**3GPP SA3LI#85e-a *S3i220244***

**eMeeting, 25-29 April 2022**

Title: LS on Inter-PLMN Handover of VoLTE calls and idle mode mobility of IMS sessions

Response to:

Release: Release 17

Work Item:

Source: SA3LI

To: SA2, CT1

Cc: SA3, CT4

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Attachments: None

**1. Overall Description:**

SA3-LI has identified that the handover between PLMNs using home routing for ongoing IMS-sessions (calls) creates issues for LI.

With home routing roaming, HPLMN operators are required to be able to switch off the IMS confidentiality protection for all roamers in order to allow the lawful interception of roamers in the VPLMN without involvement of the HPLMN. The hitherto assumption SA3 LI had was that during the IMS registration, the IMS confidentiality protection would be turned off and as a consequence, a full capture of IMS session related signalling and media would be possible in the VPLMN for lawful interception purpose.

If an IMS session moves from a serving PLMN for which confidentiality protection is allowed to a VPLMN where it is not allowed, then the IMS confidentiality protection would need to be switched off mid-session.

Similarly, when the inter-PLMN handover happens with an established IMS session for a roamer, without having the complete IMS session related information, an effective lawful interception of such roamers is not possible in the VPLMN. In order to have a non-compromised lawful interception in the VPLMN, complete information of IMS sessions shall be made available in the VPLMN.

While this LS focusses on the Home Routed VoLTE roaming for VoLTE/EPC (S8HR) it is also applicable to VoNR/5G Core (N9HR).

The following list states the requirements related to inter PLMN handover and idle mode mobility of IMS-sessions:

1. For any ongoing call, following handover, it must be possible to intercept that S8HR call in the new PLMN.

2. In order to support the above, a mechanism shall exist to ensure that the HPLMN can turn off IMS confidentiality protection when any UE roams to a VPLMN. In addition, a mechanism may be required to support turning on the IMS confidentiality protection when the UE returns or roams back to the HPLMN.

3. The handover handling shall ensure that the VPLMN lawful interception system has access to the relevant identifiers to enable the lawful interception of IMS services of roamers. The relevant identifiers shall include at the minimum, the following:

1. 3GPP access level identifiers (MSISDN, IMSI, IMEI).
2. IMS level identifiers (IMPU, IMPIs) of local served party and IMPU of remote end point user.
3. SDP information (codec, PT, etc.) for the media stream.

4. The HPLMN shall have a mechanism to detect that a user has roamed into and back from a different country.

1. The HPLMN may be required to suspend the lawful interception for any targeted outbound roamer. Such suspension, if executed, may include the suspension of lawful interception for the content of communications or the suspension of lawful interception of content of communication and the signaling.

b) When the HPLMN is required to suspend lawful interception for any targeted outbound roamer, the HPLMN shall have the mechanism to detect that the UE has moved back to the home country in order to restart the lawful interception of that UE when required.

5. The requirements 4a and 4b shall apply in the case of non-terrestrial networks (NTNs) as well.

6. The lawful interception system in the VPLMN shall be able to detect whether the HPLMN has correctly configured the IMS session (e.g. confidentiality protection off). Any action resulting from such detection is a CSP policy issue.

SA3-LI is looking forward to discuss the detailed list of information that needs to be provided at inter PLMN handover/idle mode mobility and the most appropriate way to make the information available. For example:

1. What changes are needed so the IMS can make the required information available?
2. What is the preferred mechanism to get the IMS-information provided to the VPLMN (e.g. as part of the registration process)?
3. Are changes needed for the HPLMN to be able to deactivate or activate the IMS confidentiality protection during inter-PLMN handover?
4. Are changes needed for the VPLMN to detect if the correct configurations for roamers to allow lawful interception are in use at the VPLMN?

Taking the regulatory process and technical aspects into account SA3-LI offers to have dedicated Go To Meeting based discussion on this subject with some delegates from SA2 and CT1 (and if requested SA3 and CT4).

**2. Actions:**

**To CT WG1 and SA WG2 group.**

**ACTION:** SA3-LI kindly asks CT WG1 and SA WG2 group to take the requirement in this LS into account.

SA3-LI kindly invites CT WG1 and SA WG2 group to a G2M if it will be useful.

SA3-LI kindly asks CT WG1 and SA WG2 group to respond to the above questions (either after the G2M if performed or directly if no G2M is needed).

SA3-LI kindly asks CT WG1 and SA WG2 group to provide their preferred solution(s) to the requirements (either after the G2M if performed or directly if no G2M is needed).

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

SA3#86-LI-e-a 13th – 15th July 2022 Electronic meeting

SA3#86-LI-b 30th August - 2nd September 2022 Sophia Antipolis, France

SA3#87-LI-e-a 3rd - 5th October 2022 Electronic meeting

SA2#87-LI-b 1st - 4th November 2022 US TBC