**3GPP TSG-RAN2 Meeting # 109-e *R2-20xxxxx***

**Electronic meeting, 24th Feb – 6th Mar 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | **4172** | **rev** | **3** | **Current version:** | **15.8.0** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Correction on non-3GPP paging | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_5GCN\_connect-Core, TEI16 | | | | |  | ***Date:*** | | | 2020-02-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In Rel-15 LTE connected to 5GC, the paging message was extended by adding a new field accessType (enumerated {non3GPP}), and this field was added out of the paging record list, so it is applied for all UEs for this paging message.  However, in current TS 38.331, the same field accessType (enumerated {non3GPP}) has been defined in the field PagingRecord in the paging message.  TS 38.331 has correct definition on the field accessType because the accessType may be different among UEs in one paging message, so the field accessType in the paging message needs to be corrected in TS 36.331. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | **Rev 3:**  According to the email discussion [AT109e][205][LTE16] Agreeing to simple LTE Rel-16 CRs (RAN2 VC), the following changes are made:  (1) Double brackets are added for new field accessType-r16 in IE PagingRecord  (2) Minor updates are made to the field description of accessType  **Rev 2:**  The changes are made based on v15.8.0.  According to RRC merge and review, i.e. email discussion [108#28][R16 RRC], the following changes are made:  (1) Remove the changes in section 5.3.2.3  (2) The change in the field description of accessType is updated  **Rev 1:**  The following changes are made:   * In Paging message defined in 6.2.2, a Rel-16 field accessType is added in PagingRecord, and procedural text is also updated * In the message *UERadioPagingInformation*, UE release information is added | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The current definition of the field accessType puts unnecessary restrictions to the network side, i.e. the network can not indicate accessType for certain UE(s) in case that CN paging is triggerred for non-3GPP PDU session when the UE is connected to 5GC via E-UTRA. So it will lead to inefficient paging for the networks. | | | | | | | | |
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| ***Clauses affected:*** | | 6.2.2, 10.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

6.2.2 Message definitions

*<Partially omitted>*

#### – *Paging*

The *Paging* message is used for the notification of one or more UEs.

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channel: PCCH

Direction: E‑UTRAN to UE

*Paging* message

-- ASN1START

Paging ::= SEQUENCE {

pagingRecordList PagingRecordList OPTIONAL, -- Need ON

systemInfoModification ENUMERATED {true} OPTIONAL, -- Need ON

etws-Indication ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v890-IEs OPTIONAL

}

Paging-v890-IEs ::= SEQUENCE {

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension Paging-v920-IEs OPTIONAL

}

Paging-v920-IEs ::= SEQUENCE {

cmas-Indication-r9 ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v1130-IEs OPTIONAL

}

Paging-v1130-IEs ::= SEQUENCE {

eab-ParamModification-r11 ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v1310-IEs OPTIONAL

}

Paging-v1310-IEs ::= SEQUENCE {

redistributionIndication-r13 ENUMERATED {true} OPTIONAL, -- Need ON

systemInfoModification-eDRX-r13 ENUMERATED {true} OPTIONAL, -- Need ON

nonCriticalExtension Paging-v1530-IEs OPTIONAL

}

Paging-v1530-IEs ::= SEQUENCE {

accessType ENUMERATED {non3GPP} OPTIONAL, -- Need ON

nonCriticalExtension SEQUENCE {} OPTIONAL

}

PagingRecordList ::= SEQUENCE (SIZE (1..maxPageRec)) OF PagingRecord

PagingRecord ::= SEQUENCE {

ue-Identity PagingUE-Identity,

cn-Domain ENUMERATED {ps, cs},

...,

[[ accessType-r16 ENUMERATED {non3GPP} OPTIONAL -- Need ON

]]

}

PagingUE-Identity ::= CHOICE {

s-TMSI S-TMSI,

imsi IMSI,

...,

ng-5G-S-TMSI-r15 NG-5G-S-TMSI-r15,

fullI-RNTI-r15 I-RNTI-r15

}

IMSI ::= SEQUENCE (SIZE (6..21)) OF IMSI-Digit

IMSI-Digit ::= INTEGER (0..9)

-- ASN1STOP

| *Paging* field descriptions |
| --- |
| ***accessType***  It indicates whether Paging is originated due to the PDU sessions from the non-3GPP access when E-UTRA is connected to 5GC. E-UTRAN does not include both *accessType* (i.e., without suffix) and *accessType-r16* in a single paging message. |
| ***cmas-Indication***  If present: indication of a CMAS notification. |
| ***cn-Domain***  Indicates the origin of paging. |
| ***eab-ParamModification***  If present: indication of an EAB parameters (SIB14) modification. |
| ***etws-Indication***  If present: indication of an ETWS primary notification and/ or ETWS secondary notification. |
| ***imsi***  The International Mobile Subscriber Identity, a globally unique permanent subscriber identity, see TS 23.003 [27]. The first element contains the first IMSI digit, the second element contains the second IMSI digit and so on. |
| ***redistributionIndication***  If present: indication to trigger E-UTRAN inter-frequency redistribution procedure as specified in TS 36.304 [4], clause 5.2.4.10. |
| ***systemInfoModification***  If present: indication of a BCCH modification other than SIB10, SIB11, SIB12 and SIB14. This indication does not apply to UEs using eDRX cycle longer than the BCCH modification period. |
| ***systemInfoModification-eDRX***  If present: indication of a BCCH modification other than SIB10, SIB11, SIB12 and SIB14. This indication applies only to UEs using eDRX cycle longer than the BCCH modification period. |
| ***ue-Identity***  Provides the NAS identity of the UE that is being paged. The IMSI is not applicable for E-UTRA/5GC. |

*<Next modification>*

10.2.2 Message definitions

*<Partially omitted>*

#### – *UERadioPagingInformation*

This message is used to transfer radio paging information, covering both upload to and download from the EPC/5GC.

Direction: eNB to/ from EPC/5GC

*UERadioPagingInformation* message

-- ASN1START

UERadioPagingInformation ::= SEQUENCE {

criticalExtensions CHOICE {

c1 CHOICE{

ueRadioPagingInformation-r12 UERadioPagingInformation-r12-IEs,

spare7 NULL,

spare6 NULL, spare5 NULL, spare4 NULL,

spare3 NULL, spare2 NULL, spare1 NULL

},

criticalExtensionsFuture SEQUENCE {}

}

}

UERadioPagingInformation-r12-IEs ::= SEQUENCE {

ue-RadioPagingInfo-r12 OCTET STRING (CONTAINING UE-RadioPagingInfo-r12),

nonCriticalExtension UERadioPagingInformation-v1310-IEs OPTIONAL

}

UERadioPagingInformation-v1310-IEs ::= SEQUENCE {

supportedBandListEUTRAForPaging-r13 SEQUENCE (SIZE (1..maxBands)) OF FreqBandIndicator-r11 OPTIONAL,

nonCriticalExtension UERadioPagingInformation-v16xy-IEs OPTIONAL

}

UERadioPagingInformation-v16xy-IEs ::= SEQUENCE {

accessStratumRelease-r16 ENUMERATED {true} OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

| *UERadioPagingInformation* field descriptions |
| --- |
| ***accessStratumRelease***  Indicates that the UE supports reception of *accessType-r16* in the Paging message. |
| ***ue-RadioPagingInfo***  The field is used to transfer UE capability information used for paging. The eNB generates the *ue-RadioPagingInfo* andthe contained UE capability information is absent when not supported by the UE. |
| ***supportedBandListEUTRAForPaging***  Indicates the UE supported frequency bands which is derived by the eNB from *UE-EUTRA-Capability*. |