**3GPP TSG-SA5 Meeting #142-e *S5-222402***

**e-meeting, 4-12 April 2022**

**Source: China Unicom**

**Title: New SID on Management Aspects of IoT NTN Enhancements**

**Document for: Approval**

**Agenda Item: 6.2**

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: Study on Management Aspects of IoT NTN Enhancements

## Acronym: FS\_IOT\_NTN

## Unique identifier: *{A number to be provided by MCC at the plenary}*

Potential target Release: {Rel-18}.

Note that this field above indicates the proposed Release at the time of submission of the WID to TSG approval. It can later be changed without a need to revise the WID. The updated target Release is indicated in the Work Plan.

## 1 Impacts

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

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

### 2.1 Primary classification

This work item is a Study Item.

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | *Work Task* |
| X | 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 |
| 750040 | Study on NR to support non-terrestrial networks (FS\_NR\_nonterr\_nw) | The proposed study will make use of the channel model defined by the FS\_NR\_nonterr\_nw study. |
| 800099 | Study on solutions for NR to support non-terrestrial networks (FS\_NR\_NTN\_solutions) | The proposed study will leverage solutions based on the study FS\_NR\_NTN\_solutions that addressed key impact areas |
| 800026 | Study on architecture aspects for using satellite access in 5G (FS\_5GSAT\_ARCH) | Feasibility Study led by SA2. |

## 3 Justification

In Release 17, a work item of RAN is carried out to enable NB-IoT and eMTC to support Non-Terrestrial Networks (NTN). As part of release 18, a new work item [IoT\_NTN\_enh](https://www.3gpp.org/DynaReport/WiSpec--941004.htm) of RAN is proposed to define further enhancements for NB-IoT NTN and eMTC NTN. The objective of RAN is to specify enhanced IoT radio interfaces and NG-RAN/ E-UTRAN. From operator’s perspective, with the gradual deepening of related RAN work, related requirements should also be studied:

* Management requirements introduced in Improve performance
* The specific IoT NTN related parameters shall be considered by O&M, such as: Ephemeris information describing the orbital trajectory information or coordinates for the NTN vehicles. This information is provided on a regular basis or upon demand to the gNB;
* The NTN IoT related parameters provided by O&M to the gNB may depend on the type of supported service links e.g. earth fixed beams, quasi earth fixed beams, earth moving beams, etc. These introduce many management requirements and scenarios that need to be considered.

In R17, FS\_5GSAT\_MO of SA5 studied the support of management and orchestration aspects of integrated satellite components in a 5G network. However, IoT NTN have different requirements in terms of cost, complexity, power consumption and scenarios, it could be thus necessary to identify and to characterise the specific needs associated with the management associated with the corresponding specific elements.

## 4 Objective

This study item aims to study the following:

1. Study the key issues associated with service and network management of an IoT NTN enhancements (whether as NG-RAN or E-UTRAN) and potential solutions.
2. investigate specific IoT NTN related parameters which should be considered by O&M;
3. Investigate NRM enhancement to support IOT NTN;
4. Investigate performance measurement and related new KPIs of IOT NTN;
5. Recommendation for normative work.

## 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 |
| TR | 28.xyz | Study on management aspects of IoT NTN enhancements | TSG#97 | TSG#98 | Sun Mingrui, China Unicom, [sunmr19@chinaunicom.cn](mailto:sunmr19@chinaunicom.cn) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Impacted existing TS/TR** | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
| Null |  |  |  |

## 6 Work item Rapporteur(s)

Sun Mingrui, China Unicom, [sunmr19@chinaunicom.cn](mailto:sunmr19@chinaunicom.cn)

## 7 Work item leadership

SA WG5

## 8 Aspects that involve other WGs

## Co-ordination with SA WG2, RAN WG3 where appropriate.

## 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| CU |
| HW |
| ZTE |
|  |