**3GPP TSG-RAN WG2 Meeting # 121bis-e *Draft R2-2304260***

**Electronic meeting, 17th – 26th April 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  | **36.300** | **CR** | **1383** | **rev** | **1** | **Current version:** | **17.4.0** |  |
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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:***  | Correction for R17 IoT NTN  |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | R2 |
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| ***Work item code:*** |  |  | ***Date:*** | 2023-04-25 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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 canbe 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)* |
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| ***Reason for change:*** | 1. Common TA defines where the RP is, it is equal to the RTT between RP and NTN payload, “corresponds” gives the wrong impression.
2. Explanation of Koffset and kmac is disconnected to where it is introduced.
3. kmac aligned with NR NTN.
4. The reference to the figure is not precise as the figure does not include Koffset nor kmac.
5. Figure 23.21.2.1-1 is not editable and Kmac should be added in the figure.
6. The statement of “it is up to NW to configure proper HARQ modes for CG and SPS” is missing.
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| ***Summary of change:*** | 1. Figure moved to the end to not separate introduction of Koffset and Kmac from the explanations of what they are used for.
2. Descriptions of Common TA and Kmac are corrected.
3. Add Kmac in the figure.
4. Some editial changes.
5. Add the NOTE that it is up to NW to configure the same HARQ modes for CG and SPS.

Impact analysisIf the UE implements the CR, and the network does not, there is no interoperability issues. If the network implements the CR, and the UE does not, there is no interoperability issues. |
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| ***Consequences if not approved:*** | Incorrect stage 2 descriptions.  |
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| ***Clauses affected:*** | 23.21.2.1 |
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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 ...  |
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| ***Other comments:*** |  |
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| ***This CR's revision history:*** |  |

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| START OF CHANGE |

#### 23.21.2.1 Scheduling timing

DL and UL are frame aligned at the uplink time synchronization reference point (RP) with an offset given by $N\_{TA,offset} $(see clause 8 of TS 36.211 [4]).

To accommodate the long propagation delays in NTN, several timing relationships are enhanced by a Common Timing Advance (Common TA) and two scheduling offsets: $K\_{offset}$ and $K\_{mac}$:

- $Common TA$ is a configured timing offset that is equal to the RTT between the RP and the NTN payload.

- $K\_{offset}$ is a configured scheduling offset that needs to be larger or equal to the sum of the service link RTT and the Common TA.

- $K\_{mac}$ is a configured scheduling offset that is approximately equal to the RTT between the RP and the eNB.

Figure 23.21.2.1-1 Timing relationship parametersThe scheduling offset $K\_{offset}$ is used to allow the UE sufficient processing time between a downlink reception and an uplink transmission, see TS 36.213 [6].

The offset $K\_{mac}$ is used to delay the application of a downlink configuration indicated by a MAC CE received on NPDSCH/PDSCH, see TS 36.213 [6], and to determine the UE-eNB RTT, see TS 36.321 [13].

The Service link RTT, Feeder link RTT, the RP, the Common TA, $K\_{mac}$ and TTA (see clause 23.21.2.2) are illustrated in Figure 23.21.2.1-1.



Figure 23.21.2.1-1 Illustration of timing relationship (for collocated eNB and NTN Gateway)

NOTE: It is up to network implementation to ensure proper configuration of HARQ feedback (i.e. either enabled or disabled) for HARQ processes used by an SPS configuration and of HARQ mode (i.e. either HARQ mode A or HARQ mode B) for HARQ processes used by a CG configuration.

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| END OF CHANGE |