**3GPP TSG-RAN2 Meeting #116 electronic *R2-21XXXX***

**Online, 1 - 12 November, 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.331** | **CR** | **-** | **rev** | **-** | **Current version:** | **16.6.0** |  |
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| *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:*** | Introduction of Rel-17 paging with service indication for MUSIM | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | RAN2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_NR\_MUSIM-Core | | | | |  | ***Date:*** | | | 2021-11-01 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
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| ***Reason for change:*** | | Following the “[Post115-e][236][MUSIM] Paging with service indication” phase 1, the following were proposed:  **Proposal 1: Introduce paging cause by using the ”nonCriticalExtension” in the Paging record.**  **Proposal 2: No need to study solution proposals based on extending legacy Paging record.**  **Proposal 3: FFS if B.1 (parallel list with 1 paging cause value “voice”) or B.2 (parallel list with 2 paging cause values “voice, other”) is the preferred ASN.1 coding approach.**  **Proposal 4: The solution proposal to introduce paging cause in NR will be used for LTE.**  **Proposal 5: No need to send an LS to SA2 asking to consider a NAS solution to introduce paging cause in LTE.**  **Proposal 6: For paging reception in RRC\_IDLE, UE forwards the paging cause to NAS. It’s up to NAS whether to accept or reject the paging.**  **Proposal 7: For the AS-NAS interaction for paging reception in RRC\_INACTIVE, FFS Option 2 or Option 3 (i.e. up to UE implementation) is the preferred solution.**  **Proposal 8: The AS-NAS interaction principles for NR are applied to LTE.**  **Proposal 9: Introduction of paging cause impacts 38.331 and 36.331 specs; FFS if it impacts stage 2 specs (38.300 and 36.300)**  Relevant NR proposals from the above should be added to the RRC spec. | | | | | | | | |
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| ***Summary of change:*** | | In Section 5.3.2.3,   * For paging reception in RRC\_IDLE, *pagingCause* (if present) will be forwarded to upper layers; * For paging reception in RRC\_INACTIVE, Editor note was added as there was no consensus on solution proposal to use for AS-NAS interaction;   In Section 6.2.2,   * ASN.1 code was added to introduce paging cause; * Editor note was added as there was no consensus on the number of pagingcause values.   **Impact Analysis**  Impacted 5G architecture options:  Impacted functionality:  Inter-operability: | | | | | | | | |
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| ***Consequences if not approved:*** | | R17 MUSIM paging with service indication is not supported | | | | | | | | |
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| ***Clauses affected:*** | | A.B.C  X.Y.Z | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*START OF CHANGE*

#### 5.3.2.3 Reception of the *Paging* *message* by the UE

Upon receiving the *Paging* message, the UE shall:

1> if in RRC\_IDLE, for each of the *PagingRecord*, if any, included in the *Paging* message:

2> if the *ue-Identity* included in the *PagingRecord* matches the UE identity allocated by upper layers:

3> forward the *ue-Identity,* *accessType* (if present) and *pagingCause* (if present) to the upper layers;

1> if in RRC\_INACTIVE, for each of the *PagingRecord*, if any, included in the *Paging* message:

2> if the *ue-Identity* included in the *PagingRecord* matches the UE's stored *fullI-RNTI*:

3> if the UE is configured by upper layers with Access Identity 1:

4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mps-PriorityAccess*;

3> else if the UE is configured by upper layers with Access Identity 2:

4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mcs-PriorityAccess*;

3> else if the UE is configured by upper layers with one or more Access Identities equal to 11-15:

4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *highPriorityAccess*;

3> else:

4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mt-Access*;

Editor’s note: For RAN paging reception in RRC\_INACTIVE for Multi-SIM UEs, whether RRC informs the upper layers an indication about the RAN paging and the RRC layer resumes the RRC connection based on a request from the upper layer OR it’s up to UE implementation needs to be discussed.

2> else if the *ue-Identity* included in the *PagingRecord* matches the UE identity allocated by upper layers:

3> forward the *ue-Identity*, *accessType* (if present) and pagingCause (if present) to the upper layers;

3> perform the actions upon going to RRC\_IDLE as specified in 5.3.11 with release cause 'other'.

*START OF CHANGE*

***Paging* message**

-- ASN1START

-- TAG-PAGING-START

Paging ::= SEQUENCE {

pagingRecordList PagingRecordList OPTIONAL, -- Need N

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension Paging-v17xy-IEs~~SEQUENCE{}~~ OPTIONAL

}

Paging-v17xy-IEs ::= SEQUENCE {

pagingRecordList-v17xy PagingRecordList-v17xy OPTIONAL, -- Need N

nonCriticalExtension SEQUENCE {} OPTIONAL

}

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

PagingRecordList-v17xy ::= SEQUENCE (SIZE(1..maxNrofPageRec)) OF PagingRecord-v17xy

PagingRecord ::= SEQUENCE {

ue-Identity PagingUE-Identity,

accessType ENUMERATED {non3GPP} OPTIONAL, -- Need N

...

}

PagingRecord-v17xy ::= SEQUENCE {

pagingCause-r17 ENUMERATED {FFS} OPTIONAL, -- Need N

}

PagingUE-Identity ::= CHOICE {

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

fullI-RNTI I-RNTI-Value,

...

}

-- TAG-PAGING-STOP

-- ASN1STOP

Editor’s note: Whether to have one cause value or two cause values for “pagingCause-r17” needs to be discussed.

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| ***PagingRecord* field descriptions** |
| ***accessType***  Indicates whether the *Paging* message is originated due to the PDU sessions from the non-3GPP access. |
| ***pagingCause***  Indicates whether the Paging message is originated for voice. Applicable to Multi-SIM UEs. |

END OF CHANGE