**3GPP TSG-SA WG1 Meeting #94-bis-e S1-21xxxx**

**Electronic Meeting, 4 July – 12 July 2021** (revision of S1-21xxxx)

**Source: vivo Mobile Communications Ltd, Convida Wireless, CATT,**

**InterDigital, KPN, LG Electronics, Oppo, T-Mobile USA**

**Title: New WID on PIN + Resident Service requirements**

**Document for: Approval**

**Agenda Item: 4**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

# Title: Personal IoT and Residential networks Service Requirements

## Acronym: PIRates

## Unique identifier: *{A number to be provided by MCC at the plenary}*

Potential target Release: Rel-18

Note that this field above indicates the proposed Release at the time of submission of the WID to TSG approval. It can later be changed without a need to revise the WID. The updated target Release is indicated in the Work Plan.

## 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** | X | X | X | X |  |
| **No** |  |  |  |  |  |
| **Don't know** |  |  |  |  |  |

## 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

|  |  |
| --- | --- |
| X | Feature |
|  | Building Block |
|  | *Work Task* |
|  | Study Item |

### 2.2 Parent Work Item

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| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| FS\_RESIDENT | SA1 | 880040 | Study of Enhancements for Residential 5G |
| FS\_PIN | SA1 | 880041 | Study on Personal IoT Networks |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
| 400035 | Enhanced Home NodeB / eNodeB | *Indoor basestations for 3G/4G* |
| 720005 | SMARTER | *Introduced requirements for fixed broadband access to 5G* |
| 800006 | 5GLAN | *5G LAN type service that can also be used for residential use cases* |
| 830050 | 5WWC | *3GPP SA2 work item on wireline wireless convergence (in collaboration with BBF)* |
| 800012 | UIA | *User identities and authentication* |

## 3 Justification

This work item is based on two different trends that nevertheless have similar impact on mobile telecommunications.

* ‘Personal IoT Networks’ is based on the greatly increasing number of consumer IoT devices. These devices can either be wearable devices (i.e. devices on a person such as cameras, headsets, watches, earphones, health monitors, etc) or can be IoT devices in the home (e.g. smart lights, cameras, thermostats, door sensors, voice assistants, speakers, fridge, washing machines). Users create Personal IoT Networks out of all these Personal IoT devices mainly in their homes or around their body.
* ‘5G for residential’ looks at providing 5G services in homes and enterprises. This encompasses an integration of wireline and wireless communication (e.g. a residential gateway that is connected to a 5G core network), where the main aim is to provide a 5G experience to users even when they are in a home. However, it also encompasses a convergence of services that are provided in mobile networks (e.g. mobile Internet access) with services that are provided in (W)LAN networks (e.g. printer service, audio streaming), where services that are provided on either 5G mobile networks or (W)LAN networks work seamlessly across these environments.

The commonality of both trends is that consumers and small businesses no longer own one (phone) or two devices (phone + computer) but are now the owners of local “Networks” that are fixed in nature (e.g. the home LAN) or mobile (e.g. wearables). Devices within these local “Networks” can communicate with other devices, services and applications within the same local “Network”. Furthermore, these local “Networks” connect to the 5G Network via a gateway to allow devices within the local “Network” to communicate with UEs, services and applications available on the 5G network.

SA1 has undertaken 2 studies (FS\_RESIDENT [SP-200576] & FS\_PIN [SP-200592]) to study the potential service requirements for each of the two trends. Both studies have identified potential gaps in existing 3GPP specifications. However, while these studies were running in parallel, a clear overlap was identified between the two areas. This has led to the proposal to not only combine the results of the follow-on normative work into a single Technical Specification, but also to combine the normative work into a single work item.

## 4 Objective

This work item shall specify requirements for using the 5G system for Residential and Personal IoT Networks (local networks that connect to the 5G network) as presented in TR 22.858 and TR 22.859. Specifically, this work item shall address requirements for:

* + Onboarding and authenticating devices (e.g. PIN Elements, Residential Network Elements) with different credential types that use direct device connectivity for communications e.g.
	+ Creation of networks and management of devices (e.g. PIN Elements, Residential Network Elements) within the networks (e.g. the Smart Home / Office or Personal IoT Network)
	+ Interactions between devices in these network and devices in the cellular network.
	+ Interactions between devices within and between Residential or Personal IoT networks.
	+ Premises Radio Access Station functionality
	+ Evolved Residential Gateway functionality
	+ Integration of Residential and Personal IoT networks with 5GLAN networks

In the context of this work item a Personal IoT Network (PIN) also includes the elements from TR 22.858 (e.g. Evolved Residential Gateway, Premises Radio Access Station, etc)

## 5 Expected Output and Time scale

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| --- |
| **New specifications** *{One line per specification. Create/delete lines as needed}* |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
|  |  |  |  |  |  |

*{Note 1: Only TSs may contain normative provisions. Study Items shall create or impact only TRs.
"Internal TR" is intended for 3GPP internal use only whereas "External TR" may be transposed by OPs.}*

*{Note 2: The first listed Rapporteur is the specification primary Rapporteur. Secondary Rapporteur(s) are possible for particular aspect(s) of the TS/TR. In this case, their responsibility has to be provided as "Remarks".}*

|  |
| --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| *TS 22.261* | *Requirements for Resident and PINs* | *SA#94 (Dec21)* | *New section(s) in 22.261 to capture requirements from FS\_Resident and FS\_PIN* |
| *TS 22.261* | *5GLAN related requirements* | *SA#94 (Dec21)* | *5GLAN related requirements from Resident will be added to the existing 5GLAN section in 22.261* |

## 6 Work item Rapporteur(s)

## Adrian Buckley, vivo Mobile Communications Ltd, adrian.buckley@vivo.com

## 7 Work item leadership

*SA1*

## 8 Aspects that involve other WGs

*{Specify all the other WG(s) to be involved and, if specific, their task. E.g.: "SA2, SA3, SA5. CT6 for storage, and potentially SA4". If not applicable, indicate "None" or "None identified yet".}*

## 9 Supporting Individual Members

*{At least 4 supporting Individual Members are needed. There is an expectation that these companies will provide resources to progress the work. Note that having 4 supporting companies is a necessary but not sufficient condition: the usual TSG approval process by consensus is needed for the WID approval.}*

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| Supporting IM name |
| vivo Mobile Communications Ltd |
| CATT |
| Convida Wireless |
| Interdigital |
| KPN |
| LG Electronics |
| Oppo |
| T-Mobile USA |
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