**3GPP TSG-WG SA2 Meeting #151E *S2-2204503***

**E-meeting, 2022‑05‑16 -- 2022‑05‑20 (revision of S2-220xxxx)**

**Source: Ericsson**

**Title: Support of LI at HO for S8 Home routing (LS S3i220244)**

**Document for: Approval**

**Agenda Item: 4.1**

**Work Item / Release:**

**Abstract:** *this DP is triggered by the LS S3i220244*

# Discussion

Note that the proposed discussion and way forward applies for both EPS as well as 5GS.

In general, the 3GPP specifications support mobility between PLMNs. However, for mobility between PLMNs in different countries for IMS sessions using S8HR, there are special considerations to be made related to lawful intercept (LI), especially for ongoing calls when a UE is handed over from a PLMN in one county to a PLMN in another country. Annex W of TS 23.228 covers the S8HR architecture and current reequipments on the IMS. The LS S3i220244/… provides a list of requirements that current annex W does not cover. The following list of requirements are in the LS:

*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:*

*a) 3GPP access level identifiers (MSISDN, IMSI, IMEI).*

*b) IMS level identifiers (IMPU, IMPIs) of local served party and IMPU of remote end point user.*

*c) 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.*

*a) The HPLMN may be required to suspend the lawful interception for any targeted outbound roamer (including NTNs). 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 start/resume the lawful interception of that UE when required.*

*5. 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.*

When a UE is in HPLMN the HPLMN may use encryption of the IMS signalling, however when UE is in VPLMN and S8HR is used, then the encryption of IMS signalling must be turned off so the LI system can identify any traffic subject to LI, as indicated in bullet 2 above.

Currently for IDLE mobility, when a UE moves between countries, the normal behavior is that the UE will get a new IP address and by that it does an IMS registration. During the IMS registration, the IM CN can make sure that the IMS signaling channel is without encryptions, e.g. based on configuration.

Turning on or off encryption for the IMS signalling is done during IMS (re-)registration, and hence there needs to be a trigger for the UE to do a re-registration. This can be for example when UE enters a new PLMN, the UE itself triggers the re-registration. Or, the IM CN can indicate via a SIP NOTIFY that UE shall initiate re-registration, or there may be some other trigger.

**Observation 1: To change IMS signalling encryption a SIP re-Register is needed, which will cover requirement 1 and 2 in the LS.**

To handle requirement 3, there need to some information sent from HPLMN to VPLMN after a cross border HO has happened. Since IM CN is the only entity having this info, it is only IM CN that can send the required information in that LI in VPLMN can intercept it. This can be done by e.g., a SIP re-INVITE.

**Observation 2: To provide call related information about an ongoing call as VPLMN as bullet 3 in LS, IM CN need to send this info towards UE in VPLMN**.

For bullet 4, the requirement is already provided in clause W.3 of 23.228, whereby subscription to PLMN change is done at initial registration, allowing LI to suspend and resume LI. However, it could be clarified that the subscription for PLMN change should be active during the lifetime of the subscription.

For bullet 5, the requirement is outside of SA2 (and 3GPP) responsibility.

# 2 Proposal

SA2 should agree/decide on the following:

1. From which Release the appropriate work to be performed and if some aspects of the requirements can be addressed in one release and other aspects (more complex and may require some interaction with other WGs) be addressed in later releases?
2. No, or minor impacts on 5GC and EPC.
3. Limit impacts on the IMS (i.e. IP Multimedia Subsystem and UE IMS client).
4. Decide whether to accept the offer from SA3-LI to hold an information sharing conference call to clarify any open issues/requirements.