3GPP TSG-CT WG3 Meeting #125 C3-225070

Toulouse, France, 14th – 18th November 2022

**Source: CATT**

**Title: New WID on CT aspects of 5G System with Satellite Backhaul**

**Document for: Approval**

**Agenda Item: 18.1.1**

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: CT aspects of 5G System with Satellite Backhaul

Acronym: 5GSATB

Unique identifier:

Potential target Release: Rel-18

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  |  | X |  |
| No | X | 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 | Building Block |
|  | *Work Task* |
|  | Study Item |

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| 5GSATB | SA2 | 970018 | 5G System with Satellite Backhaul |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 920035 | 5G system with satellite backhaul | Rel-18 SA1 requirements on 5G system with satellite backhaul |
| 940060 | Study on Support of Satellite Backhauling in 5GS | SA study item on supporting of satellite backhaul in 5GS. |
| 860005 | (Stage 2 of) Integration of satellite components in the 5G architecture | Rel-17 SA2 work item on 5GC architecture for satellite networks |
| 911030 | CT aspects of 5GC architecture for satellite networks | Rel-17 CT work item on 5GC architecture for satellite networks |

# 3 Justification

SA2 has studied the 5G system with satellite backhaul under the study item FS\_5GSATB. The study work has been concluded. The conclusions are captured in 3GPP TR 23.700-27 and provide a good overview of what is to be continued into normative phase and impacts to other working groups. Furthermore, work item “5G System with Satellite Backhaul” (5GSATB) for SA2 normative work was approved in TSG SA Meeting SP#97e.

Therefore, impacts on protocols and interfaces under CT WGs’ responsibilities are foreseen and the related work in CT WGs should be carried out within Rel-18.

# 4 Objective

The objective of this work item is to develop the specifications under remit of CT WGs for the stage 2 requirements agreed under the stage 2 work item 5GSATB. Work will start only when normative stage 2 requirements are available.

The following areas of work are expected to be covered (non-exhaustive, additional areas can be identified based on progress in normative work in SA2):

**CT3:**

- For support PCC/QoS control enhancement considering dynamic satellite backhaul:

- Impacts on the PCF services to support dynamic satellite backhaul information.

- Impacts on the PCF to estimate the packet delivery latency on N3 interface based on satellite backhaul category.

- Impacts on the PCF services to enhance QoS monitoring to measure the packet delivery latency on N3 interface for satellite backhaul case.

- Potential impacts on the PCF services and NEF services to allow the AF to request the packet delivery latency on N3 interface.

- For support of satellite edge computing and local data switching via UPF on-board:

- Impacts on the PCF services to determine URSP rule based on satellite backhaul category received from AMF.

**CT4:**

- For support PCC/QoS control enhancement considering dynamic satellite backhaul:

- Impacts on the SMF services to receive dynamic satellite backhaul information from AMF.

- Impacts on the N4 interface and UPF services to support QoS monitoring for satellite backhaul to measure the packet delivery latency on N3 interface.

- For support of satellite edge computing and local data switching via UPF on-board:

- Impacts on the SMF services to receive GEO satellite ID from AMF to determine the DNAI.

- Potential impacts on the N4 interface to support local data switching via UPF on-board.

# 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 |
| 29.512 | 1. Updates PCF services to support dynamic satellite backhaul information.  2. Impacts on QoS monitoring to support packet delay measurement on N3 interface | CT#102  (December 2023) | CT3 responsibility |
| 29.514 | 1. Impacts on QoS monitoring to support packet delay measurement on N3 interface  2. Potential Impacts to support dynamic satellite backhaul information exposure | CT#102  (December 2023) | CT3 responsibility |
| 29.522 | Potential update to support QoS monitoring for satellite backhaul requested by the AF | CT#102  (December 2023) | CT3 responsibility |
| 29.525 | Updates to support that the PCF determines URSP rule based on GEO satellite backhaul category | CT#102  (December 2023) | CT3 responsibility |
| 29.513 | Potential impacts to PCC signalling flows | CT#102  (December 2023) | CT3 responsibility |
| 29.502 | Updates SMF services to support dynamic satellite backhaul information and GEO satellite ID | CT#102  (December 2023) | CT4 responsibility |
| 29.244 | 1. Impacts on QoS monitoring to support packet delay measurement on N3 interface  2. Potential impacts on the N4 interface to support local data switching via UPF on-board | CT#102  (December 2023) | CT4 responsibility |
| 29.564 | Potential Impacts on QoS monitoring to support packet delay measurement on N3 interface | CT#102  (December 2023) | CT4 responsibility |

NOTE: All the above impacts are possible impacts and will be updated based on SA2 progress.

# 6 Work item Rapporteur(s)

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# 7 Work item leadership

CT3

# 8 Aspects that involve other WGs

SA5 for the charging aspects

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| CATT |
| ZTE |
| China Telecom |
| China Mobile |
| Samsung |
|  |