**3GPP TSG-RAN WG3 Meeting #115-e** ***R3-222705***

**, 17th – 26th January, 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **0729** | **Rev** | **3** | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Introduction of MultiSIM support over Xn | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, Nokia, Nokia Shanghai Bell, Samsung, ZTE, Huawei, vivo, Radisys, Reliance JIO | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_NR\_MUSIM | | | | |  | ***Date:*** | | | 2022-02-08 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Support MUSIM in Rel 17 XnAP. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Include Paging Cause for RAN Pagining procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | No support for MUSIM. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.5.2, 9.1.1.7, ASN.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 38.413 CR  TS 38.473 CR  TS 38.463 CR  TS 36.413 CR | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 3: Fix FFS  Rev 2: resubmission, including more co-signing companies. | | | | | | | | |

### 8.2.5 RAN Paging

#### 8.2.5.1 General

The purpose of the RAN Paging procedure is to enable the NG-RAN node1 to request paging of a UE in the NG-RAN node2.

The procedure uses non UE-associated signalling.

#### 8.2.5.2 Successful operation



Figure 8.2.5.2-1: RAN Paging: successful operation

The RAN Paging procedure is triggered by the NG-RAN node1 by sending the RAN PAGING message to the NG-RAN node2,in which the necessary information e.g. UE RAN Paging Identity should be provided.

If the *Paging Priority* IE is included in the RAN PAGING message, the NG-RAN node2 may use it to prioritize paging.

If the *Assistance Data for RAN Paging* IE is included in the RAN PAGING message, the NG-RAN node2 may use it according to TS 38.300 [9].

If the *UE Radio Capability for Paging* IE is included in the RAN PAGING message, the NG-RAN node2 may use it to apply specific paging schemes.

If the *Extended UE Identity Index Value* IE is included in the RAN PAGING message, the NG-RAN node2 may use it according to TS 36.304 [34]. When available, NG-RAN node1 may include the *Extended UE Identity Index Value* IE in the RAN PAGING message towards an ng-eNB (e.g. NG-RAN node2).

When available, the NG-RAN node1 shall include the *Paging eDRX Information* IE in the RAN PAGING message towards the NG-RAN node2. If the *Paging eDRX Information* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 36.304 [34].

When available, the NG-RAN node1 shall include the *UE Specific DRX* IE in the RAN PAGING message towards the NG-RAN node2. If the *UE specific DRX* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 36.304 [34].

When available, the NG-RAN node1 shall include the *Paging Cause* IE in the RAN PAGING message towards the NG-RAN node2. If the *Paging Cause* IE is included in the RAN PAGING message, the NG-RAN node2 shall, if supported, use it according to TS 38.331 [10].

#### 8.2.5.3 Unsuccessful Operation

Not applicable.

#### 8.2.5.4 Abnormal Condition

Void.

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9.1.1.7 RAN PAGING

This message is sent by the NG-RAN node1 to NG-RAN node2 to page a UE.

Direction: NG-RAN node1 → NG-RAN node2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| CHOICE *UE Identity Index Value* | M |  |  |  | YES | reject |
| *>Length-10* |  |  |  |  |  |  |
| >>Index Length-10 | M |  | BIT STRING (SIZE(10)) | Coded as specified in TS 38.304 [33] and TS 36.304 [34]. | – |  |
| UE RAN Paging Identity | M |  | 9.2.3.43 |  | YES | ignore |
| Paging DRX | M |  | 9.2.3.66 | Includes the RAN paging cycle as defined in TS 36.304 [34] and 38.304 [33]. | YES | ignore |
| RAN Paging Area | M |  | 9.2.3.38 |  | YES | reject |
| Paging Priority | O |  | 9.2.3.44 |  | YES | ignore |
| Assistance Data for RAN Paging | O |  | 9.2.3.41 |  | YES | ignore |
| UE Radio Capability for Paging | O |  | 9.2.3.91 |  | YES | ignore |
| Extended UE Identity Index Value | O |  | 9.2.3.141 | Coded as specified in TS 36.304 [34]. | YES | ignore |
| Paging eDRX Information | O |  | 9.2.3.142 |  | YES | ignore |
| UE specific DRX | O |  | 9.2.3.143 | Includes the UE specific paging cycle as defined in TS 36.304 [34] and 38.304 [33]. | YES | ignore |
| Paging Cause | O |  | ENUMERATED(voice, …) |  |  |  |

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9.3.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- PDU definitions for XnAP.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- IE parameter types from other modules.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IMPORTS

ActivationIDforCellActivation,

AMF-Region-Information,

AMF-UE-NGAP-ID,

AS-SecurityInformation,

AssistanceDataForRANPaging,

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id-NRV2XServicesAuthorized,

id-oldNG-RANnodeUEXnAPID,

id-OldtoNewNG-RANnodeResumeContainer,

id-PagingCause,

id-PagingDRX,

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RANPaging ::= SEQUENCE {

protocolIEs ProtocolIE-Container {{RANPaging-IEs}},

...

}

RANPaging-IEs XNAP-PROTOCOL-IES ::= {

{ ID id-UEIdentityIndexValue CRITICALITY reject TYPE UEIdentityIndexValue PRESENCE mandatory}|

{ ID id-UERANPagingIdentity CRITICALITY ignore TYPE UERANPagingIdentity PRESENCE mandatory}|

{ ID id-PagingDRX CRITICALITY ignore TYPE PagingDRX PRESENCE mandatory}|

{ ID id-RANPagingArea CRITICALITY reject TYPE RANPagingArea PRESENCE mandatory}|

{ ID id-PagingPriority CRITICALITY ignore TYPE PagingPriority PRESENCE optional }|

{ ID id-AssistanceDataForRANPaging CRITICALITY ignore TYPE AssistanceDataForRANPaging PRESENCE optional }|

{ ID id-UERadioCapabilityForPaging CRITICALITY ignore TYPE UERadioCapabilityForPaging PRESENCE optional }|

{ ID id-ExtendedUEIdentityIndexValue CRITICALITY ignore TYPE ExtendedUEIdentityIndexValue PRESENCE optional }|

{ ID id-PagingeDRXInformation CRITICALITY ignore TYPE PagingeDRXInformation PRESENCE optional }|

{ ID id-UESpecificDRX CRITICALITY ignore TYPE UESpecificDRX PRESENCE optional }|

{ ID id-PagingCause CRITICALITY ignore TYPE PagingCause PRESENCE optional },

...

}

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### 9.3.5 Information Element definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Information Element Definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

id-CNTypeRestrictionsForEquivalent,

id-CNTypeRestrictionsForServing,

id-Additional-UL-NG-U-TNLatUPF-List,

id-ConfiguredTACIndication,

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-- P

PacketDelayBudget ::= INTEGER (0..1023, ...)

PacketErrorRate ::= SEQUENCE {

pER-Scalar PER-Scalar,

pER-Exponent PER-Exponent,

iE-Extensions ProtocolExtensionContainer { {PacketErrorRate-ExtIEs} } OPTIONAL,

...

}

PacketErrorRate-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

PagingCause ::= ENUMERATED {

voice,

...

}

PedestrianUE ::= ENUMERATED {

authorized,

not-authorized,

...

}

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### 9.3.7 Constant definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) xnap (2) version1 (1) xnap-Constants (4) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

ProcedureCode,

ProtocolIE-ID

FROM XnAP-CommonDataTypes;

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id-PDUSessionExpectedUEActivityBehaviour ProtocolIE-ID ::= 249

id-QoS-Mapping-Information ProtocolIE-ID ::= 250

id-AdditionLocationInformation ProtocolIE-ID ::= 251

id-dataForwardingInfoFromTargetE-UTRANnode ProtocolIE-ID ::= 252

id-PagingCause ProtocolIE-ID ::= 25x

END

-- ASN1STOP