.

In light of the above considerations, CT1 needs enhancements to address these drawbacks and meet the network operational necessity.

Editor's note: The relationship and potential dependencies between this Work Item and the SA3 Rel-19 study on mitigations against bidding down attacks (FS\_MiBiDA) needs to be clarified.

# 4 Objective

The objective of this work item is to specify the CT aspects of controlling UE RAT utilization by focusing on mitigating the drawbacks as described in Section 3 above.

The following impacts and areas of work are expected to be covered:

CT1:

* Work on enhancements to the delivery of RAT utilization restriction information to the UE, and the corresponding UE behaviour.
* Work on the criterion for re-enabling the previously disabled RAT.

CT4:

* Potential Access Restriction Data update in the HLR to enable limitation of RAT utilization performed at the SGSN.
* Potential Access Restriction Data update in the HSS to enable limitation of RAT utilization performed at the MME.
* Potential Access Restriction Data update in the UDM/UDR to enable limitation of RAT utilization performed at the AMF.

# 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 |
| N/A | N/A | N/A | N/A | N/A | N/A |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 24.008 | Enhancements to the delivery of RAT restriction information to the UE and the corresponding UE behaviour. | TSG#109 (September 2025) | CT1 Responsibility |
| 24.301 | Enhancements to the delivery of RAT restriction information to the UE and the corresponding UE behaviour. | TSG#109 (September 2025) | CT1 Responsibility |
| 24.501 | Enhancements to the delivery of RAT restriction information to the UE and the corresponding UE behaviour. | TSG#109 (September 2025) | CT1 Responsibility |
| 23.122 | Enhancements to PLMN selection because of RAT utilization restriction. | TSG#109 (September 2025) | CT1 Responsibility |
| 23.008 | Potential Access Restriction Data update in the HLR to enable limitation of RAT utilization performed at the SGSN. | TSG#109 (September 2025) | CT4 Responsibility |
| 29.272 | Potential Access Restriction Data update in the HSS to enable limitation of RAT utilization performed at the MME. | TSG#109 (September 2025) | CT4 Responsibility |
| 29.503 | Potential Access Restriction Data update in the UDM/UDR to enable limitation of RAT utilization performed at the AMF | TSG#109 (September 2025) | CT4 Responsibility |

# 6 Work item Rapporteur(s)

Yang Lu, Vodafone (yang.lu@vodafone.com)

# 7 Work item leadership

CT1

# 8 Aspects that involve other WGs

SA3 for any security aspects.

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| Vodafone |
| Google Inc. |
| Huawei |
| HiSilicon |
| Qualcomm Incorporated |
| LG Electronics Inc. |
| vivo |
| Samsung |
| InterDigital Inc. |
| Apple |
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