**3GPP SA3LI#95 *s3i240703***

**29 October – 01 November 2024, Las Vegas (US)**

Title: Reply LS on FS\_5GSAT\_Ph3\_ARCH conclusions

Response to: LS on FS\_5GSAT\_Ph3\_ARCH conclusions (S2-2411250)

Release: Rel-19

Work Item: 5GSAT\_PH3\_ARCH

Source: SA3-LI

To: SA2

Cc: RAN2, SA3

**Contact Person:**

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**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**1. Overall Description:**

SA3-LI thanks SA2 for the reply LS on FS\_5GSAT\_Ph3\_ARCH conclusions (S2-2411250) and SA3 for the original LS (S3‑243533). SA3-LI provides feedback to some of the points raised by SA2 and SA3.

SA3-LI would like to confirm that while it should be possible to meet the timeliness requirements for non-real time communications with the proposed S&F solutions, there are still potential issues for LI detailed in the responses below.

SA3-LI would like to reconfirm that any LI requirements that would apply to the CN and any application functions still apply when the CN or application function is deployed on the satellite. Whether LI for application traffic would need to be done on the satellite, at the proposed proxies or on the ground will need to be studied by SA3-LI.

SA3-LI’s analysis of the proposed S&F solutions has resulted in the following observations.

If the full CN is onboard each satellite, much of the existing LI architecture and procedures will suffice. However, the existing LI architecture requires continuous availability of the interface between the LI functions. Based on SA2’s answer that once the NAS security context is established, it is assumed that the MME-onboard will be able to manage the NAS channel if there is no connection to the MME-ground, SA3-LI is still analysing whether a solution that does not require continuous connectivity exists. If a solution can be found, intercepted LI data may need to be stored on board the satellite until connectivity to the ground-based LI functions is established, at which point intercepted data will need to be transmitted.

SA3-LI believes it will be easier to meet LI requirements using the split MME solution, however, SA3-LI will have to study how to ensure that all MMEs that may have the UE’s current context can be properly provisioned for LI and that the MMEs are properly de-provisioned when an interception ends. Additionally, as the specific split between the MME-ground and MME-onboard parts, the context distribution and the context synchronization are out of scope of 3GPP, SA3-LI will only be able to provide requirements for LI in these deployments rather than solutions.

Additionally, SA3-LI is unsure that solutions meeting the following LI requirements can be developed for the proposed S&F solutions:

* 1. A CSP can be required to perform interception in the country where the warrant’s jurisdiction applies.
	2. The CSP is required to have the ability to capture and deliver the intercept product without exposing (both confidentiality and undetectability) the LI product to any unauthorized party.
	3. There is generally a requirement for interception to start and stop at the time specified in the warrant or at the request of the LEA. If interception points on a satellite cannot be updated until the satellite comes into range, then this may require LI functions on the satellite to be able to operate retrospectively on stored data to include the ability to identify the time of observation and location of the UE (with sufficient resolution to determine the UE is within the jurisdiction of the warrant at the time of the communication) of each piece of stored data in order to determine whether it should be subject to interception or not.

**2. Actions:**

**To SA2 group.**

**ACTION:** SA3-LI kindly asks that SA2 takes the above into account and answer the following:

1. For split MME, will all events that occur when only the UE service link is available be sent to the MME-ground when the link to the ground based core network is re-established.
	1. If so, will the time each event occurred and the location of the UE at the time of the original event be available at the MME-ground.
2. For full EPC onboard, if the full CN is onboard each satellite, will any network elements other than the HSS synchronize context between satellites?
3. Does SA2 believe there are any additional issues SA3-LI should be aware of for S&F architectures or scenarios?
4. Is SA2 aware of any information that would help SA3-LI develop a solution that can meet the requirements listed above.

**3. Date of Next SA3-LI Meetings:**

SA3#96-LI 28th – 31st January 2025 Sophia-Antipolis, FR

SA3#97-LI 29th April – 2nd May 2025 Washington DC, US