**3GPP TSG-CT WG1 Meeting #123-eC1-202648**

**Electronic meeting, 16-24 April February 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.501** | **CR** | **2030** | **rev** | **1** | **Current version:** | **16.4.1** |  |
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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 |  | Core Network | **x** |

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| ***Title:*** | Indication of change in the use of enhanced coverage | | | | | | | | | |
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| ***Source to WG:*** | Samsung, InterDigital, Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_CIoT | | | | |  | ***Date:*** | | | 2020-04-02 |
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| ***Category:*** | **F** |  | | | | | ***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)* | |
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| ***Reason for change:*** | | Section 4.19 and 4.20 suggest that the UE that supports enhanced coverage always uses extended NAS timers. This should be corrected to say that the UE applies extended NAS timers only when the network allows so. | | | | | | | | |
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| ***Summary of change:*** | | 1) Clarify that the UE does not apply extended NAS timers before the network indicates so.  2) Clarify some existing conditions for the use of coverage enhancement e.g. UE uses coverage enhancement if it is not restricted by the network. Also, AMF checks for the UE’s usage setting not being set to “voice centric” (currenlty only checked by the UE). | | | | | | | | |
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| ***Consequences if not approved:*** | | Conditions for the applicability of extended NAS timers are incorrect. | | | | | | | | |
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| ***Clauses affected:*** | | 4.19, 4.20 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... 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:*** | | The revision removes all previous changes related to the indication on the change in the use of enhanced coverage as the related contents have now been merged into the revision of C1-202230 (CR#2077).  In this revision, the changes are only related to sections 4.19 and 4.20 to clarify which NAS timers are used by the UE before it registers with the network. | | | | | | | | |

\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*

## 4.19 5GS mobility management in WB-N1 mode for IoT

A UE that supports CE mode B and operates in WB-N1 mode shall not apply the value of the applicable NAS timer indicated in table 10.2.1 for WB-N1/CE mode before receiving an indication from the network that the use of enhanced coverge is not restricted, or CE mode B is not restricted, as described in this subclause.

In WB-N1 mode, a UE operating in category CE can operate in either CE mode A or CE mode B (see 3GPP TS 36.306 [25D]). If a UE that supports CE mode B and operates in WB-N1 mode, the UE's usage setting is not set to "voice centric" (see 3GPP TS 23.501 [8]), and:

a) the use of enhanced coverge is not restricted by the network; or

b) CE mode B is not restricted by the network (see 3GPP TS 23.501 [8]);

the UE shall apply the value of the applicable NAS timer indicated in table 10.2.1 for WB-N1/CE mode.

The NAS timer value obtained is used as described in the appropriate procedure subclause of this specification. The NAS timer value shall be calculated at start of a NAS procedure, and shall not be re-calculated until the NAS procedure is completed, restarted or aborted.

The support of CE mode B by a UE is indicated to the AMF by lower layers and shall be stored by the AMF. When an AMF that supports WB-N1 mode performs NAS signalling with a UE, which supports CE mode B and operates in WB-N1 mode, the UE's usage setting is not set to "voice centric" (see 3GPP TS 23.501 [8]) and the AMF determines that:

a) the use of enhanced coverge is not restricted for the UE; or

b) CE mode B is not restricted for the UE (see 3GPP TS 23.501 [8]);

the AMF shall calculate the value of the applicable NAS timer indicated in table 10.2.2 for WB-N1/CE mode.

The NAS timer value obtained is used as described in the appropriate procedure subclause of this specification. The NAS timer value shall be calculated at start of a NAS procedure and shall not be re-calculated until the NAS procedure is completed, restarted or aborted.

\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*

## 4.20 5GS session management in WB-N1 mode for IoT

A UE that supports CE mode B and operates in WB-N1 mode shall not apply the value of the applicable NAS timer indicated in table 10.3.1 for WB-N1/CE mode before receiving an indication from the network that the use of enhanced coverge is not restricted, or CE mode B is not restricted, as described in this subclause.

In WB-N1 mode, a UE operating in category CE can operate in either CE mode A or CE mode B (see 3GPP TS 36.306 [25D]). If a UE that supports CE mode B and operates in WB-N1 mode and the UE's usage setting is not set to "voice centric" (see 3GPP TS 23.501 [8]), and:

a) the use of enhanced coverge is not restricted by the network; or

b) CE mode B is not restricted by the network (see 3GPP TS 23.501 [8]);

the UE shall apply the value of the applicable NAS timer indicated in table 10.3.1 for WB-N1/CE mode.

The NAS timer value obtained is used as described in the appropriate procedure subclause of this specification. The NAS timer value shall be calculated at start of a NAS procedure, and shall not be re-calculated until the NAS procedure is completed, restarted or aborted.

If the use of extended NAS timer is indicated by the AMF (see 3GPP TS 23.501 [8] and 3GPP TS 23.502 [9]), the SMF shall calculate the value of the applicable NAS timer indicated in table 10.3.2 for WB-N1/CE mode.

The NAS timer value obtained is used as described in the appropriate procedure subclause of this specification. The NAS timer value shall be calculated at start of a NAS procedure and shall not be re-calculated until the NAS procedure is completed, restarted or aborted.

\*\*\*\*\*\* END CHANGES \*\*\*\*\*\*