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**Source: ChinaTelecom**

**Title: New solution on security protection for NR Femto MS**

**Document for: Approval**

**Agenda item: 6.1.3**

**Spec: TR 33.746**

**Version: v0.0.0**

**Work Item: FS\_NR\_Femto\_Sec\_Ph2**

**Comments**

Add a new solution on security protection for NR Femto MS.

\* \* \* First Change \* \* \* \*

## 6.Y Solution #Y: Security protection for NR Femto MS

### 6.Y.1 Introduction

This solution address the KI #3: security protection for NR Femto MS. It is propose to enhance the security architecture and requirements of NR Femto which is defined in clause 4 of TS 33.545 [3] as the follow aspects:

- Provide deployment recommendations for NR Femto MS in the 5GS from a security perspective.

- Enhance the SeGW to support the topology hiding between the NR Femto and the NR Femto MS, when the NR Femto MS is located inside the operator’s network.

### Y.2 Solution details

#### 6.Y.2.1 Enhancement for security architecture of NR Femto

The security aspect enhancements to system architecture of NR Femto for security purpose are further depicted in Figure 6.Y.2.1-1.

UE

NR Femto

SeGW

Insecure link

Operator’s security domain(s)

NR Femto GW

NR Femto MS

SMF / AUSF / UPF / UDM

UPF

Figure 6.Y.2.1-1: Enhancement for security architecture of NR Femto

Consider the NR Femto MS may be subjected to attacks when it located outside the operator’s network, such as DDoS and Vulnerability exploitation, as it directly connect to a compromised NR Femto and is exposed to public internet. It is mandate to deploy the NR Femto MS server inside the operator's network and connect to the NR Femto device via SeGW from a security perspective.

#### 6.Y.2.1 Topology hiding between the NR Femto and the NR Femto MS

The NR Femto Management System server topology shall not be directly exposed to the NR Femto.

When the NR Femto MS server located inside the operator’s network, the SeGW shall hide the NR Femto Management System server topology so that the NR Femto Management System server address information (such as IP addresses and port etc.) are not inadvertently exposed to the NR Femto.

NOTE: It is assume that NR Femto GW is integrated with SeGW in this solution. Whether the topology hiding function is provide by NR Femto GW or SeGW is left to implementation.

### 6.Y.3 Evaluation

This solution addresses the requirements of KI#3 i.e. provide deployment recommendations for NR Femto MS in the 5GS from a security perspective, support the topology hiding between the NR Femto and the NR Femto MS.

This solution proposes to mandate to deploy the NR Femto MS server inside the operator’s network and connect to the NR Femto device via SeGW. The SeGW or NR Femto GW shall hide the NR Femto Management System server topology so that the NR Femto Management System server address information (such as IP addresses and port etc.) are not inadvertently exposed to the NR Femto.

Editor’s Note: Further evaluation is FFS.

\* \* \* End of Changes \* \* \* \*