**3GPP TSG-RAN WG3 Meeting #123 *R3-240524***

**Athens, Greece, 26th Feb – 1st Mar, 2024**

**Agenda item: 23.2**

**Source: Xiaomi**

**Title: (TP for BL 38.305) Support of LPHAP**

**Document for: Discussion and Decision**

# 1 Introduction

This TP is to capture the stage 2 support of preconfigured SRS with some further refinement on the wording

This TP merges the TPs in R3-240331 and R3-240094.

# 2 TP for BL 38.305 (support of LPHAP)

<<<<<<<<<<<<<<<<<<<< First Change >>>>>>>>>>>>>>>>>>>>

## 7.x Procedures for Area-specific SRS Configuration

### 7.x.1 General

To support of Low Power and High Accuracy Positioning (LPHAP) as defined in TS 23.273[35], Area-specific SRS configuration is used to enable SRS transmission by the RRC\_INACTIVE UE, within positioning validity cell list(s).

### 7.x.2 Area-specific SRS (Pre-)configuration Allocation Procedure

Figure 7.x.2-1 shows the Area-specific SRS (Pre-)Configuration Allocation procedure.



Figure 7.x.2-1: Area-specific SRS (Pre-)configuration Allocation Procedure

1. The LMF sends NRPPa Positioning Information Request to the serving gNB of the UE for Area-specific SRS (Pre-)configuration allocation. In case of Area-specific SRS configuration allocation, LMF includes the Requested SRS Transmission Characteristics including an associated Positioning Validity Area Cell List. In case of Area-specific SRS pre-configuration allocation, LMF includes a list of Requested SRS Transmission Characteristics, each with the associated Positioning Validity Area Cell List.

2. The serving gNB allocates the area-specific SRS resources, and moves the UE to RRC\_INACTIVE by sending RRCRelease message, which includes the area-specific SRS (pre-)configuration(s).

3. The serving gNB responds with the NRPPa Positioning Information Response to the LMF, including one or more SRS configuration(s), each with the associated Positioning Validity Area Cell List.

4. The LMF notifies the gNBs within the positioning validity area(s) to reserve the SRS resources.

NOTE: Step 4 may occur prior to any of steps 1 through 3.

### 7.x.3 Area-specific SRS (Pre-)configuration Update Procedure

Figure 7.x.3-1 shows the Area-specific SRS (Pre-)configuration Update procedure.



Figure 7.x.3-1: Area-specific SRS (Pre-)configuration Update Procedure

0. The UE in RRC\_INACTIVE is (pre-)configured with area-specific SRS configuration(s) and reselects to a cell that is not included in the Validity Area Cell list(s).

1. The UE sends RRCResumeRequest message with the resume cause “srs-PosConfigOrActivationReq” to request for new Area-specific SRS (pre-)configuration(s).

2. The receiving gNB which receives the request from the UE triggers the Retrieve UE Context procedure towards the last serving gNB .

3. The last serving gNB sends the Positioning Information Update message to notify the LMF the UE moved out of the validity area by providing the Cell ID of the receiving gNB where the UE resumes at.

4. The last serving gNB relocates the full UE context to the receiving gNB.

5. The receiving gNB triggers the Path Switch Request procedure towards the AMF.

6. The AMF responds with the Path Switch Request Acknowledge.

7. The LMF requests the receiving gNB to allocate new Area-specific SRS (pre-)configuration(s) for the UE as defined in section 7.x.2 Area-specific SRS (Pre-)configuration Allocation Procedure. 8. The receiving gNB indicates the last serving gNB to release the UE context.

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