**3GPP TSG-WG1 Meeting #106bR1-21xxxxx**

**e-meeting, October 11 – 19, 2021**

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| *CR-Form-v12.0* |
| **DRAFT CHANGE REQUEST** |
|  |
|  | **36.211** | **CR** | **xxx** | **rev** | **x** | **Current version:** | **16.7.0** |  |
|  |
| *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:***  | Introduction of NB-IoT/eMTC support in Non-Terrestrial Networks |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | LTE\_NBIOT\_eMTC\_NTN-Core |  | ***Date:*** | 2021-11-02 |
|  |  |  |  |  |
| ***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 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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | Introduction of support for eMTC/NB-IoT in NTN |
|  |  |
| ***Summary of change:*** | Adding NTN-specific timing-advance parameters |
|  |  |
| ***Consequences if not approved:*** | Incomplete NTN support for eMTC/NB-IoT |
|  |  |
| ***Clauses affected:*** | 8.1 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | 36.213 |
| ***affected:*** |  | **x** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

# 8 Timing

## 8.1 Uplink-downlink frame timing

Transmission of the uplink radio frame number  from the UE shall start seconds before the start of the corresponding downlink radio frame at the UE.



Figure 8.1-1: Uplink-downlink timing relation

Except for the cases mentioned in Table 8.1-1, Table 8.1-2 and Table 8.1-3, the range of  is: .

For frame structure type 1  and for frame structure type 2  unless stated otherwise in [4]. Note that not all slots in a radio frame may be transmitted. One example hereof is TDD, where only a subset of the slots in a radio frame is transmitted.

 is defined in different ranges depending on the UE configuration according to Table 8.1-1, Table 8.1-2 and Table 8.1-3. In case of subslot based transmission (Table 8.1-2 and Table 8.1-3), the UE is configured by higher layer signalling a processing timeline and an associated range of timing advance.

The quantity is derived from the higher-layer parameters *TACommon*, *TACommonDrift*, and *TACommonDriftVariation* if configured, otherwise .

The quantity is computed by the UE.

Table 8.1-1: Ranges of for a UE configured with SCG, short processing time or slot-based transmission in both DL and UL

|  |  |
| --- | --- |
| Range of  | Condition |
|  | if the UE is configured with a SCG |
|  | if the UE is configured with *shortProcessingTime* (see 3GPP TS 36.331 [9]) |
|  | if the UE is configured with *dl-STTI-Length* and *ul-STTI-Length* (see 3GPP TS 36.331 [9]) set to 'slot' for the serving cell |

Table 8.1-2: Ranges of for a UE configured with subslot-based transmission in both DL and UL (*dl-STTI-Length* and *ul-STTI-Length*, see 3GPP TS 36.331 [9]. set to 'subslot')

|  |  |
| --- | --- |
| Range of  | proc-Timeline |
|  | nplus4set1 |
|  | nplus6set1 |
|  | nplus6set2 |
|  | nplus8set2 |
| NOTE 1: See 3GPP TS 36.331 [9] |

Table 8.1-3: Ranges of for a UE configured with subslot-based transmission in DL and slot-based transmission in UL (*dl-STTI-Length* and *ul-STTI-Length*, see 3GPP TS 36.331 [9], set to 'subslot' and 'slot', respectively)

|  |  |
| --- | --- |
| Range of  | proc-Timeline |
|  | nplus4set1 |
|  | nplus6set1 |
|  | nplus6set2 |
|  | nplus8set2 |
| NOTE 1: See 3GPP TS 36.331 [9] |

In all other cases the range of  is: .