**3GPP TSG-RAN WG4 Meeting #116 draft R4-2512556**

**Bengaluru, India, August 25th – 29th, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.307** | **CR** |  | **rev** | **1** | **Current version:** | **19.1.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | CR to TS 36.307: release independence aspects for the LTE-based 5G broadcast operation over geosynchronous satellite | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_band\_5G\_bcast\_GSO-Core | | | | |  |  | | | 2025-08-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In this CR to TS 36.307 we provide inputs on release independence aspects for the LTE-based 5G broadcast operation over geosynchronous satellite, as per agreement in the WF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduction of band 246 for the LTE-based 5G broadcast operation over geosynchronous satellite. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Implementation of the LTE-based 5G broadcast operation over geosynchronous satellite would not be complete. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3A.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*------------------------------ Modified section ------------------------------*

## 3A.1 Additional E-UTRA operating bands

Requirements for additional E-UTRA operating bands of TS 36.101 Rel-P [2] are introduced via this clause.

Table 3A.1-1: E-UTRA operating bands and UE power class

|  |  |  |  |
| --- | --- | --- | --- |
| Feature | Duplex-mode | Release  independent from | Requirements to be fulfilled  (see TS 36.307 of the release in which the band was introduced) |
| Operating bands, band number <= 64, Power Class 3 | FDD, TDD | Rel-8 | Table B.2.1-1, Table B.4.1-1 |
| Operating bands, band number > 64, Power Class 3 | FDD, TDD | Rel-9 | Table B.2.1-1, Table B.4.1-1 |
| Operating bands, NS-value > 32 | FDD, TDD | Rel-10 | Table B.2.1-1, Table B.4.1-1 |
| Asymmetric operating bands, Power Class 3 | FDD | Rel-10 | Table B.2.1-1, Table B.4.1-1 |
| Operating bands, band number <= 64, Power Class 1 | FDD | Rel-10 | Table B.2.1-1, Table B.4.1-1 |
| Operating bands, Power Class 2 | FDD, TDD | Rel-10 | Table B.2.1-1, Table B.4.1-1 |
| Operating bands, standalone downlink only | SDO | Rel-17 | Table B.2.1-1 (Clauses 4, 7, 8, and 9 only),  Table B.4.1-1 (Clauses 5 and 7 only) |

For example, Band 19 was introduced in the Release 9 specifications. In order to implement a UE conforming to Release 8 but supporting Band 19, it is necessary for the UE to additionally conform to some parts of the Release 9 specifications (see corresponding Annexes of TS 36.307 Rel-9 which will point to the requirements in the Rel-9 of TS 36.101 [2] or TS 36.133 [3] to be fulfilled), such as the radio frequency and radio resource management requirements for the Band 19.

Requirements for additional E-UTRA operating bands of TS 36.102 Rel-P [6] are introduced via this clause.

Table 3A.1-2: E-UTRA operating bands

|  |  |  |  |
| --- | --- | --- | --- |
| Feature | Duplex-mode | Release  independent from | Requirements to be fulfilled  (see TS 36.307 of the release in which the band was introduced) |
| Operating bands for LTE-based 5G broadcast operation over geosynchronous satellite | SDO | Rel-17 | Table B.2.1-1 (Clauses 4, 7, 8, and 9 only),  Table F.1-3 |

*------------------------------ Next modified section -------------------------*

Annex F (normative):  
Common requirements for UE operation over NTN

# F.1 Common UE RF requirements

The requirements and test cases listed in Table F.1-1 are specified in TS 36.102 Rel-P [6].

Table F.1-1: RF requirements for NB-IoT operation over NTN

|  |  |
| --- | --- |
| Clause | Description |
| 5.2B | Operating bands |
| 5.3B | Channel bandwidth |
| 5.4B (Note 1,2) | Channel arrangement |
| 6.1 | General transmitter characteristics |
| 6.2B | Transmit power |
| 6.3B | Output power dynamics |
| 6.4B | Transmit signal quality |
| 6.5B | Output RF spectrum emissions |
| 6.6B | Transmit intermodulation |
| 7.1  (Note 1) | General receiver characteristics |
| 7.2 | Diversity characteristics |
| 7.3B  (Note 1) | Reference sensitivity power level |
| 7.4B | Maximum input level |
| 7.5B | Adjacent Channel Selectivity (ACS) |
| 7.6B | Blocking characteristics |
| 7.7B | Spurious response |
| 7.8B | Intermodulation characteristics |
| 7.9 | RX spurious emissions |
| NOTE 1: Rel-17 UEs are only subject to requirements with default Tx-Rx spacing  NOTE 2: Rel-18 UEs supporting only standalone operation do not need to meet requirements specified for in-band operation with NR over NTN in clauses 5.4B.2.3 and 5.4B.3. In-band operation with NR is not supported in Rel-17. | |

The requirements and test cases listed in Table F.1-2 are specified in TS 36.102 Rel-P [6].

Table F.1-2: RF requirements for eMTC operation over NTN

|  |  |
| --- | --- |
| Clause | Description |
| 5.2A | Operating bands |
| 5.3A | Channel bandwidth |
| 5.4A (Note) | Channel arrangement |
| 6.1 | General transmitter characteristics |
| 6.2A | Transmit power |
| 6.3A | Output power dynamics |
| 6.4A | Transmit signal quality |
| 6.5A | Output RF spectrum emissions |
| 6.6A | Transmit intermodulation |
| 7.1 (Note) | General receiver characteristics |
| 7.2 | Diversity characteristics |
| 7.3A  (Note) | Reference sensitivity power level |
| 7.4A | Maximum input level |
| 7.5A | Adjacent Channel Selectivity (ACS) |
| 7.6A | Blocking characteristics |
| 7.7A | Spurious response |
| 7.8A | Intermodulation characteristics |
| 7.9 | RX spurious emissions |
| NOTE: Rel-17 UEs are only subject to requirements with default Tx-Rx spacing | |

The requirements and test cases listed in Table F.1-3 are specified in TS 36.102 Rel-P [6].

Table F.1-3: RF requirements for LTE-based 5G Broadcast over Geosynchronous Satellite (BOG)

|  |  |
| --- | --- |
| Clause | Description |
| 5.2B | Operating bands |
| 5.3B | Channel bandwidth |
| 5.4B (Note) | Channel arrangement |
| 7.1 (Note) | General receiver characteristics |
| 7.2 | Diversity characteristics |
| 7.3B (Note) | Reference sensitivity power level |
| 7.4B | Maximum input level |
| 7.5B | Adjacent Channel Selectivity |
| 7.6B | Blocking characteristics |
| 7.7B | Spurious response |
| 7.8B | Intermodulation characteristics |
| 7.9 | RX spurious emissions |
| NOTE: Rel-17 UEs are only subject to requirements with default Tx-Rx spacing. | |

# F.2 Common RRM requirements

The requirements and test cases listed in Table F.2-1 are specified in 36.133 Rel-P [3]. Note the requirements apply to serving cell measurements and GEO intra-frequency measurements when no satellite assistance information is provided to the UE.

Table F.2-1: RRM requirements for NB-IoT operation over NTN

|  |  |
| --- | --- |
| Clause | Description |
| 4.6A1,2 | Cell Selection and Re-selection Requirements for UE category NB-IoT for Satellite Access |
| 6.5A2 | RRC Re-establishment for NB-IoT UEs for Satellite Access |
| 6.6A | Random Access for UE category NB1 for Satellite Access |
| 6.9A2 | RRC Connection Redirection to Non-anchor Carrier in NB-IoT for Satellite Access |
| 7.20A | UE transmit timing for NB-IoT for Satellite Access |
| 7.21A | UE timer accuracy for NB-IoT for Satellite Access |
| 7.22A | Timing Advance for NB-IoT for Satellite Access |
| 7.23A | Radio Link Monitoring for Category NB-IoT UE for Satellite Access |
| 8.14A1 | Measurements for UE category NB-IoT for Satellite Access |
| NOTE 1: If no satellite assistance information is provided for neighbor cells, the requirements in this clause for the serving cell measurement are also applicable.  NOTE 2: If no satellite assistance information is provided for neighbor cells, the intra-frequency requirements in this clause are also applicable for GEO operations. | |

The requirements and test cases listed in Table F.2-2 are specified in 36.133 Rel-P [3]. Note the requirements apply to serving cell measurements and GEO intra-frequency measurements when no satellite assistance information is provided to the UE.

Table F.2-2: RRM requirements for eMTC operation over NTN

|  |  |
| --- | --- |
| Clause | Description |
| 4.7A1,2 | Cell Selection and Re-selection Requirements for UE category M1 |
| 5.5A | E-UTRAN Handover for Cat-M1 UEs for Satellite Access |
| 6.2.3A | Random Access Requirements for Cat-M1 UEs for Satellite Access |
| 6.7A2 | RRC Re-establishment for Cat-M1 UEs for Satellite Access |
| 6.8A2 | RRC Connection Release with Redirection for UE Category M1 for Satellite Access |
| 7.19A | Radio Link Monitoring for UE Category M1 for Satellite Access |
| 7.24A | UE transmit timing for Category M1 for Satellite Access |
| 7.27A | UE timer accuracy for category M1 for Satellite Access |
| 7.28A | Timing Advance for Category M1 for Satellite Access |
| 8.13A1,2 | Measurements for UE Category M1 for Satellite Access |
| NOTE 1: If no satellite assistance information is provided for neighbor cells, the requirements in this clause for the serving cell measurement are also applicable.  NOTE 2: If no satellite assistance information is provided for neighbor cells, the intra-frequency requirements in this clause are also applicable for GEO operations. | |

# F.3 Common UE Demodulation requirements

The requirements and test cases listed in Table F.3-1 are specified in TS 36.102 Rel-P [6].

Table F.3-1: Demodulation requirements for NB-IoT operation over NTN

|  |  |
| --- | --- |
| Clause | Description |
| 8.3 | Demodulation performance requirements for UE category NB1 and NB2 |

The requirements and test cases listed in Table F.3-2 are specified in TS 36.102 Rel-P [6].

Table F.3-2: Demodulation requirements for eMTC operation over NTN

|  |  |
| --- | --- |
| Clause | Description |
| 8.2 | Demodulation performance requirements for UE category M1 |

*------------------------------ End of modified section -------------------------*