**3GPP TSG-WG SA2 Meeting #162 *S2-2405070***

**15 Apr – 19 Apr, 2024, Changsha, P.R.China (*revision of S2-2404139*)**

**Title: [DRAFT] LS on Support of Regenerative-based satellite access**

**Response to: -**

**Release: Release 19**

**Work Item: FS\_5GSAT\_ARCH\_Ph3**

**Source:** **SA2**

**To:** **RAN3**

**Cc: RAN2**

**Contact Person:**

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**Attachments:**

**1. Overall Description:**

As part of the Rel-19 study on 5G System enhancements for satellite access (FS\_5GSAT\_ARCH\_Ph3), KI#1 considers the situation when RAN onboards the satellite. SA2 has the following two architecture alternatives:

* Architecture #1: N2/S1 interface enhancements considering regenerative payload without new IWK/Proxy invloced
* Architecture #2: new intermediate IWF/proxy between the moving eNB/gNB and CN

Considering Architecture #1, SA2 has the following assumptions:

* A procedure to disconnect/remove/suspend the N2 and S1 interfaces when the gNB/eNB leaves an area served by an AMF/MME (e.g. when setting over the horizon) should be supported. Whether existing procedure(s) can be re-used or new procedure(s) is needed is to be determined by RAN3.
* Only soft feeder link switch is supported and TNL address changes due to feeder link switch can be supported using existing N2 and S1 procedures.
* RAN is abe to map a Mapped Cell ID to geographical area or physical cells, independent of the gNB/eNB ID contained in the Cell ID.

Considering Architecture #2, SA2 assumes that the intermediate IWK/Proxy plays the role of “earth fixed” eNB/gNB, where the impacts caused by feeder link switch will be handled by RAN3.

SA2 kindly asks RAN3 to take the above information into consideration when developing solutions, provide a possibility (whether or not such architecture will be studied in RAN3) and feasibility analysis regarding Architectire #2 if possible.

**2. Actions:**

**To RAN3:**

**ACTION:** SA2 kindly asks RAN3 to take the above information into consideration when developing solutions and provide a feasibility analysis regarding Architectire #2 if possible.

**3. Date of Next TSG-SA WG2 Meetings:**

3GPP SA2#163 27 - 31 May 2024 Jelu, KR

3GPP SA2#164 19 - 23 August 2024 Maastricht, NL