**3GPP TSG-WG SA2 Meeting #149E e-meeting S2-220xxxxxr06**

**Elbonia, February 14th – 25th, 2022 (revision of S2-2200575, S2-2200836, S2-2200975)**

**Source: vivo, Nokia, Nokia Shanghai Bell, Huawei, HiSilicon, Interdigital Inc.**

**Title: 23.700-88: Architectural assumptions and principles**

**Document for: Approval**

**Agenda Item: 9.16**

**Work Item / Release: FS\_PIN / Rel-18**

*Abstract: this paper proposes Architectural assumptions and principles for PIN.*

# 1. Introduction

## 1.1 PIN element definitions

The PIN SA1 requirements refer PIN element, as reported below:

* + *PIN Element: UE or non-3GPP device that can communicate within a PIN.*
	+ *PIN direct connection: the connection between two PIN Elements without any 3GPP RAN or core network entity in the middle.*
	+ *PIN Element with Gateway Capability (PEGC): a UE PIN Element that has the ability to provide connectivity to and from the 5G network for other PIN Elements.*
	+ *PIN Element with Management Capability : A PIN Element with capability to manage the PIN.*

However from SA2 point of view, we define functionalities which can be supported on different device, For instance a UE can be a PIN element, a PIN Element with Gateway Capability or Management capabilities, or any Combination of them, so it is more flexible and generic to define the functionalities related to Personal IoT Network allowing a device either a UE or a Non-3GPP device to support only 1 or more than 1 of them allowing, in case of UE to play different roles if needed.

**Proposal #1: to define of Personal IoT Network functions rather then different “elements” as done by SA1**

* + - **PIN Element: the PIN Element is a UE or Non-3GPP device supporting PIN Element Functions which enables the realization of a Personal IoT Network**
		- **PIN Element Gateway Capability function (PEGC): the function providing the connectivity to and from the 5G network for other device supporting the PIN Elements Function.**
		- **PIN Element Management Capability functiony (PEMC): The function providing the capability to manage the Personal IoT Network .**
		- **Note: The solutions description may provide a more detailed list of functionalities supported by each of the above PIN functions**
		- **A PIN Element can support both PIN management capability and Gateway Capability functions**
		- **Editor’s note: the definitions will be revised in order to reflect the agreed conclusion**

## 1.2 PIN Architecture assumptions

The SID description includes the note in the following which are proposed to be captured as working assumption

* + NOTE 3: In release 18, this study only addresses the case where PIN Elements other than PEGC and PEMC use non-3GPP access (e.g. WIFI, Bluetooth). Additionally, the study assumes to reuse procedures defined for ProSe without introducing new features to sidelink, and no change to underlying WIFI, Bluetooth and other underlying non-3GPP access standards.
	+ NOTE 4: In release 18, only UE can act as PEGC and PEMC.

**Proposal #2: to capture Note 3 and note 4 of PIN SID as architecture assumptions with the rewording to refer to the above definitions.**

According to the SP-211643, the study on Personal IoT Networks, there’re some NOTEs that can also be used as the architecture assumption for this study.

# 2. Text Proposal

It is proposed to capture the following changes vs. TR 23.700-88.

\* \* \* \* First change \* \* \* \*

4 Architectural requirements and assumptions

4.1 Architectural Requirements

This study has following architectural requirements:

- If sidelink is used for the direct communication between PEMC and PEGC, reuse procedures defined for 5G ProSe Direct Communication without introducing new features to sidelink.

- There shall be no change to underlying non-3GPP access (e.g. WIFI, Bluetooth) standards.

4.2 Architectural Assumptions

This study has following architectural assumptions:

- Only a 3GPP UE can act as PEGC and/or PEMC.

- There are one or more PEGCs in a PIN.

- There are one or more PEMCs in a PIN.

- The PIN Elements assumes to use non-3GPP access (e.g. WIFI, Bluetooth) for direct communication, the PEMC can use 5G ProSe Direct Communication for direct communication with PEGC.

NOTE: In this release the 5G-RG is considered outside the scope of the study and consequently not part of PIN.

\* \* \* \* End of changes \* \* \* \*