**3GPP TSG-SA5 Meeting #157 *S5-246131d1***

**Hyderabad, India, 14 - 18 October 202** (revision of S5-245715)

**Source: China Unicom, CATT**

**Title: New WID on Management Aspects of NTN Phase 2**

**Document for: Approval**

**Agenda Item: 6.2.2**

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: Management Aspects of NTN Phase 2

Acronym: NTN\_OAM\_Ph2

Unique identifier:

Potential target Release: Rel-19

# 1 Impacts

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

# 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This work item is a Feature.

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

### 2.2 Parent Work Item

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

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
| 960016 | Stage 1 of 5GSAT: FS\_5GSAT\_Ph3Study on satellite access - Phase 3 | Defines new services requirements for Rel-19 |
| 830025 | Study on management and orchestration aspects with integrated satellite components in a 5G network | Unresolved key issue leftover from Rel-17 |
| 941006 | NR NTN (Non-Terrestrial Networks) enhancements | RAN Rel-18 WID for NR-NTN enhancement |
| 941004 | IoT (Internet of Things) NTN (non-terrestrial network) enhancements | RAN Rel-18 WID for IOT-NTN enhancement |
| 980014 | 5GC/EPC enhancement for satellite access Phase 2 | SA2 Rel-18 WID for 5G System enhancement for satellite access |
| 970018 | 5G system with satellite backhaul | SA2 Rel-18 WID for 5G System with Satellite Backhaul |
| 1010033 | Study on Integration of satellite components in the 5G architecture Phase III | SA2 Rel-19 SID for 5G System enhancement for satellite access |
| 1020033 | Study on Management Aspects of NTN Phase 2 | SA5 Rel-19 SID for NTN management |

**Dependency on non-3GPP (draft) specification**: None

# 3 Justification

SA5 has conducted a study on management and orchestration aspects to support Non-Terrestrial Networks in Rel-19. FS\_NTN\_OAM\_Ph2 (see SP-231733) investigates the key issues associated with service and network management of supporting the integration of satellite into 5GS in regenerative mode and other features, with potential requirements and solutions for management aspect of satellite access and satellite backhaul, which cover all NTN cell types - moving cells, quasi-earth-fixed cells and fixed cells. The results are reflected in TR 28.874, including:

- Reference management architectures and scenarios for integrated satellite components.

- Use cases and solutions management of connections and associations between satellite and ground systems.

- Use cases and solutions management for mobility coordination.

- Use cases and solutions for management support of Store and Forward Satellite operation.

- Use cases and solutions for UE-Satellite-UE communication.

- Management of secure connections in a non-terrestrial network.

The solutions of the feature have impact on some specifications such as TS 28.541, TS 28.662, TS 28.552, TS 28.554, TS 28.658. The required changes on the relevant specifications shall be made as part of this WID appropriately to enable to specify the solutions for the existing and new topics to be addressed.

Based on the above points, a new work item is proposed to carry the conclusion of the solutions from study items and specify the requirements and solutions enabling Management Aspects of supporting non-terrestrial networks.

# 4 Objective

This work item is to specify the following aspects of the satellite access which cover all NTN cell types - moving cells, quasi-earth-fixed cells and fixed cells, and take into account the relevant works in RAN2, RAN3, SA2 and SA3, including:

WT-1: Specifying management capabilities to support new network architecture or functions for satellite regenerative payloads, considering different types of satellite constellations (both GSO and NGSO).

WT-2: Specifying management requirement, use case and solution to support Store and Forward (S&F) satellite operation and UE-Satellite-UE communication.

WT-3: Specifying requirements and solutions to support end to end management (including RAN domain and CN domain) in NTN scenarios, such as coordinate with non-3GPP part (e.g. Satellite Control System, Transport System) to provide the NTN specific requirements.

WT-4: Specifying management enhancement for NTN-TN and NTN-NTN mobility coordination and better service continuity.

WT-5: Specifying Management of secure connections in a non-terrestrial network.

NOTE: This work may require cooperation with 3GPP RAN WGs and SA2 WG.

## TU estimates and dependencies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Work Task ID | TU Estimate(Study) | TU Estimate(Normative) | RAN Dependency(Yes/No/Maybe) | SA Dependency(Yes/No/Maybe) |
| WT-1 | 1 | 1 | Yes (Partial with RAN2/RAN3) | Yes (Partial with SA2) |
| WT-2 | 0.5 | 0.25 | Maybe | Yes (SA2) |
| WT-3 | 0.65 | 0.4 | Maybe | Maybe |
| WT-4 | 0.75 | 0.25 | Yes (RAN2/RAN3) | Maybe |
| WT-5 | 0.1 | 0.1 | Maybe | Yes (Partial with SA3) |

**Total TU estimates for the study phase: 3**

**Total TU estimates for the normative phase: 2**

**Total TU estimates: 5**

# 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 |
| TS 28.541 | Add new and/or enhance existing IOCs/attributes for the NTN 5G system | TSG#108 |  |
| TS 28.552 | Update performance measurements for NTN | TSG#108 |  |
| TS 28.554 | Update KPI for NTN | TSG#108 |  |
| TS 28.658 | Add new and/or enhance existing IOCs/attributes for NTN | TSG#108 |  |
| TS 28.662 | Update NRM IRP for NTN | TSG#108 |  |
| TS 28.540 | Update the use case and requirement of NTN | TSG#108 |  |
| TS 28.530 | Update the use case and requirement of NTN | TSG#108 |  |

# 6 Work item Rapporteur(s)

# 7 Work item leadership

SA WG5

# 8 Aspects that involve other WGs

Co-ordination with SA2, SA3, RAN2, RAN3 where appropriate.

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| China Unicom |
| CATT |
| Huawei |
| Intel |
| CMCC |
| ZTE |
| Ericsson |
| China Telecom |
| Samsung? |
| Deutsche Telekom |