**TSG SA WG2 Meeting #155 S2-230xxxx**

**20 – 24 February 2023, Athens (Revision of SP-221340)**

**Source: Ericsson**

**Title: Revised WID: Enhanced support of Non-Public Networks Phase 2 (eNPN\_Ph2)**

**Document for: Approval**

**Agenda Item: 10.3**

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: Enhanced support of Non-Public Networks Phase 2

## Acronym: eNPN\_Ph2

## Unique identifier: 970015

Potential target Release: Rel-18

## 1 Impacts

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

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

### 2.1 Primary classification

This work item is a

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

### 2.2 Parent Work Item

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 940075 | Study on enhanced support of Non-Public Networks Phase 2 | Antecedent Stage 2 study item |
| 920031 | 5G Networks Providing Access to Localized Services | Stage 1 work item |

**Dependency on non-3GPP (draft) specification:**

**BBF and CableLabs impacts/description of supporting Non-3GPP access for SNPN**

## 3 Justification

Non-Public Network was introduced in Rel-16 with basic functions, and further enhanced in Rel-17 to enable wider cooperation between different networks/different entities to support use cases for NPN to provide access for UE that has no native credentials/subscriptions beforehand, as well as IMS and VIAPA related use cases.

FS\_eNPN\_Ph2 study (Rel-18) has concluded 6 key issues that are proposed, see TR 23.700-08, to be progressed to the normative phase:

- Enabling support for idle and connected mode mobility between SNPNs without new network selection

- Support of Non-3GPP access for SNPN

- Enabling NPN as hosting network for providing access to localized services

- Enabling UE to discover, select and access NPN as hosting network and receive localized services

- Enabling access to localized services via a specific hosting network

- Support for returning to home network

## 4 Objective

The aim of this work is to specify the following enhancements:

1. Support for enhanced mobility by enabling support for idle and connected mode mobility between SNPNs without new network selection, including:

a. UE and AMF support of equivalent SNPN list in NAS.

b. NG-RAN and AMF support of equivalent SNPNs in NGAP.

c. UE/NG-RAN/AMF take equivalent SNPN list into consideration, for supporting relevant functions, e.g. idle/connected mode mobility.

NOTE 1: The above excludes support for equivalent SNPNs, with different SNPN IDs, within an RA.

2. Support for non-3GPP access for SNPN.

a. Access to SNPN services via Untrusted non-3GPP access network, including support for Credential Holder, UE Onboarding and Emergency services.

b. Access to SNPN services via Trusted non-3GPP access network, including support for Credentials Holder, Emergency services and UE onboarding.

c. N3IWF and TNGF being able to include the “selected NID” in the [NGAP] INITIAL UE MESSAGE, which is up to RAN3 to define.

d. Access to SNPN services via wireline access network by defining a new GCI including a “NID”.

e. The NSWO procedure be extended to support SNPNs, and UE authentication using SNPN credentials, PLMN credentials or credentials from CH deploying AAA server.

f. When accessing SNPN services via Trusted or Untrusted non-3GPP access the UE needs to be able to construct a prioritized list of WLAN access networks by using enhanced WLAN Selection Policy (WLANSP) rules from ANDSP or based on local configuration.

g. N5CW access to SNPN services by defining a list of SNPNs with which "5G connectivity-without-NAS" is supported.

3. Support for providing access to Localized Services including the following based on conclusions in TR 23.700-08 clauses 8.3, 8.4, 8.5 and 8.6:

a. General description of support for access to Localized Services, when network giving access to Localized Service is an NPN.

b. Functionality, including configuration, to enable an NPN to support access to Localized Services, by re-using existing functionality and OAM (as per TR 23.700-08 clause 8.3).

c. Description of using onboarding for enabling access to hosting network

d. Functional description how to enable manual network selection and functional enhancements to automatic network selection, of hosting network giving access to Localized Services.

e. Description of SoR enhancements for enabling automatic selection of SNPN as hosting network, with reference to TS 23.122.

f. Description how UE access Localized Services and how validity conditions are enforced.

g. Informative description of how UEs returning to home network, after accessing hosting network for localized services, can be spread out.

## 5 Expected Output and Time scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **New specifications** | | | | | |
| Type | TS/TR number | Title | For info  at TSG# | For approval at TSG# | Rapporteur |
|  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Impacted existing TS/TR** | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
| *23.501* | *Support for equivalent SNPNs*  *Support for non-3GPP access for SNPN*  *Support for providing access to Localized Services* | *TSG SA#100 (June 2023)* |  |
| *23.502* | *Support for equivalent SNPNs*  *Support for non-3GPP access for SNPN*  *Support for providing access to Localized Services* | *TSG SA#100 (June 2023)* |  |
| *23.402* | *Support for non-3GPP access for SNPN* | *TSG SA#100 (June 2023)* |  |
| *23.503* | *Support for non-3GPP access for SNPN* | *TSG SA#100 (June 2023)* |  |
| *23.316* | *Support for non-3GPP access for SNPN* | *TSG SA#100 (June 2023)* |  |

## 6 Work item Rapporteur(s)

Hedman, Peter, Ericsson, (peter . hedman @ ericsson . com)

## 7 Work item leadership

SA2

## 8 Aspects that involve other WGs

Potential security impact to be covered by SA3.

Potential charging and OAM impact to be covered by SA5.

## 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| CableLabs |
| Charter |
| Ericsson |
| LG Electronics |
| Intel |
| NICT |
| Nokia |
| Nokia Shanghai Bell |
| OPPO |
| Qualcomm |
| SHARP |
| vivo |
| ZTE |