**3GPP TSG-SA3 Meeting #101-e *S3-202941***

**e-meeting, 09-20 November 2020** Revision of S3-XXXX

**Source: Intel**

**Title: NAS Based Solution for Busy Indication**

**Document for: Approval**

**Agenda Item: 5.19**

1 Decision/action requested

***It is proposed to approve the Solution for busy indication in MUSIM TR 33XXX.***

2 References

[1] 3GPP TR 23.761: " Study on system enablers for devices having multiple Universal Subscriber Identity Modules (USIM)"

3 Rationale

pCR Proposes a new NAS Based solution related to the security of Busy indication.

4 Detailed proposal

**\*\*\*\*START OF CHANGES \*\*\***

6.Y Solution #Y: NAS Security-Based Solution for Busy Indication

6.Y.1 Introduction

This Solution relates the KI#XX and proposes a solution to handling the response to paging for MT service. This Solution proposes a solution allowing the UE to send a busy indication to the network in a NAS message as a response to a page.

6.Y.2 Solution details



**Figure 6.Y.2-1: NAS Based Security solution for Busy Indication: UE-2 in Idle; UE-1 in Connected**

The procedure below assumes that UE-1 can periodically pause the RRC-connection allowing UE-2 to perform page monitoring.

0. A device with USIM, i.e., UE1, is in connected mode and UE2 is in IDLE mode.

1. UE-1, while connected to Network A, goes into absence time to facilitated UE-2 to monitor a scheduled paging occasion and send a busy indication response.

2. The AMF-2 serving the UE-2 sends a paging request message to RAN-2. RAN-2 pages UE-2

3. Upon receiving the paging message UE-2, if it decides to send a busy indication, responds with a NAS service request procedure with new cause value "Busy" after RACH procedure. RAN-2 forwards the NAS Service Request message to the AMF-2.

4. The AMF, upon receiving the busy indication, accepts the NAS service request and suspends paging to UE-2. A new 5G-GUTI is allocated to UE-2, and AMF-2 sends new 5G-GUTI in NAS service accept as a payload.

Editor’s Note: How the UE acknowledges the reception of the new GUTI is FFS.

6.Y.3 System impact

UE:

- Support sending a busy indication.

AMF:

- Support receiving a busy indication as a response to the N2 paging request message sent to RAN.

6.Y.4 Evaluation

Editor's Note: Each Solution should motivate how the potential security requirements of the key issues being addressed are fulfilled.

**\*\*\*\*END OF CHANGES \*\*\***