**3GPP TSG-RAN WG2 Meeting #118-e R2-220xxxx**

**Online, May 9-20, 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.331** | **CR** | **xxxx** | **rev** |  | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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 UE behavior for NAS-based busy indication in RRC\_INACTIVE | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_NR\_MUSIM-Core | | | | |  | ***Date:*** | | | 2022-05-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | |  |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | RAN2 made the following agreement at RAN2#118-e meeting:   * From RAN2 perspective, confirm that INACTIVE UE may not be able to send a Service Request message to the network including the Reject Paging indication as a response to the RAN paging due to UE implementation constraints | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1/ Add MUSIM abbreviation in 3.2  2/ Add the following note in 5.3.2.3:  NOTE: A MUSIM UE may not initiate the RRC connection resumption procedure, e.g. when it decides not to respond to the Paging message due to UE implementation constraints as specified in TS 24.501 [95]. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UE shall initiate the RRC connection resumption procedure when it decides not to respond the Paging message. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.2, 5.3.2.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS... 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

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1], TS 36.300 [9] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1] or TS 36.300 [9].

1xRTT CDMA2000 1x Radio Transmission Technology

AB Access Barring

ACDC Application specific Congestion control for Data Communication

ACK Acknowledgement

AILC Assistance Information bit for Local Cache

AM Acknowledged Mode

ANDSF Access Network Discovery and Selection Function

ARQ Automatic Repeat Request

AS Access Stratum

ASN.1 Abstract Syntax Notation One

AUL Autonomous Uplink

BCCH Broadcast Control Channel

BCD Binary Coded Decimal

BCH Broadcast Channel

BL Bandwidth reduced Low complexity

BLER Block Error Rate

BR Bandwidth Reduced

BR-BCCH Bandwidth Reduced Broadcast Control Channel

CA Carrier Aggregation

CAS Cell Acquisition Subframes

CBR Channel Busy Ratio

CCCH Common Control Channel

CCO Cell Change Order

CE Coverage Enhancement

CFI Control Format Indicator

CG Cell Group

CHO Conditional Handover

CIoT Cellular IoT

CMAS Commercial Mobile Alert Service

CP Control Plane

CPA Conditional PSCell Addition

CPC Conditional PSCell Change

CP-EDT Control Plane EDT

C-RNTI Cell RNTI

CRS Cell-specific Reference Signal

CSFB CS fallback

CSG Closed Subscriber Group

CSI Channel State Information

DAPS Dual Active Protocol Stack

DC Dual Connectivity

DCCH Dedicated Control Channel

DCI Downlink Control Information

DCN Dedicated Core Networks

DFN Direct Frame Number

DL Downlink

DL-SCH Downlink Shared Channel

DRB (user) Data Radio Bearer

DRX Discontinuous Reception

DTCH Dedicated Traffic Channel

EAB Extended Access Barring

eDRX Extended DRX

EDT Early Data Transmission

EHPLMN Equivalent Home Public Land Mobile Network

eIMTA Enhanced Interference Management and Traffic Adaptation

ENB Evolved Node B

EN-DC E-UTRA NR Dual Connectivity with E-UTRAN connected to EPC

EPC Evolved Packet Core

EPDCCH Enhanced Physical Downlink Control Channel

EPS Evolved Packet System

ETWS Earthquake and Tsunami Warning System

E-UTRA Evolved Universal Terrestrial Radio Access

E-UTRA/5GC E-UTRA connected to 5GC

E-UTRA/EPC E-UTRA connected to EPC

E-UTRAN Evolved Universal Terrestrial Radio Access Network

FDD Frequency Division Duplex

FFS For Further Study

GERAN GSM/EDGE Radio Access Network

GNSS Global Navigation Satellite System

G-RNTI Group RNTI

GSM Global System for Mobile Communications

GWUS Group Wake Up Signal

HARQ Hybrid Automatic Repeat Request

HFN Hyper Frame Number

HPLMN Home Public Land Mobile Network

HRPD CDMA2000 High Rate Packet Data

HSDN High Speed Dedicated Network

H-SFN Hyper SFN

IAB Integrated Access and Backhaul

IAB-DU IAB-node DU

IAB-MT IAB Mobile Termination

IDC In-Device Coexistence

IE Information element

IMEI International Mobile Equipment Identity

IMSI International Mobile Subscriber Identity

IoT Internet of Things

ISM Industrial, Scientific and Medical

kB Kilobyte (1000 bytes)

L1 Layer 1

L2 Layer 2

L3 Layer 3

LAA Licensed-Assisted Access

LWA LTE-WLAN Aggregation

LWAAP LTE-WLAN Aggregation Adaptation Protocol

LWIP LTE-WLAN Radio Level Integration with IPsec Tunnel

MAC Medium Access Control

MBMS Multimedia Broadcast Multicast Service

MBSFN Multimedia Broadcast multicast service Single Frequency Network

MCG Master Cell Group

MCOT Maximum Channel Occupancy Time

MCPTT Mission Critical Push To Talk

MDT Minimization of Drive Tests

MIB Master Information Block

MO Mobile Originating

MPDCCH MTC Physical Downlink Control Channel

MRB MBMS Point to Multipoint Radio Bearer

MR-DC Multi-Radio Dual Connectivity

MRO Mobility Robustness Optimisation

MSI MCH Scheduling Information

MT Mobile Terminating

MTSI Multimedia Telephony Service for IMS

MUSIM Multi-Universal Subscriber Identity Module

MUST MultiUser Superposition Transmission

N/A Not Applicable

NACC Network Assisted Cell Change

NAICS Network Assisted Interference Cancellation/Suppression

NAS Non Access Stratum

NB-IoT NarrowBand Internet of Things

NE-DC NR E-UTRA Dual Connectivity

(NG)EN-DC E-UTRA NR Dual Connectivity (i.e. covering both EN-DC and NGEN-DC)

NGEN-DC E-UTRA NR Dual Connectivity with E-UTRAN connected to 5GC

NPBCH Narrowband Physical Broadcast channel

NPDCCH Narrowband Physical Downlink Control channel

NPDSCH Narrowband Physical Downlink Shared channel

NPRACH Narrowband Physical Random Access channel

NPSS Narrowband Primary Synchronization Signal

NPUSCH Narrowband Physical Uplink Shared channel

NR NR Radio Access

NRS Narrowband Reference Signal

NSSAI Network Slice Selection Assistance Information

NSSS Narrowband Secondary Synchronization Signal

NTN Non-Terrestrial Network

OS OFDM Symbol

P2X Pedestrian-to-Everything

PCCH Paging Control Channel

PCell Primary Cell

PDCCH Physical Downlink Control Channel

PDCP Packet Data Convergence Protocol

PDU Protocol Data Unit

PLMN Public Land Mobile Network

PMK Pairwise Master Key

PO Paging Occasion

posSIB Positioning SIB

ProSe Proximity based Services

PS Public Safety (in context of sidelink), Packet Switched (otherwise)

PSCell Primary Secondary Cell

PSK Pre-Shared Key

PTAG Primary Timing Advance Group

PUCCH Physical Uplink Control Channel

PUR Preconfigured Uplink Resource

QCI QoS Class Identifier

QoE Quality of Experience

QoS Quality of Service

RACH Random Access CHannel

RAI Release Assistance Indication

RAT Radio Access Technology

RB Radio Bearer

RCLWI RAN Controlled LTE-WLAN Integration

RLC Radio Link Control

RLOS Restricted Local Operator Services

RMTC RSSI Measurement Timing Configuration

RN Relay Node

RNA RAN-based Notification Area

RNAU RAN-based Notification Area Update

RNTI Radio Network Temporary Identifier

ROHC RObust Header Compression

RPLMN Registered Public Land Mobile Network

RRC Radio Resource Control

RSCP Received Signal Code Power

RSRP Reference Signal Received Power

RSRQ Reference Signal Received Quality

RSS Resynchronisation signal

RSSI Received Signal Strength Indicator

SAE System Architecture Evolution

SAP Service Access Point

SBAS Satellite Based Augmentation System

SC Sidelink Control

SCell Secondary Cell

SCG Secondary Cell Group

SC-MRB Single Cell MRB

SC-RNTI Single Cell RNTI

SD-RSRP Sidelink Discovery Reference Signal Received Power

SFN System Frame Number

SI System Information

SIB System Information Block

SI-RNTI System Information RNTI

SL Sidelink

SLSS Sidelink Synchronisation Signal

SMC Security Mode Control

SMTC SS/PBCH Block Measurement Timing Configuration

SPDCCH Short PDCCH

SPS Semi-Persistent Scheduling

SPT Short Processing Time

SPUCCH Short PUCCH

SR Scheduling Request

SRB Signalling Radio Bearer

S-RSRP Sidelink Reference Signal Received Power

SSAC Service Specific Access Control

SSTD SFN and Subframe Timing Difference

STAG Secondary Timing Advance Group

S-TMSI SAE Temporary Mobile Station Identifier

STTI Short TTI

TA Tracking Area

TAG Timing Advance Group

TDD Time Division Duplex

TDM Time Division Multiplexing

TM Transparent Mode

TPC-RNTI Transmit Power Control RNTI

T-RPT Time Resource Pattern of Transmission

TTI Transmission Time Interval

TTT Time To Trigger

UDC Uplink Data Compression

UE User Equipment

UICC Universal Integrated Circuit Card

UL Uplink

UL-SCH Uplink Shared Channel

UM Unacknowledged Mode

UP User Plane

UP-EDT User Plane EDT

UTC Coordinated Universal Time

UTRAN Universal Terrestrial Radio Access Network

V2X Vehicle-to-Everything

VoLTE Voice over Long Term Evolution

WLAN Wireless Local Area Network

WT WLAN Termination

WUS Wake-up Signal

In the ASN.1, lower case may be used for some (parts) of the above abbreviations e.g. c-RNTI.

NEXT CHANGE

### 5.3.2 Paging

#### 5.3.2.1 General



Figure 5.3.2.1-1: Paging

The purpose of this procedure is:

- to transmit CN initiated paging information to a UE in RRC\_IDLE or RRC\_INACTIVE and/ or;

- to transmit RAN initiated paging information to a UE in RRC\_INACTIVE and/or;

- to inform UEs in RRC\_IDLE, UEs in RRC\_INACTIVE and UEs in RRC\_CONNECTED other than NB-IoT UEs, BL UEs and UEs in CE, about a system information change and/ or;

- to inform UEs in RRC\_IDLE other than NB-IoT UEs, UEs in RRC\_INACTIVE and UEs in RRC\_CONNECTED other than NB-IoT UEs, BL UEs and UEs in CE, about an ETWS primary notification and/ or ETWS secondary notification and/ or;

- to inform UEs in RRC\_IDLE other than NB-IoT UEs, UEs in RRC\_INACTIVE and UEs in RRC\_CONNECTED other than NB-IoT UEs, BL UEs and UEs in CE, about a CMAS notification and/ or;

- to inform UEs other than NB-IoT UEs in RRC\_IDLE, and other than UEs connected to 5GC about an EAB parameters modification and/ or;

- to inform UEs other than NB-IoT UEs in RRC\_IDLE, and UEs in RRC\_INACTIVE to perform E-UTRAN inter-frequency redistribution procedure.

The paging information of CN initiated paging is provided to upper layers, which in response may initiate RRC connection establishment, e.g. to receive an incoming call.

#### 5.3.2.2 Initiation

E-UTRAN initiates the paging procedure by transmitting the *Paging* message at the UE's paging occasion as specified in TS 36.304 [4]. E-UTRAN may address multiple UEs within a *Paging* message by including one *PagingRecord* for each UE. E-UTRAN may also indicate a change of system information, and/ or provide an ETWS notification or a CMAS notification in the *Paging* message.

#### 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 one of the UE identities allocated by upper layers:

3> if upper layers indicate the support of paging cause:

4> forward the *ue-Identity, accessType* (if present), paging cause (if determined) and, except for NB-IoT, the *cn-Domain* to the upper layers;

3> else:

4> forward the *ue-Identity,* *accessType* (if present) and, except for NB-IoT, the *cn-Domain* to the upper layers;

3> store *mt-EDT*, if present;

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 stored *fullI-RNTI*:

3> if UE is configured with one or more access identities equal to 1, 2 or 11-15 applicable in the selected PLMN:

4> initiate RRC connection resume procedure in 5.3.3.2 with cause value set to 'highProrityAccess';

3> else:

4> initiate the RRC connection resumption procedure according to 5.3.3.2 with cause value set to 'mt-access';

NOTE: A MUSIM UE may not initiate the RRC connection resumption procedure, e.g. when it decides not to respond to the *Paging* message due to UE implementation constraints as specified in TS 24.501 [95].2> else if the *ue-Identity* included in the *PagingRecord* matches one of the UE identities allocated by upper layers:

3> if upper layers indicate the support of paging cause:

4> forward the *ue-Identity, accessType* (if present), paging cause (if determined) and the *cn-Domain* to the upper layers;

3> else:

4> forward the *ue-Identity*, *accessType* (if present) and the *cn-Domain* to the upper layers;

3> perform the actions upon leaving RRC\_INACTIVE as specified in 5.3.12, with release cause 'other';

1> if the UE is not configured with a DRX cycle longer than the modification period and the *systemInfoModification* is included; or

1> if the UE is configured with a DRX cycle longer than the modification period and the *systemInfoModification-eDRX* is included:

2> re-acquire the required system information using the system information acquisition procedure as specified in 5.2.2;

1> if the *etws-Indication* is included and the UE is ETWS capable:

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType10* is present:

3> acquire *SystemInformationBlockType10*;

NOTE: If the UE is in CE, it is up to UE implementation when to start acquiring *SystemInformationBlockType10*.

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType11* is present:

3> acquire *SystemInformationBlockType11*;

1> if the *cmas-Indication* is included and the UE is CMAS capable:

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary as specified in 5.2.1.5;

2> if the *schedulingInfoList* indicates that *SystemInformationBlockType12* is present:

3> acquire *SystemInformationBlockType12*;

1> if in RRC\_IDLE, the *eab-ParamModification* is included and the UE is EAB capable:

2> consider previously stored *SystemInformationBlockType14* as invalid;

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary as specified in 5.2.1.6;

2> re-acquire *SystemInformationBlockType14* using the system information acquisition procedure as specified in 5.2.2.4;

1> if in RRC\_IDLE, the *uac-ParamModification* is included and the UE connected to 5GC is a BL UE or UE in CE:

2> consider previously stored *SystemInformationBlockType25* as invalid;

2> re-acquire *SystemInformationBlockType1* immediately, i.e., without waiting until the next system information modification period boundary as specified in 5.2.1.6;

2> re-acquire *SystemInformationBlockType25* using the system information acquisition procedure as specified in 5.2.2.4;

1> if in RRC\_IDLE, the *redistributionIndication* is included and the UE is redistribution capable:

2> perform E-UTRAN inter-frequency redistribution procedure as specified in TS 36.304 [4], clause 5.2.4.10;

END OF CHANGE