**3GPP T****SG-RAN WG2 Meeting #124 R2-2313636**

**Chicago, USA: November 13-17, 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **38.306** | **CR** | **DRAFT** | **rev** | **-** | **Current version:** | **17.6.0** |  |
|  |
| *For* [***HELP***](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 ATG UE capabilities |
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| ***Source to WG:*** | Qualcomm Inc. |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | NR\_ATG-Core |  | ***Date:*** | 2023-11-23 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* *Rel-19 (Release 19)* |
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| ***Reason for change:*** | To capture the UE capabilities introduced for “Air to ground” work item. |
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| ***Summary of change:*** | Following UE capabilities are captured for ATG.* Abbreviation of ATG.
* Master general capability.
* Master conditional PHY capability for uplink pre-compensation.
* Support of SR triggered by TA report for ATG UE
* Uplink TA reporting
* Antenna type requirement
* Location-based CHO with CondEvent D1, A3, A4 and A5
* Maximum rated output power
* K1 range extension
* Increasing number of HARQ processes to X and Y
* Enhanced inter-frequency cell reselection as optional feature without capability signaling
* ATG specific P-Max support as conditional mandatory without capability signaling

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| ***Consequences if not approved:*** | ATG UE cannot be supported.  |
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| ***Clauses affected:*** | 3.3, 4.2.2, 4.2.6, 4.2.7.2, 4.2.7.10, 5.6, 6 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS 38.331 CR xxxx |
| ***affected:*** |  | **x** |  Test specifications | TS 38.321 CR xxxx  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS 38.304 CR xxxx  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

START OF CHANGE

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] 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].

A-CSI Aperiodic-CSI

ATG Air To Ground

BAP Backhaul Adaptation Protocol

BC Band Combination

BPS Body Proximity Sensing

BT Bluetooth

CCS Cross Carrier Scheduling

CMR Channel Measurement Resource

CPAC Conditional PSCell Addition/Change

DAPS Dual Active Protocol Stack

DL Downlink

EHC Ethernet Header Compression

FS Feature Set

FSPC Feature Set Per Component-carrier

GSO Geosynchronous Orbit

HSDN High Speed Dedicated Network

IAB-MT Integrated Access Backhaul Mobile Termination

MAC Medium Access Control

MHI Mobility History Information

MBS Multicast/Broadcast Service

MCG Master Cell Group

MN Master Node

MRB MBS Radio Bearer

MR-DC Multi-Radio Dual Connectivity

mTRP Multiple TRP

MUSIM Multi-Universal Subscriber Identity Module

NCJT Non-Coherent Joint Transmission

NCSG Network Controlled Small Gap

NGSO Non-Geosynchronous Orbit

NTN Non-Terrestrial Network

P-CSI Periodic CSI

PDCP Packet Data Convergence Protocol

QoE Quality of Experience

RLC Radio Link Control

RTT Round Trip Time

SCG Secondary Cell Group

SDAP Service Data Adaptation Protocol

SN Secondary Node

sTRP Serving TRP

TRP Transmit/Receive Point

UDC Uplink Data Compression

UL Uplink

WLAN Wireless Local Area Network

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4.2 UE Capability Parameters

4.2.1 Introduction

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4.2.2 General parameters

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| **Definitions for parameters** | **Per** | **M** | **FDD-TDD DIFF** | **FR1-FR2****DIFF** |
| ***accessStratumRelease***Indicates the access stratum release the UE supports as specified in TS 38.331 [9]. | UE | Yes | No | No |
| ***airToGroundNetwork-r18***Indicates whether the UE supports air to ground network access. If the UE indicates this capability the UE shall support the following ATG essential features, e.g., acquiring ATG cell specific SIBxx and ATG cell specific P-Max. | UE | No | No | FR1 only |
| ***crossCarrierSchedulingConfigurationRelease-r17***Indicates whether the UE supports using *crossCarrierSchedulingConfigRelease* to release the configurations configured by *crossCarrierSchedulingConfig*. | UE | No | No | No |
| ***delayBudgetReporting***Indicates whether the UE supports delay budget reporting as specified in TS 38.331 [9]. | UE | No | No | No |
| ***dl-DedicatedMessageSegmentation-r16***Indicates whether the UE supports reception of segmented DL RRC messages. | UE | No | No | No |
| ***drx-Preference-r16***Indicates whether the UE supports providing its preference of a cell group on DRX parameters for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***gNB-SideRTT-BasedPDC-r17***Indicates whether the UE supports gNB-side RTT-based PDC, as specified in TS 38.300 [28]. A UE supporting this feature shall also support *rtt-BasedPDC-CSI-RS-ForTracking-r17* and/or *rtt-BasedPDC-PRS-r17*. | UE | No | No | No |
| ***inactiveState***Indicates whether the UE supports RRC\_INACTIVE as specified in TS 38.331 [9]. | UE | Yes | No | No |
| ***inactiveStateNTN-r17***Indicates whether the UE supports RRC\_INACTIVE in NTN as specified in TS 38.331 [9]. It is mandated if the UE indicates the support of *nonTerrestrialNetwork-r17*. | UE | CY | No | No |
| ***inactiveStatePO-Determination-r17***Indicates whether the UE supports to use the same i\_s to determine PO in RRC\_INACTIVE state as in RRC\_IDLE state. | UE | No | No | No |
| ***inDeviceCoexInd-r16***Indicates whether the UE supports IDC (In-Device Coexistence) assistance information as specified in TS 38.331 [9]. | UE | No | No | No |
| ***maxBW-Preference-r16, maxBW-Preference-r17***Indicates whether the UE supports providing its preference of a cell group on the maximum aggregated bandwidth for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | Yes(Incl FR2-2 DIFF) |
| ***maxCC-Preference-r16***Indicates whether the UE supports providing its preference of a cell group on the maximum number of secondary component carriers for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***maxMIMO-LayerPreference-r16, maxMIMO-LayerPreference-r17***Indicates whether the UE supports providing its preference of a cell group on the maximum number of MIMO layers for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | Yes(Incl FR2-2 DIFF) |
| ***maxMRB-Add-r17***Indicates the additional maximum number of MRBs that the UE supports for MBS multicast reception as specified in TS 38.331 [9].  | UE | No | No | No |
| ***mcgRLF-RecoveryViaSCG-r16***Indicates whether the UE supports recovery from MCG RLF via split SRB1 (if supported) and via SRB3 (if supported) as specified in TS 38.331[9]. | UE | No | No | No |
| ***minSchedulingOffsetPreference-r16***Indicates whether the UE supports providing its preference on the minimum scheduling offset for cross-slot scheduling of the cell group for power saving in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***mpsPriorityIndication-r16***Indicates whether the UE supports *mpsPriorityIndication* on RRC release with redirect as defined in TS 38.331 [9]. | UE | No | No | No |
| ***musim-GapPreference-r17***Indicates whether the UE supports providing MUSIM assistance information with MUSIM gap preference and related MUSIM gap configuration, as defined in TS 38.331 [9]. UE supporting this feature supports 3 periodic gaps and 1 aperiodic gap. | UE | No | No | No |
| ***musimLeaveConnected-r17***Indicates whether the UE supports providing MUSIM assistance information with indication of leaving RRC\_CONNECTED state as defined in TS 38.331 [9]. | UE | No | No | No |
| ***nonTerrestrialNetwork-r17***Indicates whether the UE supports NR NTN access. If the UE indicates this capability the UE shall support the following NTN essential features, e.g., timer extension in MAC/RLC/PDCP layers and RACH adaptation to handle long RTT, acquiring NTN specific SIB and more than one TAC per PLMN broadcast in one cell. | UE | No | No | No |
| ***ntn-ScenarioSupport-r17***Indicates whether the UE supports the NTN features in GSO scenario or NGSO scenario. If a UE does not include this field but includes *nonTerrestrialNetwork-r17*, the UE supports the NTN features for both GSO and NGSO scenarios, and also supports mobility between GSO and NGSO scenarios. | UE | No | No | No |
| ***onDemandSIB-Connected-r16***Indicates whether the UE supports the on-demand request procedure of SIB(s) or posSIB(s) while in RRC\_CONNECTED, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***overheatingInd***Indicates whether the UE supports overheating assistance information. | UE | No | No | No |
| ***pei-SubgroupingSupportBandList-r17***Indicates whether the UE supports receiving paging early indication in DCI format 2\_7 as specified in TS38.304 [21] for a list of frequency band. The UE shall support UEID based subgrouping for a frequency band if it indicates supporting of paging early indication reception for the frequency band. The set of OFDM symbols within a slot where UE can monitor the PEI PDCCH in Type 2A CSS is the same as the requirement for paging PDCCH in Type 2 CSS for IDLE and INACTIVE mode UEs. | UE | No | No | No |
| ***partialFR2-FallbackRX-Req***Indicates whether the UE meets only a partial set of the UE minimum receiver requirements for the eligible FR2 fallback band combinations as defined in Clause 4.2 of TS 38.101-2 [3] and Clause 4.2 of TS 38.101-3 [4]. If not indicated, the UE shall meet all the UE minimum receiver requirements for all the FR2 fallback combinations in TS 38.101-2 [3] and TS 38.101-3 [4]. The UE shall support configuration of any of the FR2 fallback band combinations regardless of the presence or the absence of this field. | UE | No | No | No |
| ***ra-SDT-r17***Indicates whether the UE supports transmission of data and/or signalling over allowed radio bearers in RRC\_INACTIVE state via Random Access procedure (i.e., RA-SDT) with 4-step RA type and if UE supports *twoStepRACH-r16,* with 2-step RA type, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***ra-SDT-NTN-r17***Indicates whether the UE supports transmission of data and/or signalling over allowed radio bearers in RRC\_INACTIVE state in NTN via Random Access procedure (i.e., RA-SDT) with 4-step RA type and if UE supports *twoStepRACH-r16* for NTN*,* with 2-step RA type, as specified in TS 38.331 [9]. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | No |
| ***redirectAtResumeByNAS-r16***Indicates whether the UE supports reception of *redirectedCarrierInfo* in an *RRCRelease* message in response to an *RRCResumeRequest* or *RRCResumeRequest1* which is triggered by the NAS layer, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***reducedCP-Latency***Indicates whether the UE supports reduced control plane latency as defined in TS 38.331 [9] | UE | No | No | No |
| ***referenceTimeProvision-r16***Indicates whether the UE supports provision of referenceTimeInfo in *DLInformationTransfer* message and in SIB9 and reference time information preference indication via assistance information, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***releasePreference-r16***Indicates whether the UE supports providing its preference assistance information to transition out of RRC\_CONNECTED for power saving, as specified in TS 38.331 [9]. | UE | No | No | No |
| ***resumeWithStoredMCG-SCells-r16***Indicates whether the UE supports not deleting the stored MCG SCell configuration when initiating the resume procedure. | UE | No | No | No |
| ***resumeWithStoredSCG-r16***Indicates whether the UE supports not deleting the stored SCG configuration when initiating resume. The UE which indicates support for *resumeWithStoredSCG-r16* shall also indicate support for *resumeWithSCG-Config-r16*. | UE | No | No | No |
| ***resumeWithSCG-Config-r16***Indicates whether the UE supports (re-)configuration of an SCG during the resume procedure. | UE | No | No | No |
| ***sliceInfoforCellReselection-r17***Indicates whether the UE supports slice-based cell reselection information in SIB and on RRC release for slice-based cell reselection in RRC \_IDLE and RRC INACTIVE as defined in TS 38.304 [21]. | UE | No | No | No |
| ***splitSRB-WithOneUL-Path***Indicates whether the UE supports UL transmission via MCG path and DL reception via either MCG path or SCG path, as specified for the split SRB in TS 37.340 [7]. The UE shall not set the FDD/TDD specific fields for this capability (i.e. it shall not include this field in *UE-MRDC-CapabilityAddXDD-Mode*). | UE | No | No | No |
| ***splitDRB-withUL-Both-MCG-SCG***Indicates whether the UE supports UL transmission via both MCG path and SCG path for the split DRB as specified in TS 37.340 [7]. The UE shall not set the FDD/TDD specific fields for this capability (i.e. it shall not include this field in *UE-MRDC-CapabilityAddXDD-Mode*). | UE | Yes | No | No |
| ***srb3***Indicates whether the UE supports direct SRB between the SN and the UE as specified in TS 37.340 [7]. The UE shall not set the FDD/TDD specific fields for this capability (i.e. it shall not include this field in *UE-MRDC-CapabilityAddXDD-Mode*). This field is not applied to NE-DC. | UE | Yes | No | No |
| ***srb-SDT-NTN-r17***Indicates whether the UE supports the usage of signalling radio bearer SRB2 over RA-SDT or CG-SDT in NTN, as specified in TS 38.331 [9].A UE supporting this feature shall also indicate support of *ra-SDT-NTN-r17*, *or cg-SDT-r17* in NTN bands. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | No |
| ***srb-SDT-r17***Indicates whether the UE supports the usage of signalling radio bearer SRB2 over RA-SDT or CG-SDT, as specified in TS 38.331 [9].A UE supporting this feature shall also indicate support of *ra-SDT-r17 or cg-SDT-r17*. | UE | No | No | No |
| ***ul-GapFR2-Pattern-r17***Indicates FR2 UL gap pattern(s) supported by the UE for NR SA, for NR-DC without FR2-FR2 band combination, for NE-DC, and for (NG)EN-DC, if UE supports a band in FR2. The leading / leftmost bit (bit 0) corresponds to the FR2 UL gap pattern 0, the next bit corresponds to the FR2 UL gap pattern 1, as specified in TS 38.133 [5] and so on. The UE shall set at least one of the bits to 1 for FR2 UL gap pattern 1 and 3, if the UE indicates support for *ul-GapFR2-r17* in an FR2 band. | UE | CY | No | FR2 only |
| ***ul-RRC-Segmentation-r16***Indicates whether the UE supports uplink RRC segmentation of *UECapabilityInformation* as specified in TS 38.331 [9]. | UE | No | No | No |

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4.2.6 MAC parameters

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| **Definitions for parameters** | **Per** | **M** | **FDD-TDD DIFF** | **FR1-FR2 DIFF** |
| ***autonomousTransmission-r16***Indicates whether the UE supports autonomous transmission of the MAC PDU generated for a deprioritized configured uplink grant as specified in TS 38.321 [8]. A UE supporting this feature shall also support *lch-priorityBasedPrioritization-r16*. | UE | No | No | No |
| ***directMCG-SCellActivation-r16, directMCG-SCellActivation-r17***Indicates whether the UE supports direct NR MCG SCell activation, as specified in TS 38.321 [8], upon SCell addition, upon reconfiguration with sync of the MCG, as specified in TS 38.331 [9]. | UE | No | No | Yes (Incl FR2-2 DIFF) |
| ***directMCG-SCellActivationResume-r16, directMCG-SCellActivationResume-r17***Indicates whether the UE supports direct NR MCG SCell activation, as specified in TS 38.321 [8], upon reception of an *RRCResume* message, as specified in TS 38.331 [9]. | UE | No | No | Yes (Incl FR2-2 DIFF) |
| ***directSCG-SCellActivation-r16, directSCG-SCellActivation-r17***Indicates whether the UE supports direct NR SCG SCell activation, as specified in TS 38.321 [8], upon SCell addition and upon reconfiguration with sync of the SCG, both performed via an *RRCReconfiguration* message received via SRB3 or contained in an *RRC(Connection)Reconfiguration* message received via SRB1, as specified in TS 38.331 [9] and TS 36.331 [17].A UE indicating support of *directSCG-SCellActivation-r16* shall indicate support of EN-DC or support of NGEN-DC as specified in TS 36.331 [17] or support of NR-DC as specified in TS 38.331 [9]. | UE | No | No | Yes (Incl FR2-2 DIFF) |
| ***directSCG-SCellActivationResume-r16, directSCG-SCellActivationResume-r17***Indicates whether the UE supports direct NR SCG SCell activation, as specified in TS 38.321 [8]:- upon reception of an *RRCReconfiguration* included in an *RRCConnectionResume* message, as specified in TS 38.331 [9] and TS 36.331 [17], if the UE indicates support of EN-DC or NGEN-DC, and support of *resumeWithSCG-Config-r16* as specified in TS 36.331 [17],- upon reception of an *RRCReconfiguration* included in an *RRCResume* message, as specified in TS 38.331 [9], if the UE indicates support of NR-DC and of *resumeWithSCG-Config-r16* as specified in TS 38.331 [9].A UE indicating support of *directSCG-SCellActivationResume-r16* shall indicate support of EN-DC or NGEN-DC and support of *resumeWithSCG-Config-r16* as specified in TS 36.331 [17] or indicate support of NR-DC and of *resumeWithSCG-Config-r16* as specified in TS 38.331 [9]. | UE | No | No | Yes (Incl FR2-2 DIFF) |
| ***drx-Adaptation-r16, drx-Adaptation-r17***Indicates whether the UE supports DRX adaptation comprised of the following functional components:- Configured *ps-Offset* for the detection of DCI format 2\_6 with CRC scrambling by *ps*-RNTI and reported *MinTimeGap* before the start of *drx-onDurationTimer* of Long DRX- Indication of UE whether or not to start *drx-onDurationTimer* for the next Long DRX cycle by detection of DCI format 2\_6- Configured UE wakeup or not when DCI format 2\_6 is not detected at all monitoring occasions outside Active Time- Configured periodic CSI report apart from L1-RSRP (*ps-TransmitOtherPeriodicCSI*) when impacted by DCI format 2\_6 that *drx-onDurationTimer* does not start for the next Long DRX cycle- Configured periodic L1-RSRP report (*ps-TransmitPeriodicL1-RSRP*) when impacted by DCI format 2\_6 that *drx-onDurationTimer* does not start for the next Long DRX cycleThe capability signalling includes the minimum time gap between the end of the slot of last DCI format 2\_6 monitoring occasion and the beginning of the slot where the UE would start the *drx-onDurationTimer* of Long DRX for each SCS. The value *sl1* indicates 1 slot. The value *sl2* indicates 2 slots, and so on. Support of this feature is reported for licensed and unlicensed bands, respectively. When this field is reported, either of *sharedSpectrumChAccess-r16* or *non-SharedSpectrumChAccess-r16* shall be reported, at least. | UE | No | No | Yes(Incl FR2-2 DIFF) |
| ***enhancedSkipUplinkTxConfigured-r16***Indicates whether the UE supports skipping UL transmission for a configured uplink grant only if no data is available for transmission and no UCI is multiplexed on the corresponding PUSCH of the uplink grant as specified in TS 38.321 [8]. | UE | No | Yes | No |
| ***enhancedSkipUplinkTxDynamic-r16***Indicates whether the UE supports skipping UL transmission for an uplink grant addressed to a C-RNTI only if no data is available for transmission and no UCI is multiplexed on the corresponding PUSCH of the uplink grant as specified in TS 38.321 [8]. | UE | No | Yes | No |
| ***enhancedUuDRX-forSidelink-r17***Indicates whether UE supports sidelink related Uu-DRX mechanisms for PDCCH monitoring. This field is only applicable if the UE supports *sl-TransmissionMode1-r16*. | UE | No | No | No |
| ***extendedDRX-CycleInactive-r17***Indicates whether UE supports the extended DRX in RRC\_INACTIVE with values of 256, 512 and 1024 radio frames as specified in TS 38.331 [9]. The UE may indicate support for extended DRX in RRC\_INACTIVE only if it supports extended DRX in RRC\_IDLE. | UE | No | No | No |
| ***harq-FeedbackDisabled-r17***Indicates whether the UE supports disabled HARQ feedback for downlink transmission. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | No |
| ***intraCG-Prioritization-r17***Indicates whether the UE supports the HARQ process ID selection based on LCH priority as specified in TS 38.321 [8]. A UE supporting this feature shall also support *jointPrioritizationCG-Retx-Timer-r17*. | UE | No | No | No |
| ***jointPrioritizationCG-Retx-Timer-r17***Indicates whether the UE supports simultaneous configuration of LCH based prioritization and *cg-RetransmissionTimer-r16* as specified in TS 38.321 [8]. A UE supporting this feature shall also support *lch-priorityBasedPrioritization-r16* and *configuredGrantWithReTx-r16*. | UE | No | No | No |
| ***lastTransmissionUL-r17***Indicates whether the UE supports starting the *drx-HARQ-RTT-TimerUL* after the end of the last transmission within a bundle as specified in TS 38.321 [8]. | UE | No | No | No |
| ***lch-PriorityBasedPrioritization-r16***Indicates whether the UE supports prioritization between overlapping grants and between scheduling request and overlapping grants based on LCH priority as specified in TS 38.321 [8].  | UE | No | No | No |
| ***lch-ToConfiguredGrantMapping-r16***Indicates whether the UE supports restricting data transmission from a given LCH to a configured (sub-) set of configured grant configurations (see *allowedCG-List-r16* in *LogicalChannelConfig* in TS 38.331 [9]) as specified in TS 38.321 [8].  | UE | No | No | No |
| ***lch-ToGrantPriorityRestriction-r16***Indicates whether the UE supports restricting data transmission from a given LCH to a configured (sub-) set of dynamic grant priority levels (see *allowedPHY-PriorityIndex-r16* in *LogicalChannelConfig* in TS 38.331 [9]) as specified in TS 38.321 [8].  | UE | No | No | No |
| ***lch-ToSCellRestriction***Indicates whether the UE supports restricting data transmission from a given LCH to a configured (sub-) set of serving cells (see *allowedServingCells* in *LogicalChannelConfig*). A UE supporting *pdcp-DuplicationMCG-OrSCG-DRB* or *pdcp-DuplicationSRB* (see *PDCP-Config*) shall also support *lch-ToSCellRestriction*. | UE | No | No | No |
| ***lcp-Restriction***Indicates whether UE supports the selection of logical channels for each UL grant based on RRC configured restriction using RRC parameters *allowedSCS-List*, *maxPUSCH-Duration*, and *configuredGrantType1Allowed* as specified in TS 38.321 [8]. | UE | No | No | No |
| ***logicalChannelSR-DelayTimer***Indicates whether the UE supports the *logicalChannelSR-DelayTimer* as specified in TS 38.321 [8]. | UE | No | Yes | No |
| ***longDRX-Cycle***Indicates whether UE supports long DRX cycle as specified in TS 38.321 [8]. | UE | Yes | Yes | No |
| ***mg-ActivationCommPRS-Meas-r17***Indicates whether UE supports preconfiguration of MGs in RRC signalling for PRS measurements and the use of DL MAC CE from the gNB, as specified in TS 38.321 [8], to activate/deactivate the preconfigured MG for PRS measurements. | UE | No | No | No |
| ***mg-ActivationRequestPRS-Meas-r17***Indicates whether UE supports preconfiguration of MGs in RRC signalling for PRS measurements and supports the use of UL MAC CE, as specified in TS38.321 [8], to request the activation/deactivation of the preconfigured MG for PRS measurements. The UE can include this field only if the UE supports *mg-ActivationCommPRS-Meas-r17*. | UE | No | No | No |
| ***multipleConfiguredGrants***Indicates whether UE supports more than one configured grant configurations (including both Type 1 and Type 2) in a cell group. For each cell, the UE supports at most one configured grant per BWP and the maximum number of configured grant configurations per cell group is 2. If absent, for each configured cell group, the UE only supports one configured grant configuration on one serving cell. | UE | No | Yes | No |
| ***multipleSR-Configurations***Indicates whether the UE supports 8 SR configurations per PUCCH cell group as specified in TS 38.321 [8]. | UE | No | Yes | No |
| ***recommendedBitRate***Indicates whether the UE supports the bit rate recommendation message from the gNB to the UE as specified in TS 38.321 [8]. | UE | No | No | No |
| ***recommendedBitRateMultiplier-r16***Indicates whether the UE supports the bit rate multiplier for recommended bit rate MAC CE as specified in TS 38.321 [8], clause 6.1.3.20. This field is only applicable if the UE supports recommendedBitRate. | UE | No | No | No |
| ***recommendedBitRateQuery***Indicates whether the UE supports the bit rate recommendation query message from the UE to the gNB as specified in TS 38.321 [8]. This field is only applicable if the UE supports *recommendedBitRate*. | UE | No | No | No |
| ***secondaryDRX-Group-r16***Indicates whether UE supports secondary DRX group as specified in TS 38.321 [8]. | UE | No | Yes | No |
| ***shortDRX-Cycle***Indicates whether UE supports short DRX cycle as specified in TS 38.321 [8]. | UE | Yes | Yes | No |
| ***simultaneousSR-PUSCH-DiffPUCCH-groups-r17***Indicates whether the UE supports simultaneous transmission of SR and PUSCH in different PUCCH groups as specified in TS 38.321 [8]. | UE | No | No | No |
| ***singlePHR-P-r16***Indicates whether UE supports the P bit in single PHR MAC CE as specified in TS 38.321 [8]. | UE | No | No | No |
| ***skipUplinkTxDynamic***Indicates whether the UE supports skipping of UL transmission for an uplink grant indicated on PDCCH if no data is available for transmission as specified in TS 38.321 [8]. | UE | No | Yes | No |
| ***spCell-BFR-CBRA-r16***Indicates whether the UE supports sending BFR MAC CE for SpCell BFR as specified in TS 38.321 [8]. | UE | No | No | No |
| ***srs-ResourceId-Ext-r16***Indicates whether the UE supports the extended 6-bit (Positioning) SRS resource ID in SP Positioning SRS Activation/Deactivation MAC CE, as specified in TS 38.321 [8]. | UE | No | No | No |
| ***sr-TriggeredBy-TA-Report-r17***Indicates whether the UE supports triggering of SR when a TA report is triggered and there are no available UL-SCH resources. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | No |
| ***sr-TriggeredByTA-ReportATG-r18***Indicates whether the UE supports triggering of SR when a TA report is triggered and there are no available UL-SCH resources. A UE supporting this feature shall also indicate the support of *uplinkTA-ReportingATG-r18*. | UE | No | No | FR1 only |
| ***survivalTime-r17***Indicates whether the UE supports services with survival time requirement using configured grant resource and PDCP duplication, as specified in TS 38.321 [8]. A UE supporting this feature shall support *pdcp-DuplicationMCG-orSCG-DRB* or *pdcp-DuplicationSplitDRB*. A UE supporting this feature shall also support *configuredUL-GrantType1-v1650* or *configuredUL-GrantType2-v1650*. | UE | No | No | No |
| ***tdd-MPE-P-MPR-Reporting-r16***Indicates whether the UE supports P-MPR reporting for Maximum Permissible Exposure, as specified in TS38.321 [8]. | UE | No | TDD only | FR2 only |
| ***ul-LBT-FailureDetectionRecovery-r16***Indicates whether the UE supports consistent uplink LBT detection and recovery, as specified in TS 38.321 [8], for cells operating with shared spectrum channel access.This field applies to all serving cells with which the UE is configured with shared spectrum channel access. | UE | No | No | No |
| ***uplink-Harq-ModeB-r17***Indicates whether the UE supports HARQ Mode B and the corresponding LCP restrictions for uplink transmission. A UE supporting this feature shall also indicate the support of *nonTerrestrialNetwork-r17*. | UE | No | No | No |
| ***uplinkTA-ReportingATG-r18***Indicates whether the UE supports reporting of information related to TA pre-compensation as specified in TS 38.321 [8]. The UE indicating support of this feature shall also indicate support of *uplinkPreCompensationATG-r18*.  | UE | No | N/A | FR1 only |

<<skipped>>

#### 4.2.7.2 *BandNR parameters*

| Definitions for parameters | Per | M | FDD-TDDDIFF | FR1-FR2DIFF |
| --- | --- | --- | --- | --- |
| ***ack-NACK-FeedbackForMulticastWithDCI-Enabler-r17***Indicates whether the UE supports DCI-based enabling/disabling ACK/NACK based HARQ-ACK feedback configured per G-RNTI by RRC signalling via DCI format 4\_2.A UE supporting this feature shall also indicate support of *ack-NACK-FeedbackForMulticast-r17* and *dynamicMulticastDCI-Format4-2-r17*. | Band | No | N/A | N/A |
| ***ack-NACK-FeedbackForSPS-MulticastWithDCI-Enabler-r17***Indicates whether the UE supports DCI-based enabling/disabling ACK/NACK based HARQ-ACK feedback configured per G-CS-RNTI for multicast by RRC signalling via DCI format 4\_2.A UE supporting this feature shall also indicate support of *ack-NACK-FeedbackForSPS-Multicast-r17* and *sps-MulticastDCI-Format4-2-r17*. | Band | No | N/A | N/A |
| ***activeConfiguredGrant-r16***Indicates whether the UE supports up to 12 configured/active configured grant configurations in a BWP of a serving cell. This field includes the following parameters:- *maxNumberConfigsPerBWP-r16* indicates the maximum number of configured/active configured grant configurations in a BWP of a serving cell.- *maxNumberConfigsAllCC-r16* indicates the maximum number of configured/active configured grant configurations across all serving cells in a MAC entity, and across MCG and SCG in case of NR-DC.The UE can include this feature only if the UE indicates support of either *configuredUL-GrantType1* *or configuredUL-GrantType1-v1650* and/or *configuredUL-GrantType2 or configuredUL-GrantType2-v1650*.NOTE:- For all the reported bands in FR1, a same X1 value is reported for *maxNumberConfigsAllCC-r16*. For all the reported bands in FR2, a same X2 value is reported for *maxNumberConfigsAllCC-r16*.- The total number of configured/active configured grant configurations across all serving cells in FR1 is no greater than X1.- The total number of configured/active configured grant configurations across all serving cells in FR2 is no greater than X2.- If the CA have some serving cell(s) in FR1 and some serving cell(s) in FR2, the total number of configured/active configured grant configurations across all serving cells is no greater than max(X1, X2). | Band | No | N/A | N/A |
| ***additionalActiveTCI-StatePDCCH***Indicates whether the UE supports one additional active TCI-State for control in addition to the supported number of active TCI-States for PDSCH. The UE can include this field only if *maxNumberActiveTCI-PerBWP* in *tci-StatePDSCH* is set to *n1*. Otherwise, the UE does not include this field. | Band | No | N/A | N/A |
| ***antennaArrayType-r18***Indicates whether the UE supports the RF and RRM requirements with antenna array as specified in TS 38.101-1 [2] section 6.1J, 7.1J and TS 38.133 [5]. If the field is absent, the RF and RRM requirements with omni-directional antenna applies as specified in TS 38.101-1 [2] section 6.1J, 7.1J and TS 38.133 [5]. The UE indicating support of this feature shall also indicate support of *airToGroundNetwork-r18*. This field is only applicable for bands as specified for ATG in clause 5.2J of TS 38.101-1 [2]. | Band | CY | N/A | FR1 only |
| ***aperiodicBeamReport***Indicates whether the UE supports aperiodic 'CRI/RSRP' or 'SSBRI/RSRP' reporting on PUSCH. The UE provides the capability for the band number for which the report is provided (where the measurement is performed). | Band | Yes | N/A | N/A |
| ***aperiodicCSI-RS-AdditionalBandwidth-r17***Indicates the UE supported TRS bandwidths for fast SCell activation, in addition to 52 RBs, for a 10MHz UE channel bandwidth. This field only applies for the BWPs configured with 52 RBs size and 15kHz SCS, in FDD bands and indicates the values:Value *addBW-Set1* indicates 28, 32, 36, 40, 44, 48 RBs.Value *addBW-Set2* indicates 32, 36, 40, 44, 48 RBs.The UE can include this feature only if the UE indicates support of *aperiodicCSI-RS-FastScellActivation-r17*. | Band | No | FDD only | FR1 only |
| ***aperiodicCSI-RS-FastScellActivation-r17***Indicates whether the UE supports aperiodic CSI-RS for tracking for fast SCell activation, i.e.,1) Aperiodic CSI-RS for tracking for fast SCell activation is triggered by enhanced SCell activation/deactivation MAC CE;2) Aperiodic CSI-RS for tracking for fast SCell activation is triggered within the BWP indicated by *firstActiveDownlinkBWP-Id* for the SCell.This field includes the following parameters:- *maxNumberAperiodicCSI-RS-PerCC-r17* indicates the maximum number of aperiodic CSI-RS resource set configurations for tracking for fast SCell activation that can be configured to UE per CC in a reported band. Value n8 corresponds to 8, n16 corresponds to 16, and so on.- *maxNumberAperiodicCSI-RS-AcrossCCs-r17* indicates the maximum number of aperiodic CSI-RS resource set configurations for tracking for fast SCell activation that can be configured to UE across CCs in a reported band. Value n8 corresponds to 8, n16 corresponds to 16, and so on.NOTE:- *maxNumberAperiodicCSI-RS-PerCC-r17* and *maxNumberAperiodicCSI-RS-AcrossCCs-r17* values refer to the number of RS configurations for fast SCell activation that can be indicated by the MAC CE.- The NZP-CSI-RS configured as RS for tracking for fast SCell activation are not considered when counting the maximum NZP-CSI-RS configurations of CSI-RS and CSI-IM reception for CSI feedback. | Band | No | N/A | N/A |
| ***aperiodicTRS***Indicates whether the UE supports DCI triggering aperiodic TRS associated with periodic TRS. | Band | No | N/A | Yes |
| ***asymmetricBandwidthCombinationSet***Defines the supported asymmetric channel bandwidth combination for the band as defined in the TS 38.101-1 [2]. Field encoded as a bit map, where bit N is set to "1" if UE support asymmetric channel bandwidth combination set N for this band as defined in the TS 38.101-1 [2]. The leading / leftmost bit (bit 0) corresponds to the asymmetric channel bandwidth combination set 1, the next bit corresponds to the asymmetric channel bandwidth combination set 2 and so on. UE shall support asymmetric channel bandwidth combination set 0. If the field is absent, the UE supports asymmetric channel bandwidth combination set 0. | Band | No | N/A | N/A |
| ***bandNR***Defines supported NR frequency band by NR frequency band number, as specified in TS 38.101-1 [2], TS 38.101-2 [3], and TS 38.101-5 [34]. | Band | Yes | N/A | N/A |
| ***beamCorrespondenceCSI-RS-based-r16***Indicates whether the UE support for beam correspondence based on CSI-RS has the ability to select its uplink beam based on measurement of CSI-RS. If a UE supports beam correspondence based on CSI-RS, then the network can expect the UE to also fulfil Rel-15 beam correspondence requirements.If UE supports neither *beamCorrespondenceSSB-based-r16*nor *beamCorrespondenceCSI-RS-based-r16*, gNB can expect the UE to fulfill beam correspondence based on Rel-15 beam correspondence requirements. | Band | No | TDD only | FR2 only |
| ***beamCorrespondenceSSB-based-r16***Indicates whether the UE support for beam correspondence based on SSB has the ability to select its uplink beam based on measurement of SSB. If a UE supports beam correspondence based on SSB, then the network can expect the UE to also fulfil Rel-15 beam correspondence requirements.If UE supports neither *beamCorrespondenceSSB-based-r16*nor *beamCorrespondenceCSI-RS-based-r16*, gNB can expect the UE to fulfil beam correspondence based on Rel-15 beam correspondence requirements. | Band | No | TDD only | FR2 only |
| ***beamCorrespondenceWithoutUL-BeamSweeping***Indicates how UE supports FR2 beam correspondence as specified in TS 38.101-2 [3], clause 6.6. The UE that fulfils the beam correspondence requirement without the uplink beam sweeping (as specified in TS 38.101-2 [3], clause 6.6) shall set the field to *supported*. The UE that fulfils the beam correspondence requirement with the uplink beam sweeping (as specified in TS 38.101-2 [3], clause 6.6) shall not report this field. | Band | Yes | N/A | FR2 only |
| ***beamManagementSSB-CSI-RS***Defines support of SS/PBCH and CSI-RS based RSRP measurements. The capability comprises signalling of- *maxNumberSSB-CSI-RS-ResourceOneTx* indicates maximum total number of configured one port NZP CSI-RS resources and SS/PBCH blocks that are supported by the UE to measure L1-RSRP as specified in TS 38.215 [13] within a slot and across all serving cells (see NOTE). On FR2, it is mandatory to report >=8; On FR1, it is mandatory with capability signalling to report >=8.- *maxNumberCSI-RS-Resource* indicates maximum total number of configured NZP-CSI-RS resources that are supported by the UE to measure L1-RSRP as specified in TS 38.215 [13] across all serving cells (see NOTE). It is mandated to report at least n8 for FR1.- *maxNumberCSI-RS-ResourceTwoTx* indicates maximum total number of two ports NZP CSI-RS resources that are supported by the UE to measure L1-RSRP as specified in TS 38.215 [13] within a slot and across all serving cells (see NOTE).- *supportedCSI-RS-Density* indicates density of one RE per PRB for one port NZP CSI-RS resource for RSRP reporting, if supported. On FR2, it is mandatory to report either "three" or "oneAndThree"; On FR1, it is mandatory with capability signalling to report either "three" or "oneAndThree".- *maxNumberAperiodicCSI-RS-Resource* indicates maximum number of configured aperiodic CSI-RS resources across all serving cells (see NOTE). For FR1 and FR2, the UE is mandated to report at least n4.NOTE: If the UE sets a value other than *n0* in an FR1 band, it shall set that same value in all FR1 bands. If the UE sets a value other than *n0* in an FR2 band, it shall set that same value in all FR2 bands. The UE supports a total number of resources equal to the maximum of the FR1 and FR2 value, but no more than the FR1 value across all FR1 serving cells and no more than the FR2 value across all FR2 serving cells. | Band | Yes | N/A | FD |
| ***beamReportTiming, beamReportTiming-v1710***Indicates the number of OFDM symbols between the end of the last symbol of SSB/CSI-RS and the start of the first symbol of the transmission channel containing beam report. The UE provides the capability for the band number for which the report is provided (where the measurement is performed). The UE includes this field for each supported sub-carrier spacing. | Band | Yes | N/A | N/A |
| ***beamSwitchTiming, beamSwitchTiming-v1710***Indicates the minimum number of OFDM symbols between the DCI triggering of aperiodic CSI-RS and aperiodic CSI-RS transmission. The number of OFDM symbols is measured from the end of the last symbol containing the indication to the start of the first symbol of CSI-RS. The UE includes this field for each supported sub-carrier spacing.NOTE: *beamSwitchTiming* of value (*sym224* or *sym336* for 60kHz and 120kHz SCS, *sym896* or *sym1344* for 480kHz SCS and *sym1792* or *sym2688* for 960kHz SCS) will be used to determine UE expectation/behaviour for aperiodic CSI-RS for tracking and latency requirements for L1-RSRP reporting as described in clause 5.1.6.1.1 of TS 38.214 [12], while UE behaviour/assumption regarding before or after beam switch timing is unspecified for measuring AP CSI-RS for CSI acquisition (without *trs-Info* and without repetition) and for beam management (with repetition 'off'). | Band | No | N/A | FR2 only |
| ***beamSwitchTiming-r16, beamSwitchTiming-r17***Indicates the minimum number of required OFDM symbols (sym224, sym336 for 60kHz and 120kHz SCS, *sym896* or *sym1344* for 480kHz SCS and *sym1792* or *sym2688* for 960kHz SCS) between the DCI triggering aperiodic CSI-RS and the corresponding aperiodic CSI-RS transmission in a CSI-RS resource set configured with repetition 'ON' if *enableBeamSwitchTiming-r16* is configured.For CSI-RS configured with repetition "*off*", the UE applies beam switch time of sym48 if *beamSwitchTiming-r16* is reported and *enableBeamSwitchTiming-r16* is configured. For CSI-RS configured without repetition and without *trs-info*, the UE applies beam switch time of sym48 if *beamSwitchTiming-r16* is reported and *enableBeamSwitchTiming-r16* is configured. | Band | No | N/A | FR2 only |
| ***bfd-Relaxation-r17***Indicates whether the UE supports BFD relaxation criteria and requirement as specified in TS 38.133 [5]. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.UE indicating support of this feature shall also indicate support of *maxNumberCSI-RS-BFD, maxNumberSSB-BFD* and *maxNumberCSI-RS-SSB-CBD.* | Band  | No | N/A | N/A |
| ***bwp-DiffNumerology***Indicates whether the UE supports BWP adaptation up to 4 BWPs with the different numerologies, via DCI and timer. Except for SUL, the UE only supports the same numerology for the active UL and DL BWP. For the UE which is a non-RedCap UE capable of this feature, the bandwidth of a UE-specific RRC configured DL BWP includes the bandwidth of the CORESET#0 (if CORESET#0 is present) and SSB for PCell and PSCell (if configured). For the UE which is a RedCap UE capable of this feature, the bandwidth of a UE-specific RRC configured DL BWP may not include the bandwidth of the CORESET#0 (if configured) and SSB for PCell. For SCell(s), the bandwidth of the UE-specific RRC configured DL BWP includes SSB, if there is SSB on SCell(s). | Band | No | N/A | N/A |
| ***bwp-SameNumerology***Indicates whether UE supports BWP adaptation (up to 2/4 BWPs) with the same numerology, via DCI and timer. Except for SUL, the UE only supports the same numerology for the active UL and DL BWP. For the UE which is a non-RedCap UE capable of this feature, the bandwidth of a UE-specific RRC configured DL BWP includes the bandwidth of the CORESET#0 (if CORESET#0 is present) and SSB for PCell and PSCell (if configured). For the UE which is a RedCap UE capable of this feature, the bandwidth of a UE-specific RRC configured DL BWP may not include the bandwidth of the CORESET#0 (if configured) and SSB for PCell. For SCell(s), the bandwidth of the UE-specific RRC configured DL BWP includes SSB, if there is SSB on SCell(s). | Band | No | N/A | N/A |
| ***bwp-WithoutRestriction***Indicates support of BWP operation without bandwidth restriction. The Bandwidth restriction in terms of DL BWP for PCell and PSCell means that the bandwidth of a UE-specific RRC configured DL BWP may not include the bandwidth of CORESET #0 (if configured) and SSB. For SCell(s), it means that the bandwidth of DL BWP may not include SSB. | Band | No | N/A | N/A |
| ***cancelOverlappingPUSCH-r16***Indicates whether UE supports the cancellation of the (repetition of the) PUSCHs transmission on all other intra-band serving cell(s). The cancellation of the (repetition of the) PUSCH transmission on a the set of intra-band serving cell(s) includes all symbols from the earliest symbol that is overlapping with the first cancelled symbol of the PUSCH on the serving cell for which the DCI format 2\_4 is applicable to. If the UE supports this feature, the UE needs to report *pa-PhaseDiscontinuityImpacts* and *ul-CancellationSelfCarrier-r16*. | Band | No | N/A | N/A |
| ***cg-SDT-r17***Indicates whether the UE supports transmission of data and/or signalling over allowed radio bearers in RRC\_INACTIVE state via configured grant type 1 (i.e. CG-SDT), as specified in TS 38.331 [9]. Except for NTN bands, UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.UE supports multiple CG-SDT configurations when a UE indicates the support of this feature and *activeConfiguredGrant-r16*; otherwise UE only supports one CG-SDT configuration. | Band | No | N/A | N/A |
| ***channelBWs-DL***Indicates for each subcarrier spacing the UE supported channel bandwidths.Absence of the *channelBWs-DL* (without suffix) for a band or absence of specific scs-XXkHz entry for a supported subcarrier spacing means that the UE supports the channel bandwidths among [5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100] and [50, 100, 200] that were defined in clause 5.3.5 of TS 38.101-1 version 15.7.0 [2] and TS 38.101-2 version 15.7.0 [3] for the given band or the specific SCS entry. For IAB-MT, to determine whether the IAB-MT supports a channel bandwidth of 100 MHz, the network checks c*hannelBW-DL-IAB-r16*.For FR1, the bits in *channelBWs-DL* (without suffix) starting from the leading / leftmost bit indicate 5, 10, 15, 20, 25, 30, 40, 50, 60 and 80MHz. For FR2, the bits in *channelBWs-DL* (without suffix) starting from the leading / leftmost bit indicate 50, 100 and 200MHz. The third / rightmost bit (for 200MHz) shall be set to 1. For IAB-MT the third / rightmost bit (for 200MHz) is ignored. To determine whether the IAB-MT supports a channel bandwidth of 200 MHz, the network checks *channelBW-DL-IAB-r16*.For FR1, the leading/leftmost bit in *channelBWs-DL-v1590* indicates 70MHz, the second leftmost bit indicates 45MHz, the third leftmost bit indicates 35MHz, the fourth leftmost bit indicates 100MHz and all the remaining bits in *channelBWs-DL-v1590* shall be set to 0. The fourth leftmost bit (for 100MHz) is not applicable for bands n41, n48, n77, n78, n79 and n90 as defined in TS 38.101-1 [2]. For each band, RedCap UEs shall indicate supporting the maximum of those channel bandwidths that are less than or equal to 20 MHz for FR1 and less than or equal to 100 Mhz for FR2, taking restrictions in TS 38.101-1 [2] and TS 38.101-2 [3] into consideration. For each band, NTN capable UEs shall indicate the supported channel bandwidths for FR1, taking restrictions in TS 38.101-5 [34] into consideration.This feature is applicable only for FR1 and FR2-1 band, otherwise it is absent.NOTE: To determine whether the UE supports a specific SCS for a given band, the network validates the *supportedSubCarrierSpacingDL* and the *scs-60kHz*.To determine whether the UE supports a channel bandwidth of 90 MHz, the network may ignore this capability and validate instead the *channelBW-90mhz*, the *supportedBandwidthCombinationSet* and the *supportedBandwidthCombinationSetIntraENDC*. To determine whether the UE supports a channel bandwidth of 400 MHz, the network may ignore this capability and validate the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, and the *supportedBandwidthDL*. For serving cell(s) with other channel bandwidths the network validates the *channelBWs-DL*, the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, the *asymmetricBandwidthCombinationSet* (for a band supporting asymmetric channel bandwidth as defined in clause 5.3.6 of TS 38.101-1 [2]), *supportedBandwidthDL* and *supportedMinBandwidthDL*.. | Band | Yes | N/A | N/A |
| ***channelBWs-DL-SCS-120kHz-FR2-2-r17***Indicates the UE supported channel bandwidths in DL for the SCS 120kHz.The bits in *channelBWs-DL-SCS-120kHz-FR2-2* starting from the leading / leftmost bit indicate 100 and 400MHz.100 and 400 MHz are mandatory channel bandwidths if the UE supports 120 kHz SCS (i.e. the bit for 100 and 400MHz shall always be set to 1).UE supporting this feature shall also indicate support of *dl-FR2-2-SCS-120kHz-r17*.NOTE: To determine whether the UE supports a SCS 120kHz for a given band, the network validates the *supportedSubCarrierSpacingDL*.To determine the supported carrier bandwidths, the network validates the *channelBWs-DL-SCS-120kHz-FR2-2-r17*, the *supportedBandwidthCombinationSet* and the *supportedBandwidthDL-v1710*. | Band | CY | N/A | N/A |
| ***channelBWs-DL-SCS-480kHz-FR2-2-r17***Indicates the UE supported channel bandwidths in DL for the SCS 480kHz.The bits in *channelBWs-DL-SCS-480kHz-FR2-2* starting from the leading / leftmost bit indicate 400, 800 and 1600MHz.400 MHz is a mandatory channel bandwidth if the UE supports 480 kHz SCS (i.e. the bit for 400MHz shall always be set to 1).UE supporting this feature shall also indicate support of *dl-FR2-2-SCS-480kHz-r17*.NOTE: To determine whether the UE supports a SCS 480kHz for a given band, the network validates the *supportedSubCarrierSpacingDL*.To determine the supported carrier bandwidths, the network validates the *channelBWs-DL-SCS-480kHz-FR2-2-r17*, the *supportedBandwidthCombinationSet* and *supportedBandwidthDL-v1710*. | Band | CY | N/A | N/A |
| ***channelBWs-DL-SCS-960kHz-FR2-2-r17***Indicates the UE supported channel bandwidths in DL for the SCS 960kHz.The bits in *channelBWs-DL-SCS-960kHz-FR2-2* starting from the leading / leftmost bit indicate 400, 800,1600 and 2000MHz.400 MHz is a mandatory channel bandwidth if the UE supports 960 kHz SCS (i.e. the bit for 400MHz shall always be set to 1).UE supporting this feature shall also indicate support of *dl-FR2-2-SCS-960kHz-r17*.NOTE: To determine whether the UE supports a SCS 960kHz for a given band, the network validates the *supportedSubCarrierSpacingDL*.To determine the supported carrier bandwidths, the network validates the *channelBWs-DL-SCS-960kHz-FR2-2-r17*, the *supportedBandwidthCombinationSet* and *supportedBandwidthDL-v1710*. | Band | CY | N/A | N/A |
| ***channelBWs-UL***Indicates for each subcarrier spacing the UE supported channel bandwidths.Absence of the *channelBWs-UL* (without suffix) for a band or absence of specific scs-XXkHz entry for a supported subcarrier spacing means that the UE supports the channel bandwidths among [5, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100] and [50, 100, 200] that were defined in clause 5.3.5 of TS 38.101-1 version 15.7.0 [2] and TS 38.101-2 version 15.7.0 [3] for the given band or the specific SCS entry. For IAB-MT, to determine whether the IAB-MT supports a channel bandwidth of 100 MHz, the network checks *channelBW-UL-IAB-r16*.For FR1, the bits in *channelBWs-UL* (without suffix) starting from the leading / leftmost bit indicate 5, 10, 15, 20, 25, 30, 40, 50, 60 and 80MHz. For FR2, the bits in *channelBWs-UL* (without suffix) starting from the leading / leftmost bit indicate 50, 100 and 200MHz. The third / rightmost bit (for 200MHz) shall be set to 1. For IAB-MT the third / rightmost bit (for 200MHz) is ignored. To determine whether the IAB-MT supports a channel bandwidth of 200 MHz, the network checks *channelBW-UL-IAB-r16*.For FR1, the leading/leftmost bit in *channelBWs-UL-v1590* indicates 70 MHz, the second leftmost bit indicates 45MHz, the third leftmost bit indicates 35MHz, the fourth leftmost bit indicates 100MHz and all the remaining bits in *channelBWs-UL-v1590* shall be set to 0. The fourth leftmost bit (for 100MHz) is not applicable for bands n41, n48, n77, n78, n79 and n90 as defined in TS 38.101-1 [2]. For each band, RedCap UEs shall indicate supporting the maximum of those channel bandwidths that are less than or equal to 20 MHz for FR1 and less than or equal to 100 Mhz for FR2, taking restrictions in TS 38.101-1 [2] and TS 38.101-2 [3] into consideration. For each band, NTN capable UEs shall indicate the supported channel bandwidths for FR1, taking restrictions in TS 38.101-5 [34] into consideration.This feature is applicable only for FR1 and FR2-1 band, otherwise it is absent.NOTE: To determine whether the UE supports a specific SCS for a given band, the network validates the *supportedSubCarrierSpacingUL* and the *scs-60kHz*.To determine whether the UE supports a channel bandwidth of 90 MHz the network may ignore this capability and validate instead the *channelBW-90mhz*, the *supportedBandwidthCombinationSet* and the *supportedBandwidthCombinationSetIntraENDC*. To determine whether the UE supports a channel bandwidth of 400 MHz, the network may ignore this capability and validate the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, and the *supportedBandwidthUL*. For serving cell(s) with other channel bandwidths the network validates the *channelBWs-UL*, the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, the *asymmetricBandwidthCombinationSet* (for a band supporting asymmetric channel bandwidth as defined in clause 5.3.6 of TS 38.101-1 [2]), *supportedBandwidthUL* and *supportedMinBandwidthUL*. | Band | Yes | N/A | N/A |
| ***channelBWs-UL-SCS-120kHz-FR2-2-r17***Indicates the UE supported channel bandwidths in UL for the SCS 120kHz.The bits in *channelBWs-UL-SCS-120kHz-FR2-2* starting from the leading / leftmost bit indicate 100 and 400MHz.100 and 400 MHz are mandatory channel bandwidths if the UE supports 120 kHz SCS (i.e. the bit for 100 and 400MHz shall always be set to 1).UE supporting this feature shall also indicate support of *ul-FR2-2-SCS-120kHz-r17*.NOTE: To determine whether the UE supports a SCS 120kHz for a given band, the network validates the *supportedSubCarrierSpacingUL*.To determine the supported carrier bandwidths, the network validates the *channelBWs-UL-SCS-120kHz-FR2-2-r17*, the *supportedBandwidthCombinationSet* and the *supportedBandwidthUL-v1710*. | Band | CY | N/A | N/A |
| ***channelBWs-UL-SCS-480kHz-FR2-2-r17***Indicates the UE supported channel bandwidths in UL for the SCS 480kHz.The bits in *channelBWs-UL-SCS-480kHz-FR2-2* starting from the leading / leftmost bit indicate 400, 800 and 1600MHz.400 MHz is a mandatory channel bandwidth if the UE supports 480 kHz SCS (i.e. the bit for 400MHz shall always be set to 1).UE supporting this feature shall also indicate support of *ul-FR2-2-SCS-480kHz-r17*.NOTE: To determine whether the UE supports a SCS 480kHz for a given band, the network validates the *supportedSubCarrierSpacingUL*.To determine the supported carrier bandwidths, the network validates the *channelBWs-UL-SCS-480kHz-FR2-2-r17*, the *supportedBandwidthCombinationSet* and *supportedBandwidthUL-v1710*. | Band | CY | N/A | N/A |
| ***channelBWs-UL-SCS-960kHz-FR2-2-r17***Indicates the UE supported channel bandwidths in UL for the SCS 960kHz.The bits in *channelBWs-UL-SCS-960kHz-FR2-2* starting from the leading / leftmost bit indicate 400, 800, 1600 and 2000MHz.400 MHz is a mandatory channel bandwidth if the UE supports 960 kHz SCS (i.e. the bit for 400MHz shall always be set to 1).UE supporting this feature shall also indicate support of *ul-FR2-2-SCS-960kHz-r17*.NOTE: To determine whether the UE supports a SCS 960kHz for a given band, the network validates the *supportedSubCarrierSpacingUL*.To determine the supported carrier bandwidths, the network validates the *channelBWs-UL-SCS-960kHz-FR2-2-r17*, the *supportedBandwidthCombinationSet* and *supportedBandwidthUL-v1710*. | Band | CY | N/A | N/A |
| ***channelBW-DL-IAB-r16***Indicates whether the IAB-MT supports channel bandwidth of 100 MHz for a given SCS in FR1 for DL or whether the IAB-MT supports channel bandwidth of 200 MHz for a given SCS in FR2 for DL. | Band | No | N/A | N/A |
| ***channelBW-UL-IAB-r16***Indicates whether the IAB-MT supports channel bandwidth of 100 MHz for a given SCS in FR1 for UL or whether the IAB-MT supports channel bandwidth of 200 MHz for a given SCS in FR2 for UL. | Band | No | N/A | N/A |
| ***codebookComboParametersAddition-r16***Indicates the UE supports the mixed codebook combinations and the corresponding parameters supported by the UE.For mixed codebook types, UE reports support active CSI-RS resources and ports for up to 4 mixed codebook combinations in any slot. The following is the possible mixed codebook combinations:- {Type 1 Single Panel, Type 2, Null}- {Type 1 Single Panel, Type 2 with port selection, Null}- {Type 1 Single Panel, eType 2 with R=1, Null}- {Type 1 Single Panel, eType 2 with R=2, Null}- {Type 1 Single Panel, eType 2 with R=1 and port selection, Null}- {Type 1 Single Panel, eType 2 with R=2 and port selection, Null}- {Type 1 Single Panel, Type 2, Type 2 with port selection}- {Type 1 Multi Panel, Type 2, Null}- {Type 1 Multi Panel, Type 2 with port selection, Null}- {Type 1 Multi Panel, eType 2 with R=1, Null}- {Type 1 Multi Panel, eType 2 with R=2, Null}- {Type 1 Multi Panel, eType 2 with R=1 with port selection, Null}- {Type 1 Multi Panel, eType 2 with R=2 with port selection, Null}- {Type 1 Multi Panel, Type 2, Type 2 with port selection}Parameters for each mixed codebook supported by the UE:- *supportedCSI-RS-ResourceListAdd-r16* indicates the list of supported CSI-RS resources in a band by referring to *codebookVariantsList*. The following parameters are included in *codebookVariantsList*:For *supportedCSI-RS-ResourceListAdd-r16* related to the additional codebooks:- The minimum of *maxNumberTxPortsPerResource* is '*p4*';- The minimum value of *totalNumberTxPortsPerBand* is 4.If a UE reports one or more mixed codebook combinations, then usage of active CSI-RS resources and ports for multiple codebooks in any slot is allowed only within those combinations. For coexisting of mixed codebooks in any slot, gNB needs to consider the mixed codebook combination capability as well as per codebook capability of each codebook type in the mixed codebook combination.UE indicates support of a codebook type in the mixed codebook combination shall indicates support of the individual codebook type in the per band capability. | Band | No | N/A | N/A |
| ***codebookParameters***Indicates the codebooks and the corresponding parameters supported by the UE.Parameters for type I single panel codebook (type1 singlePanel) supported by the UE, which are mandatory to report:- *supportedCSI-RS-ResourceList*;- a UE shall support a *maxNumberTxPortsPerResource* minimum value of 4 for codebook type I single panel in FR1 in the case of a single active CSI-resource across all bands in a band combination, regardless of what it reports in *supportedCSI-RS-ResourceList* with *maxNumberTxPortsPerResource*;- a UE shall support a *maxNumberTxPortsPerResource* minimum value of 8 when configured with wideband CSI report for codebook type I single panel in FR1 in the case of a single active CSI-resource across all bands in a band combination, regardless of what it reports in *supportedCSI-RS-ResourceList* with *maxNumberTxPortsPerResource*;- a UE shall support a *maxNumberTxPortsPerResource* minimum value of 2 for codebook type I single panel in FR2 in the case of a single active CSI-resource across all bands in a band combination, regardless of what it reports in *supportedCSI-RS-ResourceList* with *maxNumberTxPortsPerResource*.- *modes* indicates supported codebook modes (mode 1, both mode 1 and mode 2);- *maxNumberCSI-RS-PerResourceSet* indicates the maximum number of CSI-RS resource in a resource set.Parameters for type I multi-panel codebook (type1 multiPanel) supported by the UE, which are optional:- *supportedCSI-RS-ResourceList*;- *modes* indicates supported codebook modes (mode 1, mode 2, or both mode 1 and mode 2);- *maxNumberCSI-RS-PerResourceSet* indicates the maximum number of CSI-RS resource in a resource set;- *nrofPanels* indicates supported number of panels.Parameters for type II codebook (type2) supported by the UE, which are optional:- *supportedCSI-RS-ResourceList*;- *parameterLx* indicates the parameter "Lx" in codebook generation where x is an index of Tx ports indicated by *maxNumberTxPortsPerResource*;- *amplitudeScalingType* indicates the amplitude scaling type supported by the UE (wideband or both wideband and sub-band);- *amplitudeSubsetRestriction* indicates whether amplitude subset restriction is supported for the UE.Parameters for type II codebook with port selection (type2-PortSelection) supported by the UE, which are optional:- *supportedCSI-RS-ResourceList*;- *parameterLx* indicates the parameter "Lx" in codebook generation where x is an index of Tx ports indicated by *maxNumberTxPortsPerResource*;- *amplitudeScalingType* indicates the amplitude scaling type supported by the UE (wideband or both wideband and sub-band).*supportedCSI-RS-ResourceList* includes list of the following parameters:- *maxNumberTxPortsPerResource* indicates the maximum number of Tx ports in a resource;- *maxNumberResourcesPerBand* indicates the maximum number of resources across all CCs within a band simultaneously;- *totalNumberTxPortsPerBand* indicates the total number of Tx ports across all CCs within a band simultaneously.For each codebook type, the UE may report another list of supported CSI-RS resources via *supportedCSI-RS-ResourceListAlt* in *codebookParametersPerBand*. For type I single panel codebook (type1 singlePanel) supportedCSI-RS-ResourceListAlt,- a UE shall report at least one triplet in supportedCSI-RS-ResourceListAlt with maxNumberTxPortsPerResource greater than or equal to 8 for FR1;- a UE shall report at least one triplet in supportedCSI-RS-ResourceListAlt with maxNumberTxPortsPerResource greater than or equal to 2 for FR2. | Band | FD | N/A | N/A |
| ***codebookParametersAddition-r16***Indicates the UE support of additional codebooks and the corresponding parameters supported by the UE.Codebook etype 2 R=1 support parameter combination 1 to 6 and rank 1 to 2. Parameters for etype 2 R=1 (*etype2R1-r16*) supported by the UE, which are optional:- *supportedCSI-RS-ResourceListAdd-r16* indicates the list of supported CSI-RS resources in a band by referring to *codebookVariantsList*. The following parameters are included in *codebookVariantsList*:- *maxNumberTxPortsPerResource* indicates the maximum number of Tx ports in a resource of a band;- *maxNumberResourcesPerBand* indicates the maximum number of resources across all CCs in a band, simultaneously;- *totalNumberTxPortsPerBand* indicates the total number of Tx ports across all CCs in a band, simultaneously.- *paramComb7-8-r16* indicates the support of parameter combinations 7-8 for etype 2 R=1- *rank3-4-r16* indicates the support of rank 3,4.- *amplitudeSubsetRestriction-r16* indicates the support of amplitude subset restriction.Parameters for etype 2 R=2 (*etype2R2-r16*) supported by the UE, which are optional:- *supportedCSI-RS-ResourceListAdd-r16*;UE supporting *etype2R2-r16*supports also indicates support of *etype2R1-r16*.Codebook etype 2 R=1 with port selection supports 6 parameter combinations and rank 1,2. Parameters for etype 2 R=1 with port selection (*etype2R1-PortSelection-r16*) supported by the UE, which are optional:- *supportedCSI-RS-ResourceListAdd-r16*;- *rank3-4-r16* indicates the support of rank 3,4Parameters for etype 2 R=2 with port selection (*etype2R2-PortSelection-r16*) supported by the UE, which are optional:- *supportedCSI-RS-ResourceListAdd-r16*;UE supporting *etype2R2-PortSelection-r16* also indicates support of *etype2R1-PortSelection-r16*.For *supportedCSI-RS-ResourceListAdd-r16* related to the additional codebooks:- The minimum of *maxNumberTxPortsPerResource* is '*p4*';- The minimum value of *totalNumberTxPortsPerBand* is 4. | Band | No | N/A | N/A |
| ***codebookParametersfetype2-r17***Indicates the UE support of additional codebooks and the corresponding parameters supported by the UE of Further Enhanced Port-Selection Type II Codebook (FeType-II) as specified in TS 38.214 [12] clause 5.2.2.2.7.The UE indicating this feature shall include *fetype2basic-r17* to indicate basic features of FeType-II. This capability signalling comprises the following parameters:*-* indicates the list of supported CSI-RS resources in a band by referring to *codebookVariantsList*. The following parameters are included in *codebookVariantsList*:- *maxNumberTxPortsPerResource* indicates the maximum number of Tx ports in a resource of a band- *maxNumberResourcesPerBand* indicates the maximum number of resources across all CCs in a band, simultaneously- *totalNumberTxPortsPerBand* indicates the total number of Tx ports across all CCs in a band, simultaneouslyThe UE indicating *fetype2basic-r17* shall support parameter combinations with M=1 and support rank 1 and 2. UE indicating this feature shall also include *csi-ReportFramework*.The UE optionally includes *fetype2R1-r17* to indicate whether the UE supports M=2 and R=1 for FeType-II. This capability signalling comprises the following parameters:*-* indicates the list of supported CSI-RS resources in a band by referring to *codebookVariantsList*.The UE indicating support of *fetype2R1-r17* shall also indicate support of *fetype2basic-r17* and parameter combinations with M=2.The UE optionally includes *fetype2R2-r17* to indicate whether the UE supports R=2 for FeType-II. This capability signalling comprises the following parameters:*-* indicates the list of supported CSI-RS resources in a band by referring to *codebookVariantsList*.UE indicating support of *fetype2R2-r17* shall also indicate support of *fetype2R1-r17*.The UE optionally includes *fetype2Rank3Rank4-r17* to indicate whether the UE supports rank = 3 and rank = 4 for FeType-II. UE indicating support of *fetype2Rank3Rank4-r17* shall indicate support of *fetype2basic-r17*.For *codebookVariantsList* related to the FeType-II:- The minimum of *maxNumberTxPortsPerResource* is '*p4*';- The minimum value of *totalNumberTxPortsPerBand* is 4. | Band | No | N/A | N/A |
| ***codebookComboParameterMixedType-r17***Indicates the support of active CSI-RS resources and ports for mixed codebook types in any slot. The UE reports support active CSI-RS resources and ports for up to 4 mixed codebook combinations in any slot. The following are the possible mixed codebook combinations {Codebook1, Codebook2, Codebook3}:*- type1SP-feType2PS-null-r17 indicates* {Type 1 Single Panel, FeType II PS M=1, NULL}*- type1SP-feType2PS-M2R1-null-r17* indicates {Type 1 Single Panel, FeType II PS M=2 R=1, NULL}*- type1SP-feType2PS-M2R2-null-r17* indicates {Type 1 Single Panel, FeType II PS M=2 R=2, NULL}*- type1SP-Type2-feType2-PS-M1-r17* indicates {Type 1 Single Panel, Type II, FeType II PS M=1}*- type1SP-Type2-feType2-PS-M2R1-r17* indicates {Type 1 Single Panel, Type II, FeType II PS M=2 R=1}*-* *type1SP-eType2R1-feType2-PS-M1-r17* indicates {Type 1 Single Panel, eType II R=1, FeType II PS M=1}*-* *type1SP-eType2R1-feType2-PS-M2R1-r17* indicates {Type 1 Single Panel, eType II R=1, FeType II PS M=2 R=1}*-* *type1MP-feType2PS-null-r17* indicates {Type 1 Multi Panel*,* FeType II PS M=1, NULL}*-* *type1MP-feType2PS-M2R1-null-r17* indicates {Type 1 Multi Panel*,* FeType II PS M=2 R=1, NULL}*-* *type1MP-feType2PS-M2R2-null-r17* indicates {Type 1 Multi Panel*,* FeType II PS M=2 R=2, NULL}*-* *type1MP-Type2-feType2-PS-M1-r17* indicates {Type 1 Multi Panel*,* Type II, FeType II PS M=1}*-* *type1MP-Type2-feType2-PS-M2R1-r17* indicates {Type 1 Multi Panel*,* Type II, FeType II PS M=2 R=1}*-* *type1MP-eType2R1-feType2-PS-M1-r17* indicates {Type 1 Multi Panel, eType II R=1, FeType II PS M=1}*-* *type1MP-eType2R1-feType2-PS-M2R1-r17* indicates {Type 1 Multi Panel*,* eType II R=1, FeType II PS M=2 R=1}For each mixed codebook supported by the UE, *supportedCSI-RS-ResourceListAdd-r16* indicates the list of supported CSI-RS resources in a band by referring to *codebookVariantsList*. The following parameters are included for the supported CSI-RS resource:*-* *maxNumberTxPortsPerResource* indicates the maximum number of Tx ports in a resource of a band. The minimum of *maxNumberTxPortsPerResource* is 'p4';- *maxNumberResourcesPerBand* indicates the maximum number of resources across all CCs in a band;- *totalNumberTxPortsPerBand* indicates the total number of Tx ports across all CCs in a band. The minimum value of *totalNumberTxPortsPerBand* is 4.The UE supporting this feature shall indicate the support of *fetype2basic-r17, etype2R1-r16, CodebookComboParametersAddition-r16, supportedCSI-RS-ResourceList, fetype2R1-r17, fetype2R2-r17.* | Band | No | N/A | N/A |
| ***codebookComboParameterMultiTRP-r17***Indicates the support of active CSI-RS resources and ports in the presence of multi-TRP CSI.Indicates the support of active CSI-RS resources and ports for mixed codebook types in any slot. The UE reports supported active CSI-RS resources and ports for up to 4 mixed codebook combinations. The following are the possible mixed codebook combinations {Codebook1, Codebook2, Codebook3}:*-* *nCJT-null-null* indicates {NCJT, NULL, NULL}*-* *nCJT1SP-null-null* indicates {NCJT+Type 1 SP for sTRP, NULL, NULL}*- nCJT-Type2-null-r16* indicates{NCJT*, Type 2, Null*}*- nCJT-Type2PS-null-r16* indicates{NCJT*, Type 2 with port selection, Null*}*- nCJT-eType2R1-null-r16* indicates{NCJT*, eType 2 with R=1, Null*}*- nCJT-eType2R2-null-r16* indicates {NCJT*, eType 2 with R=2, Null*}*- nCJT-eType2R1PS-null-r16* indicates {NCJT*, eType 2 with R=1 and port selection, Null*}*- nCJT-eType2R2PS-null-r16* indicates {NCJT*, eType 2 with R=2 and port selection, Null*}*- nCJT-Type2-Type2PS-r16* indicates {NCJT*, Type 2, Type 2 with port selection*}*- nCJT1SP-Type2-null-r16* indicates{NCJT+Type 1 SP for sTRP, Type 2, Null}*- nCJT1SP-Type2PS-null-r16* indicates{NCJT+Type 1 SP for sTRP, Type 2 with port selection, Null}*- nCJT1SP-eType2R1-null-r16* indicates{NCJT+Type 1 SP for sTRP, eType 2 with R=1, Null}*- nCJT1SP-eType2R2-null-r16* indicates{NCJT+Type 1 SP for sTRP, eType 2 with R=2, Null}*- nCJT1SP-eType2R1PS-null-r16* indicates{NCJT+Type 1 SP for sTRP, eType 2 with R=1 and port selection, Null}*- nCJT1SP-eType2R2PS-null-r16* indicates{NCJT+Type 1 SP for sTRP, eType 2 with R=2 and port selection, Null}*- nCJT1SP-Type2-Type2PS-r16* indicates{NCJT+Type 1 SP for sTRP, Type 2, Type 2 with port selection}*- nCJT-feType2PS-null-r17 indicates* {NCJT, FeType II PS M=1, NULL}*- nCJT-feType2PS-M2R1-null-r17* indicates {NCJT, FeType II PS M=2 R=1, NULL}*- nCJT-feType2PS-M2R2-null-r17* indicates {NCJT, FeType II PS M=2 R=2, NULL}*- nCJT-Type2-feType2-PS-M1-r17* indicates {NCJT, Type II, FeType II PS M=1}*- nCJT-Type2-feType2-PS-M2R1-r17* indicates {NCJT, Type II, FeType II PS M=2 R=1}*-* *nCJT-eType2R1-feType2-PS-M1-r17* indicates {NCJT, eType II R=1, FeType II PS M=1}*-* *nCJT-eType2R1-feType2-PS-M2R1-r17* indicates {NCJT, eType II R=1, FeType II PS M=2 R=1}*- nCJT1SP-feType2PS-null-r17 indicates* {NCJT+Type 1 SP for sTRP, FeType II PS M=1, NULL}*- nCJT1SP-feType2PS-M2R1-null-r17* indicates {NCJT+Type 1 SP for sTRP, FeType II PS M=2 R=1, NULL}*- nCJT1SP-feType2PS-M2R2-null-r17* indicates {NCJT+Type 1 SP for sTRP, FeType II PS M=2 R=2, NULL}*- nCJT1SP-Type2-feType2-PS-M1-r17* indicates {NCJT+Type 1 SP for sTRP, Type II, FeType II PS M=1}*- nCJT1SP-Type2-feType2-PS-M2R1-r17* indicates {NCJT+Type 1 SP for sTRP, Type II, FeType II PS M=2 R=1}*-* *nCJT1SP-eType2R1-feType2-PS-M1-r17* indicates {NCJT+Type 1 SP for sTRP, eType II R=1, FeType II PS M=1}*-* *nCJT1SP-eType2R1-feType2-PS-M2R1-r17* indicates {NCJT+Type 1 SP for sTRP, eType II R=1, FeType II PS M=2 R=1}For each mixed codebook supported by the UE, *supportedCSI-RS-ResourceListAdd-r16* indicates the list of supported CSI-RS resources in a band by referring to *codebookVariantsList*. The following parameters are included in *codebookVariantsList*:*-* *maxNumberTxPortsPerResource* indicates the maximum number of Tx ports in a resource of a band combination.- *maxNumberResourcesPerBand* indicates the maximum number of resources across all CCs in a band combination.- *totalNumberTxPortsPerBand* indicates the total number of Tx ports across all CCs in a band combination.NOTE 1: A CMR pair configured for NCJT will be counted as two activated resources, a CMR configured for sTRP will be counted as one activated resource for a triplet.NOTE 2: This capability is relevant only when UE is configured with NCJT CSI in at least one CSI report setting in at least one CC in the band and/or band combination.The UE indicating support of this feature shall also indicate the support of *mTRP-CSI-EnhancementPerBand-r17*. | Band | No | N/A | N/A |
| ***condHandover-r16***Indicates whether the UE supports conditional handover including execution condition, candidate cell configuration and maximum 8 candidate cells. Except for NTN bands, UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands. | Band | No | N/A | N/A |
| ***condHandoverFailure-r16***Indicates whether the UE supports conditional handover during re-establishment procedure when the selected cell is configured as candidate cell for condition handover. Except for NTN bands, UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands. | Band | No | N/A | N/A |
| ***condHandoverTwoTriggerEvents-r16***Indicates whether the UE supports 2 trigger events for same execution condition. This feature is mandatory supported if the UE supports *condHandover-r16*. Except for NTN bands, UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands. | Band | CY | N/A | N/A |
| ***condPSCellChange-r16***Indicates whether the UE supports conditional PSCell change including execution condition, candidate cell configuration and maximum 8 candidate cells. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. | Band | No | N/A | N/A |
| ***condPSCellChangeTwoTriggerEvents-r16***Indicates whether the UE supports 2 trigger events for same execution condition. This feature is mandatory supported if the UE supports *condPSCellChange-r16*. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. | Band | CY | N/A | N/A |
| ***configuredUL-GrantType1-v1650***Indicates whether the UE supports Type 1 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value of one. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *configuredUL-GrantType1-r16* applies. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.The UE only includes *configuredUL-GrantType1-v1650* if *configuredUL-GrantType1* is absent. | Band | No | N/A | N/A |
| ***configuredUL-GrantType2-v1650***Indicates whether the UE supports Type 2 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value of one. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *configuredUL-GrantType2-r16* applies. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.The UE only includes *configuredUL-GrantType2*-v1650 if *configuredUL-GrantType2* is absent. | Band | No | N/A | N/A |
| ***cqi-4-BitsSubbandNTN-SharedSpectrumChAccess-r17***Indicates whether the UE supports CQI reporting with 4 bits per subband for NTN and shared spectrum channel access. | Band | No | N/A | N/A |
| ***crossCarrierScheduling-SameSCS***Indicates whether the UE supports cross carrier scheduling for the same numerology with carrier indicator field (CIF) in carrier aggregation where numerologies for the scheduling cell and scheduled cell are same. | Band | No | N/A | N/A |
| ***csi-ReportFramework***Indicates whether the UE supports CSI report framework. This capability signalling comprises the following parameters:- *maxNumberPeriodicCSI-PerBWP-ForCSI-Report* indicates the maximum number of periodic CSI report setting per BWP for CSI report;- *maxNumberPeriodicCSI-PerBWP-ForBeamReport* indicates the maximum number of periodic CSI report setting per BWP for beam report.- *maxNumberAperiodicCSI-PerBWP-ForCSI-Report* indicates the maximum number of aperiodic CSI report setting per BWP for CSI report;- *maxNumberAperiodicCSI-PerBWP-ForBeamReport* indicates the maximum number of aperiodic CSI report setting per BWP for beam report;- *maxNumberAperiodicCSI-triggeringStatePerCC* indicates the maximum number of aperiodic CSI triggering states in *CSI-AperiodicTriggerStateList* per CC;- *maxNumberSemiPersistentCSI-PerBWP-ForCSI-Report* indicates the maximum number of semi-persistent CSI report setting per BWP for CSI report;- *maxNumberSemiPersistentCSI-PerBWP-ForBeamReport* indicates the maximum number of semi-persistent CSI report setting per BWP for beam report;- *simultaneousCSI-ReportsPerCC* indicates the number of CSI report(s) for which the UE can measure and process reference signals simultaneously in a CC of the band for which this capability is provided. The CSI report comprises periodic, semi-persistent and aperiodic CSI and any latency classes and codebook types. The CSI report in simultaneousCSI-ReportsPerCC includes the beam report and CSI report.The UE is mandated to report *csi-ReportFramework*. | Band | Yes | N/A | N/A |
| ***csi-ReportFrameworkExt-r16***Indicates whether the UE supports the extension of the maximum number of configured aperiodic CSI report settings for all codebook types. The capability signalling comprises the following:*maxNumberAperiodicCSI-PerBWP-ForCSI-ReportExt-r16* indicates the extended maximum number of aperiodic CSI report setting per BWP for CSI report. If present, the value of *maxNumberAperiodicCSI-PerBWP-ForCSI-Report-r16* shall replace the corresponding value in *csi-ReportFramework*. | Band | No | N/A | N/A |
| ***csi-RS-ForTracking***Indicates support of CSI-RS for tracking (i.e. TRS). This capability signalling comprises the following parameters:- *maxBurstLength* indicates the TRS burst length. Value 1 indicates 1 slot and value 2 indicates both of 1 slot and 2 slots. In this release UE is mandated to report value 2;- *maxSimultaneousResourceSetsPerCC* indicates the maximum number of TRS resource sets per CC which the UE can track simultaneously;- *maxConfiguredResourceSetsPerCC* indicates the maximum number of TRS resource sets configured to UE per CC. It is mandated to report at least 8 for FR1 and 16 for FR2;- *maxConfiguredResourceSetsAllCC* indicates the maximum number of TRS resource sets configured to UE across CCs. If the UE includes the field in an FR1 band, it shall set the same value in all FR1 bands. If the UE includes the field in an FR2 band, it shall set the same value in all FR2 bands. The UE supports a total number of resources equal to the maximum of the FR1 and FR2 value, but no more than the FR1 value across all FR1 serving cells and no more than the FR2 value across all FR2 serving cells. The UE is mandated to report at least 16 for FR1 and 32 for FR2.The UE is mandated to report *csi-RS-ForTracking*. | Band | Yes | N/A | N/A |
| ***csi-RS-IM-ReceptionForFeedback***Indicates support of CSI-RS and CSI-IM reception for CSI feedback. This capability signalling comprises the following parameters:- *maxConfigNumberNZP-CSI-RS-PerCC* indicates the maximum number of configured NZP-CSI-RS resources per CC;- *maxConfigNumberPortsAcrossNZP-CSI-RS-PerCC* indicates the maximum number of ports across all configured NZP-CSI-RS resources per CC;- *maxConfigNumberCSI-IM-PerCC* indicates the maximum number of configured CSI-IM resources per CC;- *maxNumberSimultaneousNZP-CSI-RS-PerCC* indicates the maximum number of simultaneous CSI-RS-resources per CC;- *totalNumberPortsSimultaneousNZP-CSI-RS-PerCC* indicates the total number of CSI-RS ports in simultaneous CSI-RS resources per CC.The UE is mandated to report csi-RS-IM-ReceptionForFeedback. | Band | Yes | N/A | N/A |
| ***csi-RS-ProcFrameworkForSRS***Indicates support of CSI-RS processing framework for SRS. This capability signalling comprises the following parameters:- *maxNumberPeriodicSRS-AssocCSI-RS-PerBWP* indicates the maximum number of periodic SRS resources associated with CSI-RS per BWP;- *maxNumberAperiodicSRS-AssocCSI-RS-PerBWP* indicates the maximum number of aperiodic SRS resources associated with CSI-RS per BWP;- *maxNumberSP-SRS-AssocCSI-RS-PerBWP* indicates the maximum number of semi-persistent SRS resources associated with CSI-RS per BWP;- *simultaneousSRS-AssocCSI-RS-PerCC* indicates the number of SRS resources that the UE can process simultaneously in a CC, including periodic, aperiodic and semi-persistent SRS. | Band | No | N/A | N/A |
| ***defaultQCL-PerCORESETPoolIndex-r16***Indicates whether the UE supports default QCL assumption per CORESET pool index using multi-DCI based multi-TRP. The UE that indicates support of this feature shall support *multiDCI-MultiTRP-r16* and *simultaneousReceptionDiffTypeD-r16.* | Band | No | N/A | FR2 only |
| ***defaultQCL-TwoTCI-r16***Indicates whether the UE supports default QCL assumption with two TCI states using single-DCI based multi-TRP. The UE can include this field only if *simultaneousReceptionDiffTypeD-r16*is present. Otherwise, the UE does not include this field. | Band | No | N/A | FR2 only |
| ***dmrs-BundlingNonBackToBackTX-r17***Indicates whether the UE supports DM-RS bundling for non-back-to-back transmission for consecutive slots for PUSCH and PUCCH only for corresponding supported back-to-back transmission as reported in *dmrs-BundlingPUSCH-RepTypeA-r17*, *dmrs-BundlingPUSCH-RepTypeB-r17*, *dmrs-BundlingPUSCH-multiSlot-r17* or *dmrs-BundlingPUCCH-Rep-r17*. The UE is considered to support the feature in a band of a band combination if the UE indicates support of the feature for the corresponding band and for the band combination.UE indicating support of this feature shall also indicate support of at least one of dmrs-BundlingPUSCH-RepTypeA-r17, dmrs-BundlingPUSCH-RepTypeB-r17, dmrs-BundlingPUSCH-multiSlot-r17 or dmrs-BundlingPUCCH-Rep-r17. | Band | No | N/A | N/A |
| ***dmrs-BundlingPUCCH-Rep-r17***Indicates whether the UE supports DM-RS bundling for PUCCH repetitions for PUCCH formats 1/3/4 over consecutive symbols. The UE is considered to support the feature in a band of a band combination if the UE indicates support of the feature for the corresponding band and for the band combination.UE indicating support of this feature shall also indicate support of *maxDurationDMRS-Bundling-r17* and *pucch-Repetition-F1-3-4*. | Band | No | N/A | N/A |
| ***dmrs-BundlingPUSCH-multiSlot-r17***Indicates whether the UE supports DM-RS bundling for TB processing over multi-slot PUSCH over consecutive symbols. The UE is considered to support the feature in a band of a band combination if the UE indicates support of the feature for the corresponding band and for the band combination.UE indicating support of this feature shall also indicate support of *maxDurationDMRS-Bundling-r17* and *tb-ProcessingMultiSlotPUSCH-r17*. | Band | No | N/A | N/A |
| ***dmrs-BundlingPUSCH-RepTypeA-r17***Indicates whether the UE supports DM-RS bundling for PUSCH repetition type A over consecutive symbols. The UE is considered to support the feature in a band of a band combination if the UE indicates support of the feature for the corresponding band and for the band combination.UE indicating support of this feature shall also indicate support of *maxDurationDMRS-Bundling-r17* and at least one of *type1-PUSCH-RepetitionMultiSlots*, *type2-PUSCH-RepetitionMultiSlots* or *pusch-RepetitionMultiSlots*. | Band | No | N/A | N/A |
| ***dmrs-BundlingPUSCH-RepTypeB-r17***Indicates whether the UE supports DM-RS bundling for PUSCH repetition type B over consecutive symbols. The UE is considered to support the feature in a band of a band combination if the UE indicates support of the feature for the corresponding band and for the band combination.UE indicating support of this feature shall also indicate support of *maxDurationDMRS-Bundling-r17* and *pusch-RepetitionTypeB-r16*. | Band | No | N/A | N/A |
| ***dmrs-BundlingRestart-r17***Indicates whether the UE supports restarting DM-RS bundling after the events triggered by DCI or MAC CE that violate power consistency and phase continuity. The UE is considered to support the feature in a band of a band combination if the UE indicates support of the feature for the corresponding band and for the band combination.UE indicating support of this feature shall also indicate support of *maxDurationDMRS-Bundling-r17.*NOTE: Events which are triggered by DCI or MAC CE, but do not require UE capability to resume maintaining power consistency and/or phase continuity as specified in clause 6.1.7 of TS 38.214 [12] are excluded from this feature. | Band | No | N/A | N/A |
| ***dynamicMulticastDCI-Format4-2-r17***Indicates whether the UE supports DCI format 4\_2 with CRC scrambled with G-RNTI for multicast.A UE supporting this feature shall also indicate support of *dynamicMulticastPCell-r17*. | Band | No | N/A | N/A |
| ***dynamicSlotRepetitionMulticastNTN-SharedSpectrumChAccess-r17***Indicates the maximum number of supported dynamic slot-level repetitions for group-common PDSCH for multicast for NTN and shared spectrum channel access. Value n8 corresponds to 8, and value n16 corresponds to 16.A UE supporting this feature shall also indicate support of *dynamicMulticastPCell-r17*. | Band | No | N/A | N/A |
| ***dynamicSlotRepetitionMulticastTN-NonSharedSpectrumChAccess-r17***Indicates the maximum number of supported dynamic slot-level repetitions for group-common PDSCH for multicast for TN and non-shared spectrum channel access. Value n8 corresponds to 8, and value n16 corresponds to 16. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2 bands respectively.A UE supporting this feature shall also indicate support of *dynamicMulticastPCell-r17*. | Band | No | N/A | N/A |
| ***enhancedSkipUplinkTxConfigured-v1660***Indicates whether the UE supports skipping UL transmission for a configured uplink grant only if no data is available for transmission and no UCI is multiplexed on the corresponding PUSCH of the uplink grant as specified in TS 38.321 [8]. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.The UE only includes *enhancedSkipUplinkTxConfigured-v1660* if *enhancedSkipUplinkTxConfigured-r16* is absent. | Band | No | N/A | N/A |
| ***enhancedSkipUplinkTxDynamic-v1660***Indicates whether the UE supports skipping UL transmission for an uplink grant addressed to a C-RNTI only if no data is available for transmission and no UCI is multiplexed on the corresponding PUSCH of the uplink grant as specified in TS 38.321 [8]. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.The UE only includes *enhancedSkipUplinkTxDynamic-v1660* if *enhancedSkipUplinkTxDynamic-r16* is absent. | Band | No | N/A | N/A |
| ***enhancedType3-HARQ-CodebookFeedback-r17***Indicates whether the UE supports enhanced type 3 HARQ-ACK codebook feedback based on triggering information in DCI 1\_1 and DCI 1\_2 (for a UE supporting DCI format 1\_2 as indicated in *dci-Format1-2And0-2-r16*) and also supports transmission of enhanced type 3 HARQ-ACK codebook using the first or second PUCCH configuration based on PHY priority indication in the triggering DCI (for a UE supporting two HARQ-ACK codebooks / PUCCH config as indicated in twoHARQ-ACK-Codebook-type1-r16). The capability signalling comprises the following parameters:- *enhancedType3-HARQ-Codebooks-r17* indicates the maximum number of supported enhanced type 3 HARQ-ACK codebooks;- *maxNumberPUCCH-Transmissions-r17* indicates the maximum number of actual PUCCH transmissions for type 3 or enhanced type 3 HARQ-ACK codebook feedback within a slot.UE only supports feedback of a dynamically selected enhanced type 3 HARQ-ACK codebook based on triggering information in DCI 1\_1 and DCI 1\_2 (for a UE supporting DCI format 1\_2 as indicated in *dci-Format1-2And0-2-r16*) if the UE supports more than one enhanced type 3 HARQ-ACK codebook to be configured (as indicated in *enhancedType3-HARQ-Codebooks-r17*). The UE indicates support of this capability shall also indicates support of *oneShotHARQ-feedback-r16*. | Band | No | N/A | N/A |
| ***enhancedUL-TransientPeriod-r16***Indicates whether the UE supports enhanced UL performance for the transient period as specified in clause 6.3.3 of TS 38.101-1 [2] and in clause 6.3.3 of TS 38.101-5 [34]. If not reported, the UE supports transient period of 10us. | Band | No | N/A | FR1 only |
| ***eventA4BasedCondHandover-r17***Indicates whether the UE supports Event A4 based conditional handover in NTN bands, i.e., *CondEvent A4* as specified in TS 38.331 [9]. A UE supporting this feature shall also indicate the support of *condHandover-r16* for NTN bands and the support of *nonTerrestrialNetwork-r17*. UE shall set the capability value consistently for all FDD-FR1 NTN bands. | Band | No | N/A | N/A |
| ***extendedCP***Indicates whether the UE supports 60 kHz subcarrier spacing with extended CP length for reception of PDCCH, and PDSCH, and transmission of PUCCH, PUSCH, and SRS. | Band | No | N/A | N/A |
| ***groupBeamReporting***Indicates whether UE supports RSRP reporting for the group of two reference signals. | Band | No | N/A | N/A |
| ***groupSINR-reporting-r16***Indicates whether UE supports group based L1-SINR reporting. UE indicates support of this feature shall indicate support of *ssb-csirs-SINR-measurement-r16.* | Band | No | N/A | N/A |
| ***handoverUTRA-FDD-r16***Indicates whether the UE supports NR to UTRA-FDD CELL\_DCH CS handover for the PCell on the band. It is mandatory to support both UTRA-FDD measurement and event B triggered reporting, and periodic UTRA-FDD measurement and reporting if the UE supports HO to UTRA-FDD. If this field is included, then UE shall support IMS voice over NR. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. | Band | No | N/A | N/A |
| ***interSlotFreqHopInterSlotBundlingPUSCH-r17***Indicates whether the UE supports enhanced inter-slot frequency hopping with inter-slot bundling for PUSCH.UE indicating support of this feature shall also indicate support of at least one of *dmrs-BundlingPUSCH-RepTypeA-r17*, *dmrs-BundlingPUSCH-RepTypeB-r17* or *dmrs-BundlingPUSCH-multiSlot-r17*. | Band | No | N/A | N/A |
| ***interSlotFreqHopPUCCH-r17***Indicates whether the UE supports enhanced inter-slot frequency hopping for PUCCH repetitions with DMRS bundling.UE indicating support of this feature shall also indicate support of *dmrs-BundlingPUCCH-Rep-r17*. | Band | No | N/A | N/A |
| ***maxDurationDMRS-Bundling-r17***Indicates whether the UE supports the maximum duration during which UE is able to maintain power consistency and phase continuity to support DM-RS bundling for PUSCH/PUCCH.NOTE: DM-RS bundling is only applicable for UL transmissions with pi/2 BPSK, BPSK, and QPSK modulation orders for the corresponding physical channels. | Band | No | N/A | N/A |
| ***maxMIMO-LayersForMulti-DCI-mTRP-r16***Indicates the interpretation of *maxNumberMIMO-LayersPDSCH* for multi-DCI based mTRP. If this field is included, *maxNumberMIMO-LayersPDSCH* is interpreted as the maximum number of layers per PDSCH for multi-DCI multi-TRP operation.If this field is not included, *maxNumberMIMO-LayersPDSCH* is interpreted as the maximum number of layers across two PDSCHs if having at least one RE overlapped, for multi-DCI multi-TRP operation. The UE that indicates support of this feature shall support *overlapPDSCHsFullyFreqTime-r16*.NOTE 1: For data rate calculation in clause 4.1.2, if this feature is indicated, each multi-DCI based multi-TRP CC is counted two times toward J. | Band | No | N/A | N/A |
| ***max-HARQ-ProcessNumber-r17***Indicates the maximal supported HARQ process numbers for UL and for DL respectively. For each value of *max-HARQ-ProcessNumber-r17*, value *u16d32* indicates the maximal supported HARQ process number is 16 for UL and 32 for DL, value *u32d16* indicates the maximal supported HARQ process number is 32 for UL and 16 for DL, value *u32d32* indicates the maximal supported HARQ process number is 32 for UL and 32 for DL. This field is only applicable for bands in Table 5.2.2-1 in TS 38.101-5 [34] and HAPS operation bands in clause 5.2 of TS 38.104 [35]. | Band | No | N/A | N/A |
| ***maxNumberPUSCH-TypeA-Repetition-r17***Indicates whether the UE supports the increased maximum number of PUSCH Type A repetitions to 32.A UE that indicates support of this feature shall support *type1-PUSCH-RepetitionMultiSlots, type2-PUSCH-RepetitionMultiSlots,* *pusch-RepetitionTypeA-r16* or *pusch-RepetitionTypeA-v16c0.*NOTE: For DG PUSCH, the number of repetitions is indicated in a TDRA list. A row index of the TDRA list is indicated by a DCI. For Type 1 CG PUSCH, the number of repetitions is indicated by *repK-v1710*. For Type 2 CG PUSCH, the number of repetitions is indicated in a TDRA list or by *repK-v1710*. | Band | No | N/A | N/A |
| ***mux-HARQ-ACK-DiffPriorities-r17***Indicates whether the UE supports HARQ-ACK with different priorities multiplexing on a PUCCH/PUSCH, comprised of the following functional components:- Supports multiplexing a high-priority HARQ-ACK and a low-priority HARQ-ACK into a PUCCH. Supports separate coding for the two HARQ-ACKs;- Supports multiplexing a low-priority HARQ-ACK, a high-priority HARQ-ACK and a high-priority SR into a PUCCH;- Supports multiplexing a low-priority HARQ-ACK in a high-priority PUSCH (conveying UL-SCH only). Supports separate beta\_offset values for this priority combination;- Supports multiplexing a high-priority HARQ-ACK in a low-priority PUSCH (conveying UL-SCH only). Supports separate beta\_offset values for this priority combination;- Supports multiplexing a low-priority HARQ-ACK, a high-priority PUSCH, a high-priority HARQ-ACK and/or CSI;- Supports multiplexing a high-priority HARQ-ACK, a low-priority PUSCH, a low-priority HARQ-ACK and/or CSI.The UE indicating support of this feature shall also indicate the support of *twoHARQ-ACK-Codebook-type1-r16.* | Band | No | N/A | N/A |
| ***jointReleaseConfiguredGrantType2-r16***Indicates whether the UE supports joint release in a DCI for two or more configured grant Type 2 configurations for a given BWP of a serving cell. The UE can include this feature only if the UE indicates support of *activeConfiguredGrant-r16*. | Band | No | N/A | N/A |
| ***jointReleaseSPS-r16***Indicates whether the UE supports joint release in a DCI for two or more SPS configurations for a given BWP of a serving cell. The UE can include this feature only if the UE indicates support of *sps-r16*. | Band | No | N/A | N/A |
| ***k1-RangeExtension-r17***Indicates whether the UE supports extended K1 value range of (0..31) for unpaired spectrum. This field is only applicable for bands in Table 5.2.2-1 in TS 38.101-5 [34] and HAPS operation bands in clause 5.2 of TS 38.104 [35]. | Band | No | N/A | N/A |
| ***locationBasedCondHandover-r17***Indicates whether the UE supports location based conditional handover, i.e., *CondEvent D1* as specified in TS 38.331 [9]. A UE supporting this feature shall also indicate the support of *condHandover-r16* for NTN bands and the support of *nonTerrestrialNetwork-r17*. UE shall set the capability value consistently for all FDD-FR1 NTN bands. | Band | No | N/A | N/A |
| ***locationBasedCondHandoverATG-r18***Indicates whether the UE supports location based conditional handover, i.e., *CondEvent D1, CondEvent A3, CondEvent A4* and *CondEvent A5* as specified in TS 38.331 [9]. A UE supporting this feature shall also indicate the support of *condHandover-r16* for bands as specified for ATG in clause 5.2J of TS 38.101-1 [2] and the support of *airToGroundNetwork-r18*. UE shall set the capability value consistently for all bands as specified for ATG in clause 5.2J of TS 38.101-1 [2]. | Band | No | N/A | FR1 only |
| ***lowPAPR-DMRS-PDSCH-r16***Indicates whether the UE supports low PAPR DMRS for PDSCH. | Band | No | N/A | N/A |
| ***lowPAPR-DMRS-PUCCH-r16***Indicates whether the UE supports low PAPR DMRS for PUCCH format 3 and format 4 with transform precoding and with pi/2 BPSK modulation. UE indicates support of this feature shall indicate support of *pucch-F3-4-HalfPi-BPSK* and any combination of support of *pucch-F3-WithFH*, *pucch-F4-WithFH* and *pucch-F1-3-4WithoutFH*. It is mandatory with capability signalling. | Band | Yes | N/A | N/A |
| ***lowPAPR-DMRS-PUSCHwithoutPrecoding-r16***Indicates whether the UE supports low PAPR DMRS for PUSCH without transform precoding. | Band | No | N/A | N/A |
| ***lowPAPR-DMRS-PUSCHwithPrecoding-r16***Indicates whether the UE supports low PAPR DMRS for PUSCH with transform precoding and with pi/2 BPSK modulation. It is mandatory with capability signalling. UE indicates support of this feature shall indicate support of *pusch-HalfPi-BPSK*. | Band | Yes | N/A | N/A |
| ***maxDynamicSlotRepetitionForSPS-Multicast-r17***Indicates maximum number of dynamic slot-level repetitions for SPS group-common PDSCH for multicast. For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE that indicates support of this feature shall indicate support of *sps-Multicast-r17*. | Band | No | N/A | N/A |
| ***maxModulationOrderForMulticast-r17***Defines the maximal modulation order for multicast PDSCH. If not reported, UE supports the same modulation order as unicast.- For FR1, up to 1024QAM is supported.- For FR2, up to 256QAM is supported.A UE supporting this feature shall also indicate support of *dynamicMulticastPCell-r17*.NOTE: A UE shall support the corresponding mandatory maximum modulation for unicast. | Band | No | N/A | N/A |
| ***maxNumberActivatedTCI-States-r16***Indicates maximum number of activated TCI states. This capability signalling includes the following:- *maxNumberPerCORESET-Pool-r16* indicates maximal number of activated TCI states per *CORESETPoolIndex* per BWP per CC including data and control- *maxTotalNumberAcrossCORESET-Pool-r16* indicates maximal total number of activated TCI states across *CORESETPoolIndex* per BWP per CC including data and controlThe UE that indicates support of this feature shall support *multiDCI-MultiTRP-r16*. | Band | No | N/A | N/A |
| ***maxNumberCSI-RS-BFD***Indicates maximal number of CSI-RS resources across all CCs, and across MCG and SCG in case of NR-DC, for UE to monitor PDCCH quality. In this release, the maximum value that can be signalled is 16. If the UE includes the field in an FR1 band, it shall set the same value in all FR1 bands. If the UE includes the field in an FR2 band, it shall set the same value in all FR2 bands. The UE supports a total number of resources equal to the maximum of the FR1 and FR2 value, but no more than the FR1 value across all FR1 serving cells and no more than the FR2 value across all FR2 serving cells. It is mandatory with capability signalling for FR2 and optional for FR1. | Band | CY | N/A | N/A |
| ***maxNumberCSI-RS-SSB-CBD***Defines maximal number of different CSI-RS [and/or SSB] resources across all CCs, and across MCG and SCG in case of NR-DC, for new beam identifications. In this release, the maximum value that can be signalled is 128. If the UE includes the field in an FR1 band, it shall set the same value in all FR1 bands. If the UE includes the field in an FR2 band, it shall set the same value in all FR2 bands. The UE supports a total number of resources equal to the maximum of the FR1 and FR2 value, but no more than the FR1 value across all FR1 serving cells and no more than the FR2 value across all FR2 serving cells. It is mandatory with capability signalling for FR2 and optional for FR1. The UE is mandated to report at least 32 for FR2. | Band | CY | N/A | N/A |
| ***maxNumberG-CS-RNTI-r17***Defines maximum number of G-CS-RNTIs for SPS multicast. For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE supporting this feature shall also indicate support of *sps-Multicast-r17*. | Band | No | N/A | N/A |
| ***maxNumberG-RNTI-r17***Defines maximum number of G-RNTIs for multicast. For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE supporting this feature shall also indicate support of *dynamicMulticastPCell-r17*. | Band | No | N/A | N/A |
| ***maxNumberNonGroupBeamReporting***Defines support of non-group based RSRP reporting using N\_max RSRP values reported. | Band | Yes | N/A | N/A |
| ***maxNumberRxBeam, maxNumberRxBeam-v1720***Defines whether UE supports receive beamforming switching using NZP CSI-RS resource. UE shall indicate a single value for the preferred number of NZP CSI-RS resource repetitions per CSI-RS resource set. Support of Rx beam switching is mandatory for FR2. | Band | CY | N/A | N/A |
| ***maxNumberRxTxBeamSwitchDL,*** ***maxNumberRxTxBeamSwitchDL-v1710***Defines the number of Tx and Rx beam changes UE can perform on this band within a slot. UE shall report one value per each subcarrier spacing supported by the UE. In this release, the number of Tx and Rx beam changes for scs-15kHz and scs-30kHz are not included. | Band | No | N/A | FR2 only |
| ***maxNumberSCellBFR-r16***Defines the maximum number of SCells configured for SCell beam failure recovery simultaneously. The UE indicating support of this also indicates the capabilities of *maxNumberCSI-RS-BFD, maxNumberSSB-BFD* and *maxNumberCSI-RS-SSB-CBD.* | Band | No | N/A | N/A |
| ***maxNumberSSB-BFD***Defines maximal number of different SSBs across all CCs, and across MCG and SCG in case of NR-DC, for UE to monitor PDCCH quality. In this release, the maximum value that can be signalled is 16. If the UE includes the field in an FR1 band, it shall set the same value in all FR1 bands. If the UE includes the field in an FR2 band, it shall set the same value in all FR2 bands. The UE supports a total number of resources equal to the maximum of the FR1 and FR2 value, but no more than the FR1 value across all FR1 serving cells and no more than the FR2 value across all FR2 serving cells. It is mandatory with capability signalling for FR2 and optional for FR1. | Band | CY | N/A | N/A |
| ***maxNumber-LEO-SatellitesPerCarrier-r17***Indicates the number of target LEO satellites the UE can monitor per carrier. For serving carrier, the number of target LEO satellites also includes the serving satellite. If this field is not included, the number of target satellites UE can monitor per carrier is 2. The value shall be larger than or equal to the reported value on *maxNumber-NGSO-SatellitesWithinOneSMTC-r17*. | Band | No | FDD only | FR1 only |
| ***maxNumber-NGSO-SatellitesWithinOneSMTC-r17***Indicates the number of different NGSO satellites for target cells that the UE supports of simultaneous measurements within a SMTC with value n1 corresponds to 1, value n2 corresponds to 2 and so on. | Band | No | FDD only | FR1 only |
| ***maxOutputPowerATG-r18***Indicates the maximum output power rating at maximum modulation order and full RB allocation as specified in clause 6.2J of TS 38.101-1 [2]. Value 1 indicates 23dBm, value 2 indicates 24dBm and so on. If present, the *ue-PowerClass* is not included, and default UE power class is not applicable. The UE indicating support of this feature shall also indicate support of *airToGroundNetwork-r18*. This field is only applicable for bands as specified for ATG in clause 5.2J of TS 38.101-1 [2]. | Band | CY | N/A | FR1 only |
| ***maxUplinkDutyCycle-PC2-FR1***Indicates the maximum percentage of symbols during a certain evaluation period that can be scheduled for uplink transmission to ensure compliance with applicable electromagnetic energy absorption requirements provided by regulatory bodies. This field is applicable for FR1 power class 2 UE and also applicable for FR1 power class 1.5 UE as specified in clause 6.2.1 of TS 38.101-1 [2]. If the field and *maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16* are both absent, 50% shall be applied as the upper limit of the UL duty cycle for power class 2. Value n60 corresponds to 60%, value n70 corresponds to 70% and so on. This capability is not applicable to IAB-MT. | Band | No | N/A | FR1 only |
| ***maxUplinkDutyCycle-FR2***Indicates the maximum percentage of symbols during 1s that can be scheduled for uplink transmission at the UE maximum transmission power, so as to ensure compliance with applicable electromagnetic power density exposure requirements provided by regulatory bodies. This field is applicable for all power classes UE in FR2 as specified in TS 38.101-2 [3]. Value n15 corresponds to 15%, value n20 corresponds to 20% and so on. If the field is absent or the percentage of uplink symbols transmitted within any 1s evaluation period is larger than *maxUplinkDutyCycle-FR2*, the UE behaviour is specified in TS 38.101-2 [3]. This capability is not applicable to IAB-MT. | Band | No | N/A | FR2 only |
| ***maxUplinkDutyCycle-PC1dot5-MPE-FR1-r16***Indicates the maximum percentage of symbols during a certain evaluation period that can be scheduled for uplink transmission to ensure compliance with applicable electromagnetic energy absorption requirements provided by regulatory bodies. This field is only applicable for FR1 power class 1.5 UE as specified in clause 6.2.1 of TS 38.101-1 [2]. If the field and *maxUplinkDutyCycle-PC2-FR1* are both absent, 25% shall be applied as the upper limit of the UL duty cycle for power class 1.5. | Band | No | N/A | FR1 only |
| ***mn-InitiatedCondPSCellChangeNRDC-r17***Indicates whether the UE supports MN initiated conditional PSCell change in NR-DC, which is configured by NR *conditionalReconfiguration* using MN configured measurement as triggering condition. The UE supporting this feature shall also support 2 trigger events for same execution condition in MN initiated conditional PSCell change in NR-DC. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands respectively. | Band | No | N/A | N/A |
| ***modifiedMPR-Behaviour***Indicates whether UE supports modified MPR behaviour defined in TS 38.101-1 [2], TS 38.101-2 [3], and TS 38.101-5 [34]. | Band | No | N/A | N/A |
| ***mpr-PowerBoost-FR2-r16***Indicates whether UE supports uplink transmission power boost by suspension of in-band emission (IBE) requirements as specified in TS 38.101-2 [3]. | Band | No | TDD only | FR2 only |
| ***mpe-Mitigation-r17***Indicates the support of enhanced PHR reporting which includes pairs of (P-MPR, SSBRI/CRI).This feature also includes following parameters:- *maxNumP-MPR-RI-pairs-r17* indicates the maximum number of reported P-MPR and SSBRI/CRI pairs;- *maxNumConfRS-r17* indicates the maximum number of candidate RS(s) configured in a RRC pool for MPE mitigation.NOTE: *maxNumConfRS-r17* is also counted in *maxTotalResourcesForOneFreqRange-r16*/ *maxTotalResourcesForAcrossFreqRanges-r16.* | Band | No | N/A | FR2 only |
| ***mTRP-PUCCH-InterSlot-r17***Indicates whether the UE supports the following features:- support of PUCCH repetition scheme 1 (inter-slot repetition) with sequential mapping for repetitions larger than 2 and with cyclic mapping for 2 repetitions.- support of up to two PUCCH power control parameter sets/spatial relation information per PUCCH resource. The power control parameter sets only apply to FR1 and spatial relation information only applies to FR2.- supported PUCCH formats for PUCCH repetition scheme 1. | Band | No | N/A | N/A |
| ***mTRP-PUCCH-CyclicMapping-r17***Indicates whether the UE supports cyclic mapping for beam mapping/power control parameter set mapping for PUCCH repetitions scheme 1 and/or 3 when the number of repetitions is larger than 2.The UE that indicates support of this feature shall also indicate support of *mTRP-PUCCH-InterSlot-r17.* | Band | No | N/A | N/A |
| ***mTRP-PUCCH-SecondTPC-r17***Indicates whether the UE supports second TPC field for per TRP closed-loop power control for PUCCH with DCI formats 1\_1 / 1\_2.The UE that indicates support of this feature shall also indicate support of *mTRP-PUCCH-InterSlot-r17.* | Band | No | N/A | N/A |
| ***mTRP-PUSCH-twoCSI-RS-r17***Indicates whether the UE supports up to two NZP CSI-RS resources associated with the two SRS resource sets for non-codebook-based mTRP PUSCH.The UE that indicates support of this feature shall also indicate support of *srs-AssocCSI-RS, csi-RS-IM-ReceptionForFeedbackPerBandComb and mTRP-PUSCH-RepetitionTypeA-r17.* | Band | No | N/A | N/A |
| ***mTRP-BFR-twoBFD-RS-Set-r17***Indicates whether the UE supports mTRP BFR based on two BFD-RS sets. The capability signalling comprises the following parameters:*-* *maxBFD-RS-resourcesPerSetPerBWP-r17* indicates the maximum number of supported measured BFD-RS resources per set per BWP.- *maxBFR-r17* indicates the maximum number of CCs per band configured with BFR (including spCell/SCell/MTRP BFR).*-* *maxBFD-RS-resourcesAcrossSetsPerBWP-r17* indicates the supported maximum number of measured BFD-RS resources across two BFD-RS sets per BWP.*maxBFD-RS-resourcesAcrossSetsPerBWP-r17* is also counted in *maxTotalResourcesForOneFreqRange-r16* and *maxTotalResourcesForAcrossFreqRanges-r16*. | Band | No | N/A | N/A |
| ***mTRP-BFR-PUCCH-SR-perCG-r17***Indicates the maximum number of supported PUCCH-SR resources for MTRP BFR per cell group. A UE that supports *mTRP-BFR-twoBFD-RS-Set-r17* shall indicate support of this feature with at least 1 PUCCH-SR resources for MTRP BFR per cell group.UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. | Band | No | N/A | N/A |
| ***mTRP-BFR-association-PUCCH-SR-r17***Indicates whether the UE supports association between a BFD-RS resource set on SpCell and a PUCCH SR resource.The UE indicating support of this feature shall support *mTRP-BFR-PUCCH-SR-perCG-r17.* UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. | Band | No | N/A | N/A |
| ***mTRP-BFD-RS-MAC-CE-r17***Indicates the support of MAC-CE based update of explicit BFD-RS for mTRP BFR with maximum number of configured candidate BFD-RS per BWP for MAC-CE based update.The UE indicating support of this feature shall also indicate the support of *mTRP-BFR-twoBFD-RS-Set-r17*. | Band | No | N/A | N/A |
| ***mTRP-CSI-EnhancementPerBand-r17***Indicates support of CSI enhancements for multi-TRP including support of NZP CSI-RS resource pairs used as CMR (channel measurement resource) pairs for NCJT measurement hypothesis with N=1.This feature also includes following parameters:- *maxNumNZP-CSI-RS-r17* indicates the maximum number of NZP CSI-RS resources in one CSI-RS resource set: Ks,max- *cSI-Report-mode-r17* indicates the CSI report mode selection. Mode1 indicates mode 1 with X=0, mode2 indicates mode 2, both indicate the support of both mode 1 with X=0 and mode 2.- A list of supported combinations, up to 16, across all CCs simultaneously, where each combination includes:- *maxNumTx-Ports-r17* indicates the maximum number of Tx ports in one NZP CSI-RS resource associated with an NCJT measurement hypothesis- *maxTotalNumCMR-r17* indicates the maximum total number of CMRs for NCJT measurement- *maxTotalNumTx-PortsNZP-CSI-RS-r17* indicates the maximum total number of Tx ports of NZP CSI-RS resources associated with NCJT measurement hypotheses- *codebookModeNCJT-r17* indicates the supported codebook modes for NCJT CSI. | Band | No | N/A | N/A |
| ***mTRP-CSI-numCPU-r17***Indicates the number of CSI processing units (CPUs) occupied by a pair of CMRs for NCJT CSI hypotheses. Maximum number of CPUs is reported in *csi-ReportFramework*.The UE indicating support of this feature shall also indicate the support of *mTRP-CSI-EnhancementPerBand-r17*. | Band | No | N/A | N/A |
| ***mTRP-CSI-additionalCSI-r17***Indicates the maximum value of *numberOfSingleTRP-CSI-Mode1*.The UE indicating support of this feature shall also indicate 'mode1' or 'both' in *cSI-Report-mode-r17* of *mTRP-CSI-EnhancementPerBand-r17*. | Band | No | N/A | N/A |
| ***mTRP-CSI-N-Max2-r17***Indicates the support of maximum number of CMR pairs Nmax=2 configured in *NZP-CSI-RS-ResourceSet* for a given CSI report setting.The UE indicating support of this feature shall also indicate the support of *mTRP-CSI-EnhancementPerBand-r17.* | Band | No | N/A | N/A |
| ***mTRP-CSI-CMR-r17***Indicates the support of a NZP CSI-RS resource referred by both a CMR pair configured for Rel-17 Multi-TRP CSI enhancement and a single CMR configured for Single-TRP measurement in a CSI reporting setting.The UE indicating support of this feature shall also indicate the support of *mTRP-CSI-EnhancementPerBand-r17*. | Band | No | N/A | FR2 only |
| ***mTRP-PDCCH-individual-r17***Indicates the support of monitoring of individual candidates when one of the linked PDCCH candidates uses the same set of CCEs as an individual (unlinked) PDCCH candidate, and they both are associated with the same DCI size, scrambling, and CORESET.The UE indicating support of this feature shall also indicate support of *mTRP-PDCCH-Repetition-r17*. | Band | No | N/A | N/A |
| ***mTRP-PDCCH-anySpan-3Symbols-r17***Indicates support of PDCCH repetition for PDCCH monitoring on any span of up to 3 consecutive OFDM symbols of a slot. It is applicable to 15kHz SCS only.The UE indicating support of this feature shall also indicate support of *pdcchMonitoringSingleOccasion* and *mTRP-PDCCH-Repetition-r17*. | Band | No | N/A | FR1 only |
| ***mTRP-PDCCH-TwoQCL-TypeD-r17*** Indicates the support of determining two QCL-TypeD for time-domain overlapping CORESETs in the same CC or for intra-band CA when UE is configured with PDCCH repetition.The UE indicating support of this feature shall also indicate support of *mTRP-PDCCH-Repetition-r1*7. | Band | No | N/A | FR2 only |
| ***mTRP-PUSCH-CSI-RS-r17***Indicates the support of CSI-RS processing framework for SRS with two associated CSI-RS resources.This feature also includes following parameters:- *maxNumPeriodicSRS-r17* indicates the maximum number of periodic SRS resources associated with first and second CSI-RS per BWP.- *maxNumAperiodicSRS-r17* indicates the maximum number of aperiodic SRS resources associated with first and second CSI-RS per BWP.- *maxNumSP-SRS-r17* indicates the maximum number of semi-persistent SRS resources associated with first and second CSI-RS per BWP.- *numSRS-ResourcePerCC-r17*: UE can process Y SRS resources associated with first and second CSI-RS resources simultaneously in a CC. Includes Periodic/Semi-Persistent/Aperiodic SRS.- *numSRS-ResourceNonCodebook-r17*: UE can process up to X CSI-RS resources associated with SRS for non-codebook based transmission simultaneously.The UE indicating support of this feature shall also indicate the support of *mTRP-PUSCH-twoCSI-RS-r17.* | Band | No | N/A | N/A |
| ***mTRP-PUSCH-cyclicMapping-r17***Indicates the support of cyclic mapping when the number of repetitions is larger than 2 with repetition type.The UE indicating support of this feature shall also indicate the support of *mTRP-PUSCH-TypeA-CB-r17*or *mTRP-PUSCH-RepetitionTypeA-r17*. | Band | No | N/A | N/A |
| ***mTRP-PUSCH-secondTPC-r17***Indicates the support of second TPC field for per TRP closed-loop power control for PUSCH with DCI formats 0\_1 and 0\_2.The UE indicating support of this feature shall also indicate the support of *mTRP-PUSCH-TypeA-CB-r17*or *mTRP-PUSCH-RepetitionTypeA-r17.* | Band | No | N/A | N/A |
| ***mTRP-PUSCH-twoPHR-Reporting-r17***Indicates the support of PHR reporting related to M-TRP PUSCH repetition (calculate two PHRs (at least corresponding to the CC that applies m-TRP PUSCH repetitions), each associated with a first PUSCH occasion corresponding to each SRS resource set, and report two PHRs).The UE indicating support of this feature shall also indicate the support of *mTRP-PUSCH-TypeA-CB-r17* or *mTRP-PUSCH-RepetitionTypeA-r17.* | Band | No | N/A | N/A |
| ***mTRP-PUSCH-A-CSI-r17***Indicates the support of A-CSI report on two PUSCH repetitions.The UE indicating support of this feature shall also indicate the support of *mTRP-PUSCH-TypeA-CB-r17*or *mTRP-PUSCH-RepetitionTypeA-r17.* | Band | No | N/A | N/A |
| ***mTRP-PUSCH-SP-CSI-r17***Indicates the support of SP-CSI report on two PUSCH repetitions.The UE indicating support of this feature shall also indicate the support of *mTRP-PUSCH-TypeA-CB-r17*or *mTRP-PUSCH-RepetitionTypeA-r17.* | Band | No | N/A | N/A |
| ***mTRP-PUSCH-CG-r17***Indicates the support of CG PUSCH transmission towards M-TRPs using a single CG configuration. The UE uses same beam mapping principals as dynamic grant PUSCH repetition scheme.The UE indicating support of this feature shall also indicate the support of *mTRP-PUSCH-TypeA-CB-r17*or *mTRP-PUSCH-RepetitionTypeA-r17*. | Band | No | N/A | N/A |
| ***mTRP-PUCCH-MAC-CE-r17***Indicates the support of updating two Spatial Relation Info's and two sets of power control parameters for a group of PUCCH resources in a CC by MAC-CE.The UE indicates support of this feature shall also indicate support of *mTRP-PUCCH-InterSlot-r17.* | Band | No | N/A | N/A |
| ***mTRP-PUCCH-maxNum-PC-FR1-r17***Indicates the maximum number of power control parameter sets configured for multi-TRP PUCCH repetition in FR1.The UE indicating support of this feature shall also indicate the support of *mTRP-PUCCH-InterSlot-r17.* | Band | No | N/A | FR1 only |
| ***mTRP-inter-Cell-r17***Indicates the support of RRC configuration of additional PCI different from serving cell associated with the TCI state and/or QCL-info.This feature also includes following parameters:- *maxNumAdditionalPCI-Case1-r17* indicates the maximum number of configured additional PCIs per CC is X1 (Case 1) when each configuration of SSB time domain positions and periodicity of the additional PCIs is the same as SSB time domain positions and periodicity of the serving cell PCI.- *maxNumAdditionalPCI-Case2-r17* indicates the maximum number of configured additional PCIs per CC is X2 (Case 2) when the configurations of SSB time domain positions and periodicity of the additional PCIs is not according to Case 1.The UE indicating support of this feature shall also indicate the support of *multiDCI-MultiTRP-r16.* | Band | No | N/A | N/A |
| ***mTRP-GroupBasedL1-RSRP-r17***Indicates the support of group based L1-RSRP reporting enhancements.This feature also includes following parameters:- *maxNumBeamGroups-r17* indicates the maximum number N of beam groups (M=2 beams per beam group) in a single L1-RSRP reporting instance based on measurement on two CMR resource sets.- *maxNumRS-WithinSlot-r17* indicates the maximum number of SSB and CSI-RS resources for measurement in both CMR sets within a slot across all CCs.*-* *maxNumRS-AcrossSlot-r17* indicates the maximum number of configured SSB and CSI-RS resources for measurement in both CMR sets across all CCs.*maxNumRS-WithinSlot-r17* and *maxNumRS-AcrossSlot-r17* are also counted in *maxTotalResourcesForOneFreqRange-r16* and *maxTotalResourcesForAcrossFreqRanges-r16*. | Band | No | N/A | N/A |
| ***multiPDSCH-SingleDCI-FR2-1-SCS-120kHz-r17***Indicates whether the UE supports multi-PDSCH scheduling by single DCI for the operation with 120kHz SCS in FR2-1 and HARQ enhancements for both type 1 and type 2 HARQ codebook. | Band | No | N/A | N/A |
| ***multiPUCCH-HARQ-ACK-ForMulticastUnicast-r17***Indicates whether the UE supports two non-overlapping slot-based PUCCHs for ACK/NACK based HARQ-ACK feedback for multicast or for unicast and multicast with different priorities in a slot.For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE supporting this feature shall also indicate support of *priorityIndicatorInDCI-Multicast-r17* and *twoHARQ-ACK-CodebookForUnicastAndMulticast-r17*. | Band | No | N/A | N/A |
| ***multiPUSCH-SingleDCI-FR2-1-SCS-120kHz-r17***Indicates whether the UE supports multi-PUSCH scheduling by single DCI for the operation with 120kHz SCS in FR2-1 with non-contiguous allocation. | Band | No | N/A | N/A |
| ***multipleRateMatchingEUTRA-CRS-r16***Indicates whether the UE supports multiple E-UTRA CRS rate matching patterns, which is supported only for FR1. The capability signalling comprises the following parameters:- *maxNumberPatterns-r16* indicates the maximum number of LTE-CRS rate matching patterns in total within a NR carrier using 15 kHz SCS. The UE can report the value larger than 2 only if UE reports the value of *maxNumberNon-OverlapPatterns-r16* is larger than 1.- *maxNumberNon-OverlapPatterns-r16* indicates the maximum number of LTE-CRS non-overlapping rate matching patterns within a NR carrier using 15 kHz SCS.The UE can include this feature only if the UE indicates support of *rateMatchingLTE-CRS*. | Band | No | N/A | FR1 only |
| ***multipleTCI***Indicates whether UE supports more than one TCI state configurations per CORESET. UE is only required to track one active TCI state per CORESET. UE is required to support minimum between 64 and number of configured TCI states indicated by *tci-StatePDSCH*. This field shall be set to *supported*. | Band | Yes | N/A | N/A |
| ***nack-OnlyFeedbackForMulticastWithDCI-Enabler-r17***Indicates whether the UE supports DCI-based enabling/disabling NACK-only based HARQ-ACK feedback configured per G-RNTI by RRC signalling via DCI format 4\_2.A UE supporting this feature shall also indicate support of *nack-OnlyFeedbackForMulticast-r17* and *dynamicMulticastDCI-Format4-2-r17*. | Band | No | N/A | N/A |
| ***nack-OnlyFeedbackForSPS-MulticastWithDCI-Enabler-r17***Indicates whether the UE supports DCI-based enabling/disabling NACK-only based HARQ-ACK feedback configured per G-CS-RNTI by RRC signalling via DCI format 4\_2.A UE that indicates support of this feature shall indicate support of *nack-OnlyFeedbackForSPS-Multicast-r17* and *sps-MulticastDCI-Format4-2-r17*. | Band | No | N/A | N/A |
| ***nonGroupSINR-reporting-r16***Indicates N\_max L1-SINR values reported when UE supports non-group based L1-SINR reporting. UE indicates support of this feature shall indicate support of *ssb-csirs-SINR-measurement-r16.* | Band | No | N/A | N/A |
| ***nr-UE-TxTEG-ID-MaxSupport-r17***Indicates the maximum number of UE TxTEG for SRS resource for positioning, which is supported and reported by UE for UL TDOA. The UE can include this field only if the UE supports *srs-AllPosResources-r16*. | Band | No | N/A | N/A |
| ***olpc-SRS-Pos-r16***Indicates whether the UE supports OLPC for SRS for positioning. The capability signalling comprises the following parameters.- *olpc-SRS-PosBasedOnPRS-Serving-r16* indicates whether the UE supports OLPC for SRS for positioning based on PRS from the serving cell in the same band. The UE can include this field only if the UE supports *NR-DL-PRS-ProcessingCapability-r16* defined in TS 37.355 [22], and *srs-PosResources-r16*. Otherwise, the UE does not include this field;- *olpc-SRS-PosBasedOnSSB-Neigh-r16* indicates whether the UE supports OLPC for SRS for positioning based on SSB from the neighbouring cell in the same band. The UE can include this field only if the UE supports *srs-PosResources-r16*. Otherwise, the UE does not include this field;- *olpc-SRS-PosBasedOnPRS-Neigh-r16* indicates whether the UE supports OLPC for SRS for positioning based on PRS from the neighbouring cell in the same band. The UE can include this field only if the UE supports *olpc-SRS-PosBasedOnPRS-Serving-r16*. Otherwise, the UE does not include this field;NOTE: A PRS from a PRS-only TP is treated as PRS from a non-serving cell.- *maxNumberPathLossEstimatePerServing-r16* indicates the maximum number of pathloss estimates that the UE can simultaneously maintain for all the SRS resource sets for positioning per serving cell in addition to the up to four pathloss estimates that the UE maintains per serving cell for the PUSCH/PUCCH/SRS transmissios. The UE shall include this field if the UE supports any of *olpc-SRS-PosBasedOnPRS-Serving-r16, olpc-SRS-PosBasedOnSSB-Neigh-r16* and *olpc-SRS-PosBasedOnPRS-Neigh-r16.* Otherwise, the UE does not include this field. | Band | No | N/A | N/A |
| ***olpc-SRS-PosRRC-Inactive-r17***Indicates whether the UE supports OLPC for SRS for positioning in RRC\_INACTIVE. The capability signalling comprises the following parameters.- *olpc-SRS-PosBasedOnPRS-Serving-r16* indicates whether the UE supports OLPC for SRS for positioning based on PRS from the serving cell in the same band. The UE can include this field only if the UE supports *NR-DL-PRS-ProcessingCapability-r16* defined in TS 37.355 [22], and *srs-PosResourcesRRC-Inactive-r17*. Otherwise, the UE does not include this field;- *olpc-SRS-PosBasedOnSSB-Neigh-r16* indicates whether the UE supports OLPC for SRS for positioning based on SSB from the neighbouring cell in the same band. The UE can include this field only if the UE supports *srs-PosResourcesRRC-Inactive-r17*. Otherwise, the UE does not include this field;- *olpc-SRS-PosBasedOnPRS-Neigh-r16* indicates whether the UE supports OLPC for SRS for positioning based on PRS from the neighbouring cell in the same band. The UE can include this field only if the UE supports *olpc-SRS-PosBasedOnPRS-Serving-r16*. Otherwise, the UE does not include this field;NOTE: A PRS from a PRS-only TP is treated as PRS from a non-serving cell.*-* *maxNumberPathLossEstimatePerServing-r16* indicates the maximum number of pathloss estimates that the UE can simultaneously maintain for all the SRS resource sets for positioning per serving cell in addition to the up to four pathloss estimates that the UE maintains per serving cell for the PUSCH/PUCCH/SRS transmissions. The UE shall include this field if the UE supports any of *olpc-SRS-PosBasedOnPRS-Serving-r16, olpc-SRS-PosBasedOnSSB-Neigh-r16* and *olpc-SRS-PosBasedOnPRS-Neigh-r16.* Otherwise, the UE does not include this field. | Band | No | N/A | N/A |
| ***oneShotHARQ-feedbackPhy-Priority-r17***Indicates whether the UE supports transmission of type 3 HARQ-ACK codebook using the first or second PUCCH configuration based on PHY priority indication in the triggering DCI.A UE supporting this feature shall also indicate support of *oneShotHARQ-feedback-r16* and *twoHARQ-ACK-Codebook-type1-r16*. | Band | No | N/A | N/A |
| ***oneShotHARQ-feedbackTriggeredByDCI-1-2-r17***Indicates whether the UE supports one-shot HARQ ACK feedback triggered by DCI format 1\_2, comprised of the following functional components:-Supports feedback of type 3 HARQ-ACK codebook, triggered by a DCI 1\_2 scheduling a PDSCH;-Supports feedback of type 3 HARQ-ACK codebook, triggered by a DCI 1\_2 without scheduling a PDSCH using a reserved FDRA value.A UE supporting this feature shall also indicate support of *oneShotHARQ-feedback-r16* and *dci-Format1-2And0-2-r16*. | Band | No | N/A | N/A |
| ***oneSlotPeriodicTRS-r16***Indicates whether the UE supports one-slot periodic TRS configuration only when no two consecutive slots are indicated as downlink slots by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigDedicated*. If the UE supports this feature, the UE needs to report *csi-RS-ForTracking*. | Band | No | TDD only | FR1 only |
| ***outOfOrderOperationDL-r16***Indicates whether the UE supports out of order operation for DL. The UE that indicates support of this feature shall support *multiDCI-MultiTRP-r16*. The capability signalling comprises the following parameters:*- supportPDCCH-ToPDSCH-r16* indicates support out-of-order operation for PDCCH to PDSCH;*- supportPDSCH-ToHARQ-ACK-r16* indicates support out-of-order operation for PDSCH to HARQ-ACK. | Band | No | N/A | N/A |
| ***outOfOrderOperationUL-r16***Indicates whether the UE supports out of order operation for UL. The UE that indicates support of this feature shall support *multiDCI-MultiTRP-r16.*Note: Same closed loop index for power control across PUSCHs associated with different *CORESETPoolIndex* values is not supported by a UE indicating the support of this feature when TPC accumulation is enabled. | Band | No | N/A | N/A |
| ***overlapPDSCHsFullyFreqTime-r16***Indicates the maximal number of PDSCH scrambling sequences per serving cell when the UE supports PDSCHs with fully overlapping Resource Elements. The UE that indicates support of this feature shall support *multiDCI-MultiTRP-r16.*Note: A UE may assume that its maximum receive timing difference between the DL transmissions from two TRPs is within a Cyclic Prefix | Band | No | N/A | N/A |
| ***overlapPDSCHsInTimePartiallyFreq-r16***Indicates whether the UE supports PDSCHs with partially overlapping Resource Elements. The UE that indicates support of this feature shall support *overlapPDSCHsFullyFreqTime-r16.* | Band | No | N/A | N/A |
| ***overlapRateMatchingEUTRA-CRS-r16***Indicates whether the UE supports two LTE-CRS overlapping rate matching patterns within a part of NR carrier using 15 kHz SCS overlapping with a LTE carrier. If the UE supports this feature, the UE needs to report *multipleRateMatchingEUTRA-CRS-r16*. | Band | No | N/A | FR1 only |
| ***parallelMeasurementWithoutRestriction-r17***Indicates whether the UE supports measurements on cells belonging to different satellites as the serving cell in parallel with normal operation (i.e. data/control transmission and/or reception, and L1 measurements) of serving cell without scheduling restrictions. The feature is applicable only when the serving satellite is NGSO. If the serving cell belongs to GSO satellite, the scheduling restriction is not applied on the premise that a mixed type of satellites on the same frequency layer is not supported in this release. If not reported, for measurements in parallel with normal operation of serving cell scheduling restrictions shall apply. | Band | No | FDD only | FR1 only |
| ***parallelPRS-MeasRRC-Inactive-r17***Indicates whether the UE supports performing RRM measurement and PRS measurement in parallel. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively | Band | No | N/A | N/A |
| ***pdcch-SkippingWithoutSSSG-r17***Indicates whether the UE supports up to 2-bit indication of PDCCH skipping by scheduling DCI if SSSG is not configured as specified in TS 38.213 [11], clause 10.4. | Band | No | N/A | N/A |
| ***pdcch-SkippingWithSSSG-r17***Indicates whether the UE supports 2-bit indication of SSSG switching between 2 SSSGs, PDCCH skipping by scheduling DCI, and timer based SSSG switching as specified in TS 38.213 [11], clause 10.4. UE supports search space set group switching capability-1 according to Table 10.4-1 of TS 38.213 [11].UE indicating support of this feature shall also indicate support of *pdcch-SkippingWithoutSSSG-r17* and *sssg-Switching-1bitInd-r17*. | Band | No | N/A | N/A |
| ***pdsch-1024QAM-2MIMO-FR1-r17***Indicates whether the UE supports 1024QAM modulation scheme for PDSCH with maximum 2 MIMO layers for FR1 as defined in TS 38.211 [6], MCS and CQI feedback tables based on 1024QAM modulation order as defined in TS 38.214 [12].UE indicating support of this feature shall also indicate support of *pdsch-256QAM-FR1* and shall not indicate support of *pdsch-1024QAM-FR1-r17*. | Band | No | N/A | FR1 only |
| ***pdsch-1024QAM-FR1-r17***Indicates whether the UE supports 1024QAM modulation scheme for PDSCH for FR1 as defined in TS 38.211 [6], MCS and CQI feedback tables based on 1024QAM modulation order as defined in TS 38.214 [12].UE indicating support of this feature shall also indicate support of *pdsch-256QAM-FR1* and shall not indicate support of *pdsch-1024QAM-2MIMO-FR1-r17*. | Band | No | N/A | FR1 only |
| ***pdsch-256QAM-FR2***Indicates whether the UE supports 256QAM modulation scheme for PDSCH for FR2 as defined in 7.3.1.2 of TS 38.211 [6]. | Band | No | N/A | FR2 only |
| ***pdsch-MappingTypeB-Alt-r16***Indicates whether the UE supports PDSCH Type B scheduling of length 9 and 10 OFDM symbols, and DMRS shift for length-10 symbols. If the UE supports this feature, the UE needs to report *pdsch-MappingTypeB*. | Band | No | N/A | FR1 only |
| ***periodicBeamReport***Indicates whether UE supports periodic 'CRI/RSRP' or 'SSBRI/RSRP' reporting using PUCCH formats 2, 3 and 4 in one slot. | Band | Yes | N/A | N/A |
| ***posSRS-RRC-Inactive-OutsideInitialUL-BWP-r17***Indicates support of Positioning SRS transmission in RRC\_INACTIVE state configured outside initial UL BWP. The capability signalling comprises the following parameters:- *maxSRSposBandwidthForEachSCS-withinCC-FR1-r17* Indicates the maximum SRS bandwidth supported for each SCS that UE supports within a single CC for FR1*;*- *maxSRSposBandwidthForEachSCS-withinCC-FR2-r17* indicates the maximum SRS bandwidth supported for each SCS that UE supports within a single CC for FR2;- *maxNumOfSRSposResourceSets-r17* indicates the max number of SRS Resource Sets for positioning supported by UE;- *maxNumOfPeriodicSRSposResources-r17* indicates the max number of periodic SRS Resources for positioning;- *maxNumOfPeriodicSRSposResourcesPerSlot-r17* indicates the max number of periodic SRS Resources for positioning per slot;- *differentNumerologyBetweenSRSposAndInitialBWP-r17* indicates the support of different numerology between the SRS and the initial UL BWP;- *srsPosWithoutRestrictionOnBWP-r17* indicates the support of SRS operation without restriction on the BW: BW of the SRS may not include BW of the CORESET#0 and SSB;- *maxNumOfPeriodicAndSemipersistentSRSposResources-r17* indicates the max number of P/SP SRS Resources for positioning;- *maxNumOfPeriodicAndSemipersistentSRSposResourcesPerSlot-r17* indicates the max number of P/SP SRS Resources for positioning per slot;- *differentCenterFreqBetweenSRSposAndInitialBWP-r17* indicates the support of a different center frequency between the SRS for positioning and the initial UL BWP;- *switchingTimeSRS-TX-OtherTX-r17* indicates the switching time between SRS TX and other TX in initial UL BWP or RX in initial DL BWP- *maxNumOfSemiPersistentSRSposResources-r17* indicates the max number of semi-persistent SRS Resources for positioning;- *maxNumOfSemiPersistentSRSposResourcesPerSlot-r17* indicates the max number of semi-persistent SRS Resources for positioning per slot.The UE can include this field only if the UE supports *srs-PosResourcesRRC-Inactive-r17*. Otherwise, the UE does not include this field;NOTE 1: The SRS should have a *locationAndBandwidth*, SCS, CP, defined the same way as a legacy BWP.NOTE 2: If *differentCenterFreqBetweenSRSposAndInitialBWP-r17* is not signalled, the UE only supports same center frequency between the SRS for positioning and initial UL BWP.NOTE 3: If *differentNumerologyBetweenSRSposAndInitialBWP-r17* is not signalled, the UE only supports same numerology between the SRS and the initial UL BWP.NOTE 4: If *srsPosWithoutRestrictionOnBWP-r17* is not signalled, the UE supports only SRS BW that include the BW of the CORESET #0 and SSB.NOTE 5: The fields of *maxNumOfSemiPersistentSRSposResources-r17* and *maxNumOfSemiPersistentSRSposResourcesPerSlot-r17* shall be reported together if supported by UE. One of the fields between *maxSRSposBandwidthForEachSCS-withinCC-FR1-r17* and *maxSRSposBandwidthForEachSCS-withinCC-FR2-r17,* and the fields of *maxNumOfSRSposResourceSets-r17, maxNumOfPeriodicSRSposResources-r17, maxNumOfPeriodicSRSposResourcesPerSlot-r17, maxNumOfPeriodicAndSemipersistentSRSposResources-r17, maxNumOfPeriodicAndSemipersistentSRSposResourcesPerSlot-r17,* and *switchingTimeSRS-TX-OtherTX-r17* shall be reported together if supported by UE.NOTE 6: *srsPosWithoutRestrictionOnBWP-r17* is not applicable to FDD or SUL bands. | Band | No | N/A | N/A |
| ***powerBoosting-pi2BPSK***Indicates whether UE supports power boosting for pi/2 BPSK, when applicable as defined in 6.2 of TS 38.101-1 [2] v16.9.0. It is mandatory with capability signalling. This capability is not applicable to IAB-MT. | Band | CY | TDD only | FR1 only |
| ***priorityIndicatorInDCI-Multicast-r17***Indicates whether the UE supports DL priority indication for multicast in DCI, comprised of the following functional components:- Support of priority indicator field configured in DCI formats 4\_2 with CRC scrambled with G-RNTI for multicast;- Supports two HARQ-ACK codebooks with different priorities to be simultaneously constructed different priorities for multicast and multicast at a UE.For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE supporting this feature shall also indicate support of *ack-NACK-FeedbackForMulticast-r17* and *dynamicMulticastDCI-Format4-2-r17*. | Band | No | N/A | N/A |
| ***priorityIndicatorInDCI-SPS-Multicast-r17***Indicates whether the UE supports priority indicator field configured in DCI format 4\_2 for multicast HARQ-ACK feedback of SPS multicast.For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE supporting this feature shall also indicate support of *ack-NACK-FeedbackForSPS-Multicast-r17* and *sps-MulticastDCI-Format4-2-r17*. | Band | No | N/A | N/A |
| ***prs-MeasurementWithoutMG-r17***Indicates whether the UE supports using the threshold to compare the Rx time difference between the serving cell and a neighbor cell/TRP for PRS measurements, as defined in clause 9.9.1.2 of TS 38.133 [5], to determine whether the PRS from the non-serving cell satisfy the condition of PRS measurement outside MG. The UE can include this field only if the UE supports one of *prs-ProcessingWindowType1A-r17, prs-ProcessingWindowType1B-r17* and *prs-ProcessingWindowType2-r17*. | Band | No | N/A | N/A |
| ***prs-ProcessingCapabilityOutsideMGinPPW-r17***Indicates the DL-PRS Processing Capability outside MG of each of the supported PRS Processing Window (PPW) Type in the case the UE supports multiple PPW Types in a band and comprises the following subfields:- *prsProcessingType-r17****:*** Indicates the PPW Type for which the *prs-ProcessingCapabilityOutsideMGinPPW-r17* are provided.- *ppw-dl-PRS-BufferType-r17*: Indicates DL-PRS buffering capability. Value *'type1'* indicates sub-slot/symbol level buffering and value *'type2'* indicates slot level buffering.- *ppw-durationOfPRS-Processing1-r17*: Indicates the duration of DL-PRS symbols N in units of ms a UE can process every T ms assuming maximum DL-PRS bandwidth provided in *ppw-maxNumOfDL-Bandwidth-r17* and comprises the following subfields- *ppw-durationOfPRS-ProcessingSymbolsN-r17*: This field specifies the values for *N* with values msDot125 indicates 0.125ms, msDot25 indicates 0.25ms, and so on- *ppw-durationOfPRS-ProcessingSymbolsT-r17*: This field specifies the values for *T* with values ms1 indicates 1ms, ms2 indicates 2ms, and so on.- *ppw-durationOfPRS-Processing2-r17*: Indicates the duration of DL-PRS symbols N2 in units of ms a UE can process every T2 ms assuming maximum DL-PRS bandwidth provided in *ppw-maxNumOfDL-Bandwidth-r17* and comprises the following subfields:- *ppw-durationOfPRS-ProcessingSymbolsN2-r17*: This field specifies the values for *N2* with values msDot125 indicates 0.125ms, msDot25 indicates 0.25ms, and so on.- *ppw-durationOfPRS-ProcessingSymbolsT2-r17*: This field specifies the values for *T2* with values ms4 indicates 4ms, ms5 indicates 5ms, and so on.- *ppw-maxNumOfDL-PRS-ResProcessedPerSlot-r17*: Indicates the maximum number of DL PRS bandwidth in MHz, which is supported and reported by UE for PRS measurement outside MG within the PPW.- *ppw-maxNumOfDL-Bandwidth-r17*: Indicates the maximum number of DL PRS bandwidth in MHz for FR1 and FR2, which is supported and reported by UE for PRS measurement outside MG within the PPW.The UE can include this field only if the UE supports one of *prs-ProcessingWindowType1A-r17*, *prs-ProcessingWindowType1B-r17* and *prs-ProcessingWindowType2-r17*. Otherwise, the UE does not include this field.NOTE 1: A UE that supports one of *prs-ProcessingWindowType1A-r17*, *prs-ProcessingWindowType1B-r17* or *prs-ProcessingWindowType2-r17* shall always include the *prs-ProcessingCapabilityOutsideMGinPPW-r17*.NOTE 2: The (N, T) in *ppw-durationOfPRS-Processing1-r17* is interpreted as in (N,T) in *durationOfPRS-Processing-r16* in TS 37.355 [22], and the UE is expected to receive the DL-PRS within the PPW but the processing of the received DL-PRS may be outside a PPWNOTE 3: The (N2, T2) in *ppw-durationOfPRS-Processing2-r17* is interpreted such that the UE is capable of measuring up to N2 ms DL-PRS within a PPW and is capable of completing the DL-PRS processing within the PPW, e.g., if the time duration from the last symbol of the measured DL-PRS resource(s) inside the PPW to the end of PPW is not smaller than T2 ms.NOTE 4: A UE which supports *prs-ProcessingCapabilityOutsideMGinPPW-r17* shall support either *ppw-durationOfPRS-Processing1-r17* or *ppw-durationOfPRS-Processing2-r17*, but not both for each supported PPW type in a band. | Band | No | N/A | N/A |
| ***prs-ProcessingRRC-Inactive-r17***Indicates whether the UE supports PRS processing in RRC\_INACTIVE. | Band | No | N/A | N/A |
| ***prs-ProcessingWindowType1A-r17***Indicates whether the UE supports PRS processing Type 1A, subject to the UE determining that DL PRS to be higher priority for PRS measurement outside MG and in a PRS processing window and the priority handling options of PRS as follows:- Option 1: Support of "st1" and "st3" defined in clause 5.1.6.5 of TS 38.214 [12].- Option 2: Support of "st1", "st2", and "st3" defined in clause 5.1.6.5 of TS 38.214 [12].NOTE 1: Void.- Option 3: Support of "st1" only defined in clause 5.1.6.5 of TS 38.214 [12].The UE can include this field only if the UE supports *prs-ProcessingCapabilityBandList-r16* defined in TS 37.355 [22].A UE supporting this feature shall also indicate support of *prs-ProcessingCapabilityOutsideMGinPPW-r17*.NOTE 2: Type 1A refers to the determination of prioritization between DL PRS and other DL signals/channels in all OFDM symbols within the PRS processing window. The DL signals/channels from all DL CCs (per UE) are affected across LTE and NR.NOTE 3: Within a PRS processing window, UE measurement is inside the active DL BWP with PRS having the same numerology as the active DL BWP.NOTE 4: Support of configuration of PRS processing window in RRC and support of using DL MAC CE to activate/deactivate the PRS processing window for PRS measurements is part of the feature.NOTE 5: When the UE determines higher priority for other DL signals/channels over the DL-PRS measurement/processing, the UE is not expected to measure/process DL-PRS. | Band | No | N/A | N/A |
| ***prs-ProcessingWindowType1B-r17***Indicates whether the UE supports PRS processing Type 1B, subject to the UE determining that DL PRS to be higher priority for PRS measurement outside MG and in a PRS processing window and the priority handling options of PRS as follows:- Option 1: Support of "st1" and "st3" defined in clause 5.1.6.5 of TS 38.214 [12].- Option 2: Support of "st1", "st2", and "st3" defined in clause 5.1.6.5 of TS 38.214 [12].NOTE 1: Void.- Option 3: Support of "st1" only defined in clause 5.1.6.5 of TS 38.214 [12].The UE can include this field only if the UE supports *prs-ProcessingCapabilityBandList-r16* defined in TS 37.355 [22].A UE supporting this feature shall also indicate support of *prs-ProcessingCapabilityOutsideMGinPPW-r17*.NOTE 2: Type 1B refers to the determination of prioritization between DL PRS and other DL signals/channels in all OFDM symbols within the PRS processing window. The DL signals/channels from a certain band are affected.NOTE 3: Within a PRS processing window, UE measurement is inside the active DL BWP with PRS having the same numerology as the active DL BWP.NOTE 4: Support of configuration of PRS processing window in RRC and support of using DL MAC CE to activate/deactivate the PRS processing window for PRS measurements is part of the feature.NOTE 5: When the UE determines higher priority for other DL signals/channels over the DL-PRS measurement/processing, the UE is not expected to measure/process DL-PRS. | Band | No | N/A | N/A |
| ***prs-ProcessingWindowType2-r17***Indicates whether the UE supports PRS processing Type 2, subject to the UE determining that DL PRS to be higher priority for PRS measurement outside MG and in a PRS processing window and the priority handling options of PRS as follows:- Option 1: Support of "st1" and "st3" defined in clause 5.1.6.5 of TS 38.214 [12].- Option 2: Support of "st1", "st2", and "st3" defined in clause 5.1.6.5 of TS 38.214 [12].NOTE 1: Void.- Option 3: Support of "st1" only defined in clause 5.1.6.5 of TS 38.214 [12].The UE can include this field only if the UE supports *prs-ProcessingCapabilityBandList-r16* defined in TS 37.355 [22].A UE supporting this feature shall also indicate support of *prs-ProcessingCapabilityOutsideMGinPPW-r17*.NOTE 2: Type 2 refers to the determination of prioritization between DL PRS and other DL signals/channels only in DL PRS symbols within the PRS processing window.NOTE 3: Within a PRS processing window, UE measurement is inside the active DL BWP with PRS having the same numerology as the active DL BWP.NOTE 4: Support of configuration of PRS processing window in RRC and support of using DL MAC CE to activate/deactivate the PRS processing window for PRS measurements is part of the feature.NOTE 5: When the UE determines higher priority for other DL signals/channels over the DL-PRS measurement/processing, the UE is not expected to measure/process DL-PRS. | Band | No | N/A | N/A |
| ***ptrs-DensityRecommendationSetDL***For each supported sub-carrier spacing, indicates preferred threshold sets for determining DL PTRS density. It is mandated for FR2. For each supported sub-carrier spacing, this field comprises:- two values of *frequencyDensity*;- three values of *timeDensity*. | Band | CY | N/A | N/A |
| ***ptrs-DensityRecommendationSetUL***For each supported sub-carrier spacing, indicates preferred threshold sets for determining UL PTRS density. For each supported sub-carrier spacing, this field comprises:- two values of *frequencyDensity*;- three values of *timeDensity*;- five values of *sampleDensity*. | Band | No | N/A | N/A |
| ***pucch-Repetition-F0-2-r17***Indicates whether the UE supports transmission of a PUCCH format 0 and 2 over multiple slots with the repetition factor 2, 4 or 8.A UE supporting this feature shall also indicate support of *pucch-Repetition-F1-3-4*. | Band | No | N/A | N/A |
| ***pucch-SpatialRelInfoMAC-CE***Indicates whether the UE supports indication of *PUCCH-spatialrelationinfo* by a MAC CE per PUCCH resource. It is mandatory for FR2 and optional for FR1. | Band | CY | N/A | N/A |
| ***pusch-256QAM***Indicates whether the UE supports 256QAM modulation scheme for PUSCH as defined in 6.3.1.2 of TS 38.211 [6]. | Band | No | N/A | N/A |
| ***pusch-RepetitionMsg3-r17***Indicates whether the UE supports repetition of PUSCH transmission scheduled by RAR UL grant and DCI format 0\_0 with CRC scrambled by TC-RNTI. | Band | No | N/A | N/A |
| ***pusch-RepetitionMultiSlots-v1650***Indicates whether the UE supports transmitting PUSCH scheduled by DCI format 0\_1 when configured with *pusch-AggregationFactor* > 1, as defined in clause 6.1.2.1 of TS 38.214 [12]. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *pusch-RepetitionMultiSlots-r16* applies. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.The UE only includes *pusch-RepetitionMultiSlots-v1650* if *pusch-RepetitionMultiSlots* is absent. | Band | Yes | N/A | N/A |
| ***pusch-RepetitionTypeA-v16c0***Indicates whether the UE supports the dynamic indication of the number of repetitions for PUSCH transmission as specified in TS 38.214 [12], clause 6.1.2.1. Support of this field is reported for shared spectrum channel access and non-shared spectrum channel access, respectively. UE indicating support of this feature shall support at least one of *type2-PUSCH-RepetitionMultiSlots* and *pusch-RepetitionMultiSlots* for shared spectrum and non-shared spectrum respectively.UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands respectively.The UE only includes *pusch-RepetitionTypeA-v16c0* if *pusch-RepetitionTypeA-r16* is absent. | Band | No | N/A | N/A |
| ***pusch-TransCoherence***Defines support of the uplink codebook subset by the UE for UL precoding for PUSCH transmission as described in clause 6.1.1.1 of TS 38.214 [12]. UE indicated support of partial coherent codebook subset shall also support non-coherent codebook subset. UE indicated support of full coherent codebook subset shall also support partial and non-coherent codebook subset. | Band | No | N/A | N/A |
| ***puschTypeA-RepetitionsAvailSlot-r17***Indicates whether UE supports dynamic and configured grant PUSCH repetitions based on available slots. Transmission occasions for the repetitions for dynamic and configured grant PUSCH are determined on the basis of available slots.A UE that indicates support of this feature shall support *type1-PUSCH-RepetitionMultiSlots, type2-PUSCH-RepetitionMultiSlots* or *pusch-RepetitionMultiSlots.* | Band | No | N/A | N/A |
| ***rateMatchingLTE-CRS***Indicates whether the UE supports receiving PDSCH with resource mapping that excludes the REs determined by the higher layer configuration LTE-carrier configuring common RS, as specified in TS 38.214 [12]. | Band | Yes | N/A | N/A |
| ***releaseSPS-MulticastWithCS-RNTI-r17***Indicates whether UE supports unicast PDCCH scrambled with CS-RNTI to release SPS group-common PDSCH. For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE that indicates the support of this feature shall indicate support of *sps-Multicast-r17* and *sps-r16.* | Band | No | N/A | N/A |
| ***re-LevelRateMatchingForMulticast-r17***Indicates whether the UE supports group-common PDSCH RE-level rate matching for multicast, comprised of the following functional components:- Supports SP ZP-CSI-RS for group-common PDSCH RE-mapping patterns;- Supports P ZP-CSI-RS for group-common PDSCH RE-mapping patterns;- Supports *p-ZP-CSI-RS-ResourceSet* configured in *PDSCH-Config-Multicast* same as or different from the *p-ZP-CSI-RS-ResourceSet* configured in *PDSCH-Config*;- Supports AP ZP-CSI-RS for group-common PDSCH RE-mapping patterns.For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE supporting this feature shall also indicate support of *dynamicMulticastPCell-r17*. A UE supporting this feature in FR1 bands shall also indicate support of *pdsch-RE-MappingFR1-PerSymbol* or *pdsch-RE-MappingFR1-PerSlot*. A UE supporting this feature in FR2 bands shall also indicate support of *pdsch-RE-MappingFR2-PerSymbol* or *pdsch-RE-MappingFR2-PerSlot*.NOTE: The total number of semi-persistent ZP-CSI-RS-ResourceSet that a UE can be configured with is the same as for unicast in Rel-16. | Band | No | N/A | N/A |
| ***rlm-Relaxation-r17***Indicates whether the UE supports RLM relaxation criteria and requirement as specified in TS 38.133 [5]. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.UE indicating support of this feature shall also indicate support of *ssb-RLM* and/or *csi-RS-RLM.* | Band | No | N/A | N/A |
| ***searchSpaceSetGrp-switchCap2-r17***Indicates whether UE supports search space set group switching capability 2 for FR1 according to Table 10.4-1 of TS 38.213 [11] for SSSG switching.UE indicating support of this feature shall also indicate support of *sssg-Switching-1bitInd-r17*.NOTE: For UE supporting this feature and also *sssg-Switching-1BitInd-r17*, *sssg-Switching-2BitInd-r17*, and/or *pdcch-SkippingWithSSSG-r17*, search space set group switching Capability-2 is applied to *sssg-Switching-1BitInd-r17*, *sssg-Switching-2BitInd-r17*, and/or *pdcch-SkippingWithSSSG-r17*. | Band | No | N/A | FR1 only |
| ***semi-PersistentL1-SINR-Report-PUCCH-r16***Indicates whether the UE supports semi-persistent L1-SINR report on PUCCH. The UE indicating support of this feature shall include at least one of the following capabilities:- *supportReportFormat1-2OFDM-syms-r16* indicates support of report on PUCCH formats over 1 – 2 OFDM symbols once per slot (or piggybacked on a PUSCH)- *supportReportFormat4-14OFDM-syms-r16* indicates support of report on PUCCH formats over 4 – 14 OFDM symbols once per slot (or piggybacked on a PUSCH).The UE indicating support of this feature shall also indicate support of *ssb-csirs-SINR-measurement-r16.*  | Band | No | N/A | N/A |
| ***semi-PersistentL1-SINR-Report-PUSCH-r16***Indicates whether the UE supports semi-persistent L1-SINR report on PUSCH. The UE indicating support of this feature shall also indicate support of *ssb-csirs-SINR-measurement-r16.*  | Band | No | N/A | N/A |
| ***separateCRS-RateMatching-r16***Indicates whether the UE supports rate match around configured CRS patterns which is associated with *CORESETPoolIndex* (if configured) and are applied to the PDSCH scheduled with a DCI detected on a CORESET with the same value of *CORESETPoolIndex*. The UE that indicates support of this feature shall support *multiDCI-MultiTRP-r16* and *overlapRateMatchingEUTRA-CRS-r16.* This is only applicable for 15kHz SCS. | Band | No | N/A | FR1 only |
| ***sfn-SimulTwoTCI-AcrossMultiCC-r17***Indicates whether the UE supports simultaneous activation of two TCI states for CORESETs with the same CORESET ID in all BWPs across a set of configured component carriers by single MAC-CE. The UE indicating support of this feature shall also indicate *sfn-schemeA-r17* or *sfn-schemeB-r17* or *sfn-SchemeA-PDCCH-only-r17*.The UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively. | Band | No | N/A | N/A |
| ***sfn-DefaultDL-BeamSetup-r17***Indicates whether the UE supports the following features:- For FR2 only, PDSCH reception using default beam for enhanced SFN scheme when PDSCH is scheduled with offset less than threshold.- For FR1 and FR2, PDSCH reception using default beam for enhanced SFN scheme when TCI field is not present in DCI format 1\_0/1\_1/1\_2 when PDSCH is scheduled with offset equal or larger than the threshold, if applicable.- For FR2 only, aperiodic CSI-RS reception using default beam for enhanced SFN scheme when scheduling offset is less than threshold.The UE indicating support of this feature shall also indicate *sfn-schemeA-r17* or *sfn-schemeB-r17.* | Band | No | N/A | N/A |
| ***sfn-DefaultUL-BeamSetup-r17***Indicates whether the UE supports the following features:- Support of single-TRP PUCCH transmission using default beam when enhanced SFN PDCCH transmission scheme is configured.- Support of single-TRP PUSCH transmission using default beam when enhanced SFN PDCCH transmission scheme is configured.- Support of single-TRP SRS resource transmission using default beam when enhanced SFN PDCCH transmission scheme is configured.The UE indicating support of this feature shall also indicate *sfn-schemeA-r17* or *sfn-schemeB-r17* or *sfn-SchemeA-PDCCH-only-r17*. | Band | No | N/A | FR2 only |
| ***sfn-ImplicitRS-twoTCI-r17***Indicates whether the UE supports RS(s) with two TCI states configured implicitly for beam failure detection enhancement for HST. | Band | No | N/A | N/A |
| ***sfn-QCL-TypeD-Collision-twoTCI-r17***Indicates whether the UE supports identification of two QCL-TypeD properties for multiple overlapping CORESETs when a CORESET is activated with two TCI states which overlaps with another CORESET. | Band | No | N/A | N/A |
| ***simul-SpatialRelationUpdatePUCCHResGroup-r16***Indicates whether the UE support PUCCH resource groups per BWP for simultaneous spatial relation update. The UE indicating support of this also indicates the capabilities of supported SRS resources and maximum supported spatial relations for the supported bands using *supportedSRS-Resources, maxNumberConfiguredSpatialRelations* and *pucch-SpatialRelInfoMAC-CE*. | Band | No | N/A | N/A |
| ***simulTX-SRS-AntSwitchingIntraBandUL-CA-r16***Indicates whether the UE support simultaneous transmission of SRS on different CCs for intra-band UL CA. The UE indicating support of this feature shall include at least one of the following capabilities:- *supportSRS-xTyR-xLessThanY-r16* indicates support transmission of SRS for xTyR (x<y) based antenna switching and SRS for CB/NCB/BM on different CCs in overlapped symbol(s) for intra-band UL CA.- *supportSRS-xTyR-xEqualToY-r16* indicates support transmission of SRS for xTyR (x=y) based antenna switching and SRS for CB/NCB/BM on different CCs in overlapped symbol(s) for intra-band UL CA.- *supportSRS-AntennaSwitching-r16* Indicates whether the UE support simultaneous transmission of SRS for antenna switching on different CCs in overlapped symbol(s) for intra-band UL CA.NOTE: For simultaneously antenna switching and antenna switching SRS in intra-band CAs with bands whose UL are switched together according to the reported *supportSRS-AntennaSwitching-r16*, the UE expects the same configuration of xTyR across the different CCs and the SRS resources overlapped in time domain from UE perspective are from the same UE antenna ports. | Band | No | N/A | N/A |
| ***simulSRS-MIMO-TransWithinBand-r16***Indicates the number of SRS resources for positioning and SRS resource for MIMO on a symbol within a band across multiple CCs. The UE can include this field only if the UE supports *srs-PosResources-r16*. Otherwise, the UE does not include this field. | Band | No | N/A | N/A |
| ***simulSRS-TransWithinBand-r16***Indicates the number of SRS resources for positioning on a symbol within a band across multiple CCs. The UE can include this field only if the UE supports *srs-PosResources-r16*. Otherwise, the UE does not include this field. | Band | No | N/A | N/A |
| ***simultaneousReceptionDiffTypeD-r16***Indicates whether the UE supports simultaneous reception with different QCL Type D reference signal as specified in TS38.213 [11]. | Band | No | N/A | FR2 only |
| ***sn-InitiatedCondPSCellChangeNRDC-r17***Indicates whether the UE supports SN initiated inter-SN conditional PSCell change in NR-DC, which is configured by NR *conditionalReconfiguration* using SN configured measurement as triggering condition. The UE supporting this feature shall also support 2 trigger events for same execution condition in SN initiated inter-SN conditional PSCell change in NR-DC. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands respectively. | Band | No | N/A | N/A |
| ***spatialRelations, spatialRelations-v1640***Indicates whether the UE supports spatial relations. The capability signalling comprises the following parameters.- *maxNumberConfiguredSpatialRelations* indicates the maximum number of configured spatial relations per CC for PUCCH and SRS. It is not applicable to FR1 and applicable to FR2 only. The UE is mandated to report 16 or higher values. *maxNumberConfiguredSpatialRelations-v1640* indicates the maximum number of configured spatial relations per CC for PUCCH and SRS with UE supporting the configuration of maximum 64 PUCCH spatial relations per BWP per CC;- *maxNumberActiveSpatialRelations* indicates the maximum number of active spatial relations with regarding to PUCCH and SRS for PUSCH, per BWP per CC. It is not applicable to FR1 and applicable and mandatory to report one or higher value for FR2 only;- *additionalActiveSpatialRelationPUCCH* indicates support of one additional active spatial relation for PUCCH. It is mandatory with capability signalling if *maxNumberActiveSpatialRelations* is set to n1;- *maxNumberDL-RS-QCL-TypeD* indicates the maximum number of downlink RS resources used for QCL type D in the active TCI states and active spatial relation information, which is optional.The UE is mandated to report *spatialRelations* for FR2. if *maxNumberConfiguredSpatialRelations-v1640* is reported, UE shall report value *n96* in *maxNumberConfiguredSpatialRelations*. | Band | FD | N/A | FD |
| ***spatialRelationsSRS-Pos-r16***Indicates whether the UE supports spatial relations for SRS for positioning. The capability signalling comprises the following parameters.- *spatialRelation-SRS-PosBasedOnSSB-Serving-r16* indicates whether the UE supports spatial relation for SRS for positioning based on SSB from the serving cell in the same band. The UE can include this field only if the UE supports *srs-PosResources-r16*. Otherwise, the UE does not include this field;- *spatialRelation-SRS-PosBasedOnCSI-RS-Serving-r16* indicates whether the UE supports spatial relation for SRS for positioning based on CSI-RS from the serving cell in the same band. The UE can include this field only if the UE supports *spatialRelation-SRS-PosBasedOnSSB-Serving-r16*. Otherwise, the UE does not include this field;- *spatialRelation-SRS-PosBasedOnPRS-Serving-r16* indicates whether the UE supports spatial relation for SRS for positioning based on PRS from the serving cell in the same band. The UE can include this field only if the UE supports any of DL PRS Resources for DL AoD, DL PRS Resources for DL-TDOA or DL PRS Resources for Multi-RTT defined in TS37.355 [22], or *srs-PosResources-r16*. Otherwise, the UE does not include this field;- *spatialRelation-SRS-PosBasedOnSRS-r16* indicates whether the UE supports spatial relation for SRS for positioning based on SRS in the same band. The UE can include this field only if the UE supports *srs-PosResources-r16*. Otherwise, the UE does not include this field;- *spatialRelation-SRS-PosBasedOnSSB-Neigh-r16* indicates whether the UE supports spatial relation for SRS for positioning based on SSB from the neighbouring cell in the same band. The UE can include this field only if the UE supports *spatialRelation-SRS-PosBasedOnSSB-Serving-r16*. Otherwise, the UE does not include this field;- *spatialRelation-SRS-PosBasedOnPRS-Neigh-r16* indicates whether the UE supports spatial relation for SRS for positioning based on PRS from the neighbouring cell in the same band. The UE can include this field only if the UE supports *spatialRelation-SRS-PosBasedOnPRS-Serving-r16*. Otherwise, the UE does not include this field;NOTE: A PRS from a PRS-only TP is treated as PRS from a non-serving cell. | Band | No | N/A | FR2 only |
| ***spatialRelationsSRS-PosRRC-Inactive-r17***Indicates whether the UE supports spatial relations for SRS for positioning in RRC\_INACTIVE. The capability signalling comprises the following parameters:- *spatialRelation-SRS-PosBasedOnSSB-Serving-r16* indicates whether the UE supports spatial relation for SRS for positioning based on SSB from the serving cell in the same band. The UE indicating support of this feature shall also indicate support of *srs-PosResourcesRRC-Inactive-r17*;- *spatialRelation-SRS-PosBasedOnCSI-RS-Serving-r16* indicates whether the UE supports spatial relation for SRS for positioning based on CSI-RS from the serving cell in the same band. The UE indicating support of this feature shall also indicate support of *spatialRelation-SRS-PosBasedOnSSB-Serving-r16*;- *spatialRelation-SRS-PosBasedOnPRS-Serving-r16* indicates whether the UE supports spatial relation for SRS for positioning based on PRS from the serving cell in the same band. The UE indicating support of this feature shall also indicate support any of DL PRS Resources for DL AoD, DL PRS Resources for DL-TDOA or DL PRS Resources for Multi-RTT defined in TS37.355 [22], or *srs-PosResourcesRRC-Inactive-r17*;- *spatialRelation-SRS-PosBasedOnSRS-r16* indicates whether the UE supports spatial relation for SRS for positioning based on SRS in the same band. The UE indicating support of this feature shall also indicate support of *srs-PosResourcesRRC-Inactive-r17*;- *spatialRelation-SRS-PosBasedOnSSB-Neigh-r16* indicates whether the UE supports spatial relation for SRS for positioning based on SSB from the neighbouring cell in the same band. The UE indicating support of this feature shall also indicate support of *spatialRelation-SRS-PosBasedOnSSB-Serving-r16*;- *spatialRelation-SRS-PosBasedOnPRS-Neigh-r16* indicates whether the UE supports spatial relation for SRS for positioning based on PRS from the neighbouring cell in the same band. The UE indicating support of this feature shall also indicate support of *spatialRelation-SRS-PosBasedOnPRS-Serving-r16*.NOTE: A PRS from a PRS-only TP is treated as PRS from a non-serving cell. | Band | No | N/A | FR2 only |
| ***sp-BeamReportPUCCH***Indicates support of semi-persistent 'CRI/RSRP' or 'SSBRI/RSRP' reporting using PUCCH formats 2, 3 and 4 in one slot. | Band | No | N/A | N/A |
| ***sp-BeamReportPUSCH***Indicates support of semi-persistent 'CRI/RSRP' or 'SSBRI/RSRP' reporting on PUSCH. | Band | No | N/A | N/A |
| ***sps-MulticastDCI-Format4-2-r17***Indicates whether the UE supports transmission and retransmission scheduled by DCI format 4\_2 with CRC scrambled with G-CS-RNTI for multicast SPS scheduling.A UE that indicates support of this feature shall indicate support of *sps-Multicast-r17*. | Band | No | N/A | N/A |
| ***sps-MulticastMultiConfig-r17***Indicates whether the UE supports up to 8 SPS group-common PDSCH configurations per CFR for multicast on PCell. The value indicates the maximum number of activated SPS group-common PDSCH configurations per CFR for multicast.The total number of SPS configurations for both multicast and unicast is no larger than 8 in a BWP of a serving cell. The total number of SPS configurations for both multicast and unicast in a cell group is no larger than 32.For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE that indicates support of this feature shall indicate support of *sps-Multicast-r17*. | Band | No | N/A | N/A |
| ***sps-r16***Indicates whether the UE support of up to 8 configured SPS configurations in a BWP of a serving cell and up to 32 configured SPS configurations in a cell group. This field includes the following parameters:- *maxNumberConfigsPerBWP-r16* indicates the maximum number of active SPS configurations in a BWP of a serving cell.- *maxNumberConfigsAllCC-r16* indicates the maximum number of active SPS configurations across all serving cells in a MAC entity, and across MCG and SCG in case of NR-DC.The UE can include this feature only if the UE indicates support of *downlinkSPS*.NOTE:- For all the reported bands in FR1, a same X1 value is reported for *maxNumberConfigsAllCC-r16*. For all the reported bands in FR2, a same X2 value is reported for *maxNumberConfigsAllCC-r16*.- The total number of active SPS configurations across all serving cells in FR1 is no greater than X1.- The total number of active SPS configurations across all serving cells in FR2 is no greater than X2.- If the CA have some serving cell(s) in FR1 and some serving cell(s) in FR2, the total number of active SPS configurations across all serving cells is no greater than max(X1, X2). | Band | No | N/A | N/A |
| ***srs-AssocCSI-RS***Parameters for the calculation of the precoder for SRS transmission based on channel measurements using associated NZP CSI-RS resource (srs-AssocCSI-RS) as described in clause 6.1.1.2 of TS 38.214 [12]. UE supporting this feature shall also indicate support of non-codebook based PUSCH transmission.This capability signalling includes list of the following parameters:- *maxNumberTxPortsPerResource* indicates the maximum number of Tx ports in a resource;- *maxNumberResourcesPerBand* indicates the maximum number of resources across all CCs within a band simultaneously;*-* *totalNumberTxPortsPerBand* indicates the total number of Tx ports across all CCs within a band simultaneously. | Band | No | N/A | N/A |
| ***srs-combEight-r17***Indicates whether the UE supports comb-8 for SRS other than for positioning. | Band | No | N/A | N/A |
| ***srs-increasedRepetition-r17***Indicates whether the UE supports increased repetition patterns (8, 10, 12, 14 symbols) for SRS resource.The UE supporting this feature shall also indicate the support of *srs-StartAnyOFDM-Symbol-r16*. | Band | No | N/A | N/A |
| ***srs-partialFreqSounding-r17***Indicates the support of partial frequency sounding for SRS for non-frequency hopping case.The UE indicating support of this feature shall also indicate the support of *srs-partialFrequencySounding-r17*. | Band | No | N/A | N/A |
| ***srs-partialFrequencySounding-r17***Indicates whether the UE supports partial frequency sounding for SRS with frequency hopping. | Band | No | N/A | N/A |
| ***srs-PosResourcesRRC-Inactive-r17***Indicates support of positioning SRS transmission in RRC\_INACTIVE for initial UL BWP. The capability signalling comprises the following parameters:- *maxNumberSRS-PosResourceSetPerBWP-r17* Indicates the max number of SRS Resource Sets for positioning supported by UE*;*- *maxNumberSRS-PosResourcesPerBWP-r17* indicates the max number of P/SP SRS Resources for positioning;- *maxNumberSRS-ResourcesPerBWP-PerSlot-r17* indicates the max number of P/SP SRS Resources for positioning per slot;- *maxNumberPeriodicSRS-PosResourcesPerBWP-r17* indicates the max number of periodic SRS Resources for positioning;- *maxNumberPeriodicSRS-PosResourcesPerBWP-PerSlot-r17* indicates the max number of periodic SRS Resources for positioning per slot.NOTE: OLPC for SRS for positioning based on SSB from the last serving cell (the cell that releases UE from connection) is part of this feature. No dedicated capability signalling is intended for this component | Band | No | N/A | N/A |
| ***srs-SemiPersistent-PosResourcesRRC-Inactive-r17***Indicates support of positioning SRS transmission in RRC\_INACTIVE for initial UL BWP with semi-persistent SRS. UE indicating support of this feature shall indicate support of *srs-PosResourcesRRC-Inactive-r17*.The capability signalling comprises the following parameters:- *maxNumOfSemiPersistentSRSposResources-r17* indicates the max number of semi-persistent SRS Resources for positioning;- *maxNumOfSemiPersistentSRSposResourcesPerSlot-r17* indicates the max number of semi-persistent SRS Resources for positioning per slot. | Band | No | N/A | N/A |
| ***srs-PortReport-r17***Indicates the maximum number of SRS ports for each UE reported quantity in *reportQuantity-r17*. | Band | No | N/A | N/A |
| ***srs-PortReportSP-AP-r17***Indicates that the UE supports the maximum number of SRS ports with semi-persistent/aperiodic capability value reporting.The UE supporting this feature shall also indicate support of *srs-PortReport-r17* and one of *aperiodicBeamReport*, *sp-BeamReportPUCCH*, *sp-BeamReportPUSCH,* *ssb-csirs-SINR-measurement-r16, semi-PersistentL1-SINR-Report-PUCCH-r16* or *semi-PersistentL1-SINR-Report-PUSCH-r16.*   | Band | No | N/A | N/A |
| ***srs-startRB-locationHoppingPartial-r17***Indicates whether the UE supports start RB location hopping in partial frequency SRS transmission across different SRS frequency hopping periods for periodic/semi-persistent/aperiodic SRS.The UE supporting this feature shall also indicate the support of *srs-partialFrequencySounding-r17.* | Band | No | N/A | N/A |
| ***srs-TriggeringOffset-r17***Indicates the maximum number of configured available slots offsets for determining aperiodic SRS location based on available slot. | Band | No | N/A | N/A |
| ***srs-TriggeringDCI-r17***Indicates whether the UE supports triggering SRS in DCI 0\_1/0\_2 without data and without CSI. | Band | No | N/A | N/A |
| ***ssb-csirs-SINR-measurement-r16***Indicates the limitations of the UE support of SSB/CSI-RS for L1-SINR measurement.This capability signalling includes list of the following parameters:Per slot limitations:- *maxNumberSSB-CSIRS-OneTx-CMR-r16* indicates the maximum number of SSB/CSI-RS (1TX) across all CCs within a band for Channel Measurement Report- *maxNumberCSI-IM-NZP-IMR-res-r16* indicates the maximum number of CSI-IM/NZP-IMR resources across all CCs within a band- maxNumberCSIRS-2Tx-res-r16 indicates the maximum number of CSI-RS (2TX) resources across all CCs within a band for Channel Measurement ReportMemory limitations:- *maxNumberSSB-CSIRS-res-r16* indicates the max number of SSB/CSI-RS resources across all CCs within a band as Channel Measurement Report- *maxNumberCSI-IM-NZP-IMR-res-mem-r16* indicates the maximum number of CSI-IM/NZP-IMR resources across all CCs within a bandOther limitations:- *supportedCSI-RS-Density-CMR-r16* indicates supported density of CSI-RS for Channel Measurement Report.- *maxNumberAperiodicCSI-RS-Res-r16* indicates the maximum number of aperiodic CSI-RS resources across all CCs within a band configured to measure L1-SINR (including CMR and IMR)- *supportedSINR-meas* indicates the supported SINR measurements.- *supportedSINR-meas-r16* contains values {*ssbWithCSI-IM*, *ssbWithNZP-IMR*, *csirsWithNZP-IMR*, *csi-RSWithoutIMR*} representing {SSB as CMR with dedicated CSI-IM, SSB as CMR with dedicated NZP IMR, CSI-RS as CMR with dedicated NZP IMR configured, CSI-RS as CMR without dedicated IMR configured}.- *supportedSINR-meas-v1670* indicates a 4-bit bitmap {ssbWithCSI-IM, ssbWithNZP-IMR, csirsWithNZP-IMR, csi-RSWithoutIMR}, where the leftmost bit corresponds to ssbWithCSI-IM, the next bit corresponds to ssbWithNZP-IMR and so on. UE indicating *supportedSINR-meas-v1670* shall always indicate *supportedSINR-meas-r16.*UE supporting this feature shall also indicate support of CSI-RS as CMR with dedicated CSI-IM. UE indicating support of this feature shall also indicate support of *periodicBeamReport* and *aperiodicBeamReport* or *sp-BeamReportPUCCH* and *sp-BeamReportPUSCH.* UE indicating support of *ssb-csirs-SINR-measurement-r16* shall support periodic and aperiodic L1-SINR report.NOTE 1: The reference slot duration is the shortest slot duration defined for the frequency range where the reported band belongs.NOTE 2: For *maxNumberSSB-CSIRS-res-r16* and *maxNumberCSI-IM-NZP-IMR-res-mem-r16* the configured CSI-RS resources for both active and inactive BWPs are counted.NOTE 3: For *maxNumberSSB-CSIRS-OneTx-CMR-r16, maxNumberCSI-IM-NZP-IMR-res-r16* and *maxNumberCSIRS-2Tx-res-r16*, CSI-RS resources configured as CMR without dedicated IMR are counted both as CMR and IMR.NOTE 4: For *maxNumberSSB-CSIRS-OneTx-CMR-r16*, *maxNumberCSI-IM-NZP-IMR-res-r16*, *maxNumberCSIRS-2Tx-res-r16*, *maxNumberAperiodicCSI-RS-Res-r16*, a SSB/CSI-RS resource is counted within the duration of a reference slot in which the corresponding reference signals are transmitted.NOTE 5: For *maxNumberSSB-CSIRS-OneTx-CMR-r16*, *maxNumberCSI-IM-NZP-IMR-res-r16*, *maxNumberCSIRS-2Tx-res-r16*, *maxNumberAperiodicCSI-RS-Res-r16*, if one resource used for L1-SINR measurement is referred N times by one or more CSI reporting settings with *reportQuantity-r16* = *ssb-Index-SINR-r16* or *cri-SINR-r16*, it is counted N times.NOTE 6: If more than one type of SINR measurement is indicated in *supportedSINR-meas-v1670*, it is left to UE implementation which SINR measurement to indicate in *supportedSINR-meas-r16*. | Band | No | N/A | N/A |
| ***sssg-Switching-1BitInd-r17***Indicates whether the UE supports 1-bit indication of SSSG switching between 2 SSSGs by scheduling DCI, and timer based SSSG switching, if *pdcch-SkippingDurationList* is not configured as specified in TS 38.213 [11], clause 10.4. UE supports search space set group switching capability-1 according to Table 10.4-1 of TS 38.213 [11]. | Band | No | N/A | N/A |
| ***sssg-Switching-2BitInd-r17***Indicates whether the UE supports 2-bit indication of SSSG switching among 3 SSSGs by scheduling DCI and timer based SSSG switching, if *pdcch-SkippingDurationList* is not configured as specified in TS 38.213 [11], clause 10.4. UE supports search space set group switching capability-1 according to Table 10.4-1 of TS 38.213 [11].UE indicating support of this feature shall also indicate support of *sssg-Switching-1bitInd-r17*. | Band | No | N/A | N/A |
| ***support64CandidateBeamRS-BFR-r16***Indicates UE support of configuring maximum 64 candidate beam RSs per BWP per CC. UE indicating support of this feature shall also indicate support of *maxNumberCSI-RS-BFD, maxNumberSSB-BFD* and *maxNumberCSI-RS-SSB-CBD.* | Band | No | N/A | N/A |
| ***supportCodeWordSoftCombining-r16***Indicates whether UE supports codeword soft combining for FDMSchemeB. UE indicates support of this feature depends on whether the *supportFDM-SchemeB-r16* is also supported. | Band | No | N/A | N/A |
| ***supportFDM-SchemeA-r16***Indicates whether UE supports single DCI based FDMSchemeA. | Band | No | N/A | N/A |
| ***supportInter-slotTDM-r16***Indicates whether UE supports single-DCI based inter-slot TDM. This capability signalling includes the following:- *supportRepNumPDSCH-TDRA-r16* indicates support of RepNumR16 in PDSCH-TimeDomainResourceAllocation and the maximum value of RepNumR16- *maxTBS-Size-r16* indicates maximum TBS size.- *maxNumberTCI-states-r16* indicates the maximum number of TCI states. | Band | No | N/A | N/A |
| ***supportNewDMRS-Port-r16***Indicates whether UE supports new DMRS port entry {0,2,3}. UE supports this feature should indicate support *singleDCI-SDM-scheme-r16* for the band. | Band | No | N/A | N/A |
| ***supportRepNumPDSCH-TDRA-DCI-1-2-r17***Indicates support of *repetitionNumber-v1730* in *PDSCH-TimeDomainResourceAllocation* for DCI format 1\_2 and the maximum value of *repetitionNumber-v1730*. | Band | No | N/A | N/A |
| ***supportTDM-SchemeA-r16***Indicates whether UE supports single DCI based TDMSchemeA. The capability signalling includes the maximum TBS size. | Band | No | N/A | N/A |
| ***supportTwoPortDL-PTRS-r16***Indicates whether UE supports 2-port DL PT-RS. UE supports this feature should indicate support *singleDCI-SDM-scheme-r16* for the band. | Band | No | N/A | N/A |
| ***ta-BasedPDC-NTN-SharedSpectrumChAccess-r17***Indicates whether the UE supports propagation delay compensation based on legacy TA procedure for NTN and shared spectrum channel access. | Band | No | N/A | N/A |
| ***tb-ProcessingMultiSlotPUSCH-r17***Indicates whether UE supports TB processing over multi-slot PUSCH for DG and Type 2 CG without repetition in RRC connected mode. | Band | No | N/A | N/A |
| ***tb-ProcessingRepMultiSlotPUSCH-r17***Indicates whether UE supports repetition of TB processing over multi-slot PUSCH in RRC connected mode.UE supporting this feature shall also indicates support of *tb-ProcessingMultiSlotPUSCH-r17*. | Band | No | N/A | N/A |
| ***tci-StatePDSCH***Defines support of TCI-States for PDSCH. The capability signalling comprises the following parameters:- *maxNumberConfiguredTCIstatesPerCC* indicates the maximum number of configured TCI-states per CC for PDSCH. For FR2, the UE is mandated to set the value at least to 64 (i.e. value 128 is an optional value). For FR1, the UE is mandated to set these values at least to the maximum number of allowed SSBs in the supported band;- *maxNumberActiveTCI-PerBWP* indicates the maximum number of activated TCI-states per BWP per CC, including control and data. If a UE reports X active TCI state(s), it is not expected that more than X active QCL type D assumption(s) for any PDSCH and any CORESETs for a given BWP of a serving cell become active for the UE. The UE shall include this field.Note the UE is required to track only the active TCI states.The UE is mandated to report *tci-StatePDSCH*. | Band | Yes | N/A | N/A |
| ***timeBasedCondHandover-r17***Indicates whether the UE supports time based conditional handover, i.e., *CondEvent T1* as specified in TS 38.331 [9]. A UE supporting this feature shall also indicate the support of *condHandover-r16* for NTN bands and the support of *nonTerrestrialNetwork-r17*. UE shall set the capability value consistently for all FDD-FR1 NTN bands. | Band | No | N/A | N/A |
| ***triggeredHARQ-CodebookRetx-r17***Indicates whether the UE supports triggered HARQ-ACK codebook re-transmission from an earlier PUCCH slot based on the triggering information in DCI format 1\_1 and DCI format 1\_2 (for a UE supporting DCI format 1\_2 as indicated in dci-Format1-2And0-2-r16) and support the related PHY priority handling in terms of HARQ-ACK codebook selection and the applicable PUCCH configuration (for a UE supporting two HARQ-ACK codebooks / PUCCH config as indicated in twoHARQ-ACK-Codebook-type1-r16). The capability signalling comprises the following parameters:- *minHARQ-Retx-Offset-r17* indicates minimum value for the HARQ re-tx offset. Value *n-7* corresponds to -7, value *n-5* corresponds to -5, and so on.- *maxHARQ-Retx-Offset-r17* indicates maximum value for the HARQ re-tx offset.NOTE: The minimum requirement for *minHARQ-Retx-Offset-r17* and *maxHARQ-Retx-Offset-r17* is valid for HARQ CBs consisted of HARQ Processes with a single HARQ bit per HARQ Process ID. | Band | No | N/A | N/A |
| ***trs-AdditionalBandwidth-r16***Indicates the UE supported TRS bandwidths, in addition to 52 RBs, for a 10MHz UE channel bandwidth. This field only applies for the BWPs configured with 52 RBs size and 15kHz SCS, in FDD bands.Value *trs-AddBW-Set1* indicates 28, 32, 36, 40, 44, 48 RBs.Value *trs-AddBW-Set2* indicates 32, 36, 40, 44, 48 RBs. | Band | No | FDD only | FR1 only |
| ***twoHARQ-ACK-CodebookForUnicastAndMulticast-r17***Indicates whether the UE supports two HARQ-ACK codebooks simultaneously constructed for supporting HARQ-ACK codebooks with different priorities for unicast and multicast at a UE.For TN, the UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands and all TDD-FR2 bands, associated with supported shared and non-shared spectrum respectively. For NTN, UE shall set the capability value consistently for all FDD-FR1 NTN bands.A UE supporting this feature shall also indicate support of *priorityIndicatorInDCI-Multicast-r17*. | Band | No | N/A | N/A |
| ***twoPortsPTRS-UL***Defines whether UE supports PT-RS with 2 antenna ports for UL transmission. | Band | No | N/A | N/A |
| ***type1-HARQ-Codebook-r17***Indicates whether the UE supports Type-1 HARQ codebook enhancements when there are feedback-disabled HARQ processes*.* UE indicating support of this feature shall also indicate support of *harq-FeedbackDisabled-r17.* This field is only applicable for bands in Table 5.2.2-1 in TS 38.101-5 [34] and HAPS operation bands in clause 5.2 of TS 38.104 [35]. | Band | No | N/A | N/A |
| ***type2-HARQ-Codebook-r17***Indicates whether the UE supports Type-2 HARQ codebook enhancements when there are feedback-disabled HARQ processes*.* UE indicating support of this feature shall also indicate support of *harq-FeedbackDisabled-r17.* This field is only applicable for bands in Table 5.2.2-1 in TS 38.101-5 [34] and HAPS operation bands in clause 5.2 of TS 38.104 [35]. | Band | No | N/A | N/A |
| ***type1-PUSCH-RepetitionMultiSlots-v1650***Indicates whether the UE supports Type 1 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value equal to 2, 4, or 8 with a single repetition of the transport block within each slot, and redundancy version pattern as indicated by UL-TWG-RV-rep. A UE supporting this feature shall also support Type 1 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value of one. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *type1-PUSCH-RepetitionMultiSlots-r16* applies. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.The UE only includes *type1-PUSCH-RepetitionMultiSlots-v1650* if *type1-PUSCH-RepetitionMultiSlots* is absent | Band | No | N/A | N/A |
| ***type2-PUSCH-RepetitionMultiSlots-v1650***Indicates whether the UE supports Type 2 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value equal to 2, 4, or 8 with a single repetition of the transport block within each slot, and redundancy version pattern as indicated by UL-TWG-RV-rep. A UE supporting this feature shall also support Type 2 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value of one. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *type2-PUSCH-RepetitionMultiSlots-r16* applies. UE shall set the capability value consistently for all FDD-FR1 bands, all TDD-FR1 bands, all TDD-FR2-1 bands and all TDD-FR2-2 bands respectively.The UE only includes *type2-PUSCH-RepetitionMultiSlots-v1650* if *type2-PUSCH-RepetitionMultiSlots* is absent | Band | No | N/A | N/A |
| ***type3-HARQ-Codebook-r17***Indicates whether the UE supports Type-3 HARQ codebook enhancements when there are feedback-disabled HARQ processes*.* UE indicating support of this feature shall also indicate support of *harq-FeedbackDisabled-r17.* This field is only applicable for bands in Table 5.2.2-1 in TS 38.101-5 [34] and HAPS operation bands in clause 5.2 of TS 38.104 [35]. | Band | No | N/A | N/A |
| ***txDiversity-r16***Indicates whether the UE supports transparent Tx diversity requirements as specified in the suffix G clauses of TS 38.101-1 [2] (see also clauses 4.2 and 4.3 of TS38.101-1 [2]). | Band | No | N/A | FR1 only |
| ***ue-OneShotUL-TimingAdj-r17***Indicates whether the UE supports one shot large UL timing adjustment.UE indicating support of this feature shall indicate support of *ue-PowerClass-v1700* set to *'pc6'.* | Band | No | N/A | FR2 only |
| ***ue-PowerClass, ue-PowerClass-v1610, ue-PowerClass-v1700***For FR1, if the UE supports the different UE power class than the default UE power class as defined in clause 6.2 of TS 38.101-1 [2], or in clause 6.2 of TS 38.101-5 [34], the UE shall report the supported UE power class in this field. For FR2, UE shall report the supported UE power class as defined in clause 6 and 7 of TS 38.101-2 [3] in this field. UE indicating support for *pc6* supports the enhanced intra-NR RRM and demodulation processing requirements for FR2 to support high speed up to 350 km/h as specified in TS 38.133 [5]. This capability is not applicable to IAB-MT. The power class pc7 is only applicable for RedCap UEs operation in FR2. This capability is not applicable for UEs indicating support of *maxOutputPowerATG-r18*. | Band | Yes | N/A | N/A |
| ***ue-specific-K-Offset-r17***Indicates whether the UE supports the reception of UE-specific K\_offset comprised of the following functional components:- Support of reception of UE-specific K\_offset via MAC-CE- Support of determining the timing of PUSCH, PUCCH, CSI reference resource, transmission of aperiodic SRS, activation of TA command, first PUSCH transmission in CG Type 2 with UE-specific KoffsetUE indicating support of this feature shall also indicate support of *uplinkPreCompensation-r17* and *uplink-TA-Reporting-r17* for this band*.* This field is only applicable for bands in Table 5.2.2-1 in TS 38.101-5 [34] and HAPS operation bands in clause 5.2 of TS 38.104 [35]. | Band | No | N/A | N/A |
| ***ul-GapFR2-r17***Indicates whether the UE supports FR2 UL gap to perform BPS sensing for Tx power management by the use of uplink gap patterns as specified in TS 38.133 [5] if UE supports a band in FR2. | Band | No | No | FR2 only |
| ***unifiedJointTCI-BeamAlignDLRS-r17***Indicates the support of beam misalignment between the DL source RS in the TCI state to provide spatial relation indication and the PL-RS.The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. | Band | No | N/A | FR2 only |
| ***unifiedJointTCI-commonMultiCC-r17***Indicates the support of common multi-CC TCI state ID update and activation.The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedJointTCI-InterCell-r17***Indicates the support of Unified TCI with joint DL/UL TCI update for inter-cell beam management including following parameters:- *additionalMAC-CE-PerCC-r17* indicates the number of K additional MAC-CEs to indicate joint TCI states per CC in a band.- *additionalMAC-CE-AcrossCC-r17* indicates the number of K additional MAC-CE activated joint TCI states across all CC(s) in a band.A UE indicating support of this shall also indicate support of *unifiedJointTCI-r17* and *unifiedJointTCI-mTRP-InterCell-BM-r17*.NOTE: A UE that supports *unifiedJointTCI-InterCell-r17* supports K additional MAC-CE activated joint TCI states across all CC(s) in a band in addition to the maximum number of MAC-CE activated joint TCI states across all CC(s) in a band signalled in *unifiedJointTCI-r17*. The signalled value in *additionalMAC-CE-AcrossCC-r17* plus the signalled value in *maxActivatedTCIAcrossCC-r17* determine the maximum number of MAC-CE activated joint TCI states across all CC(s) in a band that are applied to intra and inter-cell beam management jointly. | Band | No | N/A | N/A |
| ***unifiedJointTCI-Legacy-CORESET0-r17*** Indicates the support of indication/configuration of R17 TCI states for CORESET #0 and the respective PDSCH reception reusing the Rel-15/16 signalling/configuration design(s)***.***The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedJointTCI-Legacy-SRS-r17***Indicates the support of indication/configuration of R17 TCI states for SRS (except for periodic/semi-persistent SRS for BM) reusing the Rel-15/16 signalling/configuration design(s).The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedJointTCI-Legacy-r17***Indicates the support of indication/configuration of R17 TCI states for aperiodic CSI-RS, PDCCH, PDSCH (except for TRS and for CORESET #0 and the respective PDSCH reception) reusing the Rel-15/16 signalling/configuration design(s).The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedJointTCI-ListSharingCA-r17***Indicates the support of reference BWP/serving cell index to indicate reference TCI state list shared by multiple BWPs/serving cells. The value indicates the maximum number of configured joint TCI state lists across all BWPs and all Serving cells in a band.The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. A UE that supports CA and *unifiedJointTCI-r17* shall indicate support of this feature. | Band | No | N/A | N/A |
| ***unifiedJointTCI-mTRP-InterCell-BM-r17***Indicates the support of inter-cell beam measurement and reporting for inter-cell BM and mTRP. This feature includes support of L1-RSRP measurement and reporting on SSB(s) with PCI(s) different from serving cell PCI (additional PCI) and support of up to K SSBRI-RSRP pairs in one report where a pair is associated with a PCI different from serving cell PCI can be reported, where K is equal to *maxNumberNonGroupBeamReporting*.This feature also includes following parameters:- *maxNumAdditionalPCI-L1-RSRP-r17* indicates the maximum number of RRC-configured] PCI(s) different from serving cell PCI for L1-RSRP measurement.- *maxNumSSB-ResourceL1-RSRP-AcrossCC-r17* indicates the maximum number of SSB resources configured to measure L1-RSRP within a slot with PCI(s) same as or different from serving cell PCI [across all CC].NOTE: *maxNumSSBResource-L1-RSRP-AcrossCC-r17* is also counted in *maxTotalResourcesForOneFreqRange-r16/ maxTotalResourcesForAcrossFreqRanges-r16*. | Band | No | N/A | N/A |
| ***unifiedJointTCI-multiMAC-CE-r17***Indicates the support of unified TCI state operation with joint DL/UL TCI update for intra- and inter-cell beam management with more than one MAC-CE activated joint TCI state per CC with MAC CE and DCI based TCI state indication in DCI formats 1\_1 and 1\_2 with and without DL assignment.This capability signalling includes the following parameters:- *minBeamApplicationTime-r17* indicates the minimum beam application time in Y symbols per SCS indicated only for FR2.- *maxNumMAC-CE-PerCC-r17* indicates the maximum number of MAC-CE activated joint TCI states per CC in a band.The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*.NOTE 1: The maximum number of MAC-CE activated joint TCI states across all CC(s) in a band for more than one MAC-CE activated joint TCI state is signaled in *unifiedJointTCI-r17.*NOTE 2: Activated joint TCI state(s) include all PDCCH/PDSCH receptions and PUSCH/PUCCH. | Band | No | N/A | N/A |
| ***unifiedJointTCI-PC-association-r17***Indicates the support of association between TCI state and UL PC settings except for PL RSfor PUCCH, PUSCH, and SRS.The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedJointTCI-perBWP-CA-r17***Indicates the support of TCI state list configuration per BWP when CA is configured.The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedJointTCI-r17***Indicates the support of unified TCI state operation with joint DL/UL TCI update for intra-cell beam management including the support of:- One MAC-CE activated joint TCI state per CC in a band- TCI state indication for update and activation of MAC CE based TCI state indication for one active TCI stateThe capability signalling comprises the following parameters:- *maxConfiguredJointTCI-r17* indicates the maximum number of configured joint TCI states per BWP per CC in a band- *maxActivatedTCIAcrossCC-r1*7 indicates the maximum number of MAC-CE activated joint TCI states across all CC(s) in a bandIf a UE supports *unifiedJointTCI-InterCell-r17*, the signalled component values (except *additionalMAC-CE-AcrossCC-r17*) also apply to inter-cell beam management,NOTE: Activated joint TCI state(s) include all PDCCH/PDSCH receptions and PUSCH/PUCCH transmissions | Band | No | N/A | N/A |
| ***unifiedJointTCI-SCellBFR-r17***Indicates the support of SCell BFR with unified TCI operation. The maximum number of CCs configured with SCell BFR with unified TCI framework in a band with SpCell BFR is given by *maxNumberSCellBFR-r16*. The UE supporting this feature assumes that maxNumberSCellBFR-r16 includes SpCell. | Band | No | N/A | N/A |
| ***unifiedSeparateTCI-commonMultiCC-r17***Indicates the Common multi-CC DL/UL-TCI state ID update and activation.The UE indicating support of this feature shall also indicate support of *unifiedSeparateTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedSeparateTCI-InterCell-r17***Indicates the support of unified TCI with separate DL/UL TCI update for inter-cell beam management with more than one MAC-CE activated separate TCI state per CC.This feature also includes following parameters:- *k-DL-PerCC-r17* indicates the number of additional MAC-CE activated DL TCI states per CC in a band- *k-UL-PerCC-r17* indicates the number of additional MAC-CE activated UL TCI states per CC in a band- *k-DL-AcrossCC-r17* indicates the number of additional MAC-CE activated DL TCI states across all CC(s) in a band- *k-UL-AcrossCC-r17* indicates the number of additional MAC-CE activated UL TCI states across all CC(s) in a bandThe UE indicating support of this feature shall also indicate support of *unifiedSeparateTCI-r17*.NOTE: A UE that supports this feature supports K additional MAC-CE activated DL and K additional MAC-CE activated UL TCI states across all CC(s) in a band in addition to the maximum number of MAC-CE activated DL and UL TCI states across all CC(s) in a band signalled in *unifiedSeperateTCI-r17*. The signalled value in *k-DL-AcrossCC-r17* (*k-UL-AcrossCC-r17*) plus the signalled value in *maxActivatedDL-TCIAcrossCC-r17* (*maxActivatedUL-TCIAcrossCC-r17*) determine the maximum number of MAC-CE activated DL (UL) TCI states across all CC(s) in a band that are applied to intra and inter-cell beam management jointly. | Band | No | N/A | N/A |
| ***unifiedSeparateTCI-ListSharingCA-r17***Indicates the support of reference BWP/serving cell configured with reference TCI state pool shared by a set of BWPs/serving cells. The value indicates the maximum number of configured DL/UL TCI state pools across all BWPs and all serving cells in a band. | Band | No | N/A | N/A |
| ***unifiedSeparateTCI-multiMAC-CE-r17***Indicates TCI state indication for update and activation a) MAC-CE+DCI-based TCI state indication (use of DCI formats 1\_1/1\_2 with DL assignment)And b) MAC-CE+DCI-based TCI state indication (use of DCI formats 1\_1/1\_2 without DL assignment).This capability signalling includes the following parameters:- *minBeamApplicationTime-r17* indicates the minimum beam application time in Y symbols per SCS.- *maxActivatedDL-TCIPerCC-r17* indicates the maximum number of MAC-CE activated DL TCI states per CC in a band- *maxActivatedUL-TCIPerCC-r17* indicates the maximum number of MAC-CE activated UL TCI states per CC in a bandThe UE indicating support of this feature shall also indicate support of *unifiedSeparateTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedSeparateTCI-perBWP-CA-r17***Indicates the support of DL/UL TCI state pool configuration per BWP for CA mode.The UE indicating support of this feature shall also indicate support of *unifiedSeparateTCI-r17*. | Band | No | N/A | N/A |
| ***unifiedSeparateTCI-r17***Indicates the support of unified TCI state operation with joint DL/UL TCI update for intra-cell beam management including the support of:- One MAC-CE activated DL TCI state per CC in a band- One MAC-CE activated UL TCI state per CC in a band- TCI state indication for update and activation including MAC CE based TCI state indication for one active DL/UL TCI stateThe capability signalling comprises the following parameters:- *maxConfiguredDL-TCI-r17* indicates the maximum number of configured DL TCI states per BWP per CC- *maxConfiguredUL-TCI-r17* indicates the maximum number of configured UL TCI states per BWP per CC- *maxActivatedDL-TCIAcrossCC-r17* indicates the maximum number of MAC-CE activated DL TCI states across all CC(s) in a band- *maxActivatedUL-TCIAcrossCC-r17* indicates the maximum number of MAC-CE activated UL TCI states across all CC(s) in a bandThe UE indicating support of this feature shall also indicate support of *unifiedJointTCI-r17*. If a UE supports *unifiedSeperateTCI-InterCell-r17*, the *maxConfiguredDL-TCI-r17* and *maxConfiguredUL-TCI-r17* apply to intra- and inter-cell beam management jointly. | Band | No | N/A | N/A |
| ***uplinkBeamManagement***Defines support of beam management for UL. This capability signalling comprises the following parameters:- *maxNumberSRS-ResourcePerSet-BM* indicates the maximum number of SRS resources per SRS resource set configurable for beam management, supported by the UE.- *maxNumberSRS-ResourceSet* indicates the maximum number of SRS resource sets configurable for beam management, supported by the UE.If the UE does not set *beamCorrespondenceWithoutUL-BeamSweeping* to *supported*, the UE shall report this capability. This feature is optional for the UE that supports beam correspondence without uplink beam sweeping as defined in clause 6.6, TS 38.101-2 [3].NOTE: The network uses *maxNumberSRS-ResourceSet* to determine the maximum number of SRS resource sets that can be configured to the UE for periodic/semi-persistent/aperiodic configurations as below:

|  |  |
| --- | --- |
| Maximum number of SRS resource sets across all time domain behaviour (periodic/semi-persistent/aperiodic) reported in *maxNumberSRS-ResourceSet* | Additional constraint on the maximum number of SRS resource sets configured to the UE for each supported time domain behaviour (periodic/semi-persistent/aperiodic) |
| 1 | 1 |
| 2 | 1 |
| 3 | 1 |
| 4 | 2 |
| 5 | 2 |
| 6 | 2 |
| 7 | 4 |
| 8 | 4 |

 | Band | No | N/A | FR2 only |
| ***uplinkPreCompensation-r17***Indicates whether the UE supports the uplink time and frequency pre-compensation and timing relationship enhancements comprised of the following functional components:- Support of UE specific TA calculation based on its GNSS-acquired position and the serving satellite ephemeris.- Support of common TA calculation according to the parameters provided by the network (UE considers common TA as 0 if the parameters are not provided)- For TA update in RRC\_CONNECTED state, support of combination of both open (i.e. UE autonomous TA estimation, and common TA estimation) and closed (i.e., received TA commands) control loops- Support of pre-compensation of the calculated TA in its uplink transmissions- Support of estimating UE-gNB RTT and delaying the start of RAR window by UE-gNB RTT- Support of frequency pre-compensation to counter shift the Doppler experienced on the service link- Support of determining timing of the scheduling of PUSCH, PUCCH and PDCCH ordered PRACH, CSI reference resource, transmission of aperiodic SRS activation of TA command, first PUSCH transmission in CG Type 2 with cell-specific K\_offset if indicated- Support of determining timing of the UE action and assumption on a downlink configuration carried by MAC CE command by K\_mac if it is indicated and determining the timing of PDCCH monitoring in recovery search space using K-mac during beam failure recovery procedure- Support of UE receiving cell-specific K\_offset/K\_mac in system informationSupport of this feature in NTN bands is mandatory for UE supporting *nonTerrestrialNetwork-r17*. This field is only applicable for bands in Table 5.2.2-1 in TS 38.101-5 [34] and HAPS operation bands in clause 5.2 of TS 38.104 [35]. | Band | CY | N/A | N/A |
| ***uplink-TA-Reporting-r17***Indicates whether the UE supports UE reporting of information related to TA pre-compensation as specified in TS 38.321 [8]*.* UE indicating support of this feature shall also indicate support of *uplinkPreCompensation-r17* for this band. This field is only applicable for bands in Table 5.2.2-1 in TS 38.101-5 [34] and HAPS operation bands in clause 5.2 of TS 38.104 [35]. | Band | No | N/A | N/A |

<<skipped>>

4.2.7.10 *Phy-Parameters*

| **Definitions for parameters** | **Per** | **M** | **FDD-TDD****DIFF** | **FR1-FR2****DIFF** |
| --- | --- | --- | --- | --- |
| ***absoluteTPC-Command***Indicates whether the UE supports absolute TPC command mode. | UE | No | No | Yes |
| ***aggregationFactorSPS-DL-r16***Indicates whether the UE supports configurable PDSCH aggregation factor ({1, 2, 4, 8}) per DL SPS configuration. The UE can include this feature only if the UE indicates support of *downlinkSPS*. | UE | No | No | Yes |
| ***almostContiguousCP-OFDM-UL***Indicates whether the UE supports almost contiguous UL CP-OFDM transmissions as defined in clause 6.2 of TS 38.101-1 [2]. | UE | No | No | Yes |
| ***bwp-SwitchingDelay***Defines whether the UE supports DCI and timer based active BWP switching delay type1 or type2 specified in clause 8.6.2 of TS 38.133 [5]. It is mandatory to report type 1 or type 2 when *bwp-SameNumerology* or *bwp-DiffNumerology* is supported on at least one band. This capability is not applicable to IAB-MT. | UE | CY | No | No |
| ***bwp-SwitchingMultiCCs-r16***Indicates whether the UE supports incremental delay for DCI and timer based active BWP switching on multiple CCs simultaneously as specified in TS 38.133 [5]. The capability signalling comprises of the following:- *type1-r16* indicates the delay value for type 1 BWP switching delay and has values of {100us, 200us}- *type2-r16* indicates the delay value for type 2 BWP switching delay and has values of {200us, 400us, 800us, 1000us}The UE indicating support of this feature shall also support *bwp-SwitchingDelay*, *bwp-SameNumerology* and/or *bwp-DiffNumerology*. It is mandatory to report either *type1-r16* or *type2-r16* for a UE which supports CA. | UE | CY | No | No |
| ***bwp-SwitchingMultiDormancyCCs-r16***Indicates whether the UE supports incremental delay for BWP switch processing on additional SCells in DCI based simultaneous dormant BWP switching on multiple SCells as specified in TS 38.133 [5]. The capability signalling comprises of the following:- *type1-r16* indicates the delay value for type 1 BWP switching delay and has values of {100us, 200us}- *type2-r16* indicates the delay value for type 2 BWP switching delay and has values of {200us, 400us, 800us, 1000us}The UE indicating support of this feature shall also support *scellDormancyWithinActiveTime-r16* or *scellDormancyOutsideActiveTime-r16*. | UE | No | No | No |
| ***cbg-FlushIndication-DL***Indicates whether the UE supports CBG-based (re)transmission for DL using CBG flushing out information (CBGFI) as specified in TS 38.214 [12]. | UE | No | No | No |
| ***cbg-TransIndication-DL***Indicates whether the UE supports CBG-based (re)transmission for DL using CBG transmission information (CBGTI) as specified in TS 38.214 [12]. | UE | No | No | No |
| ***cbg-TransIndication-UL***Indicates whether the UE supports both in-order and out-of-order CBG-based (re)transmission for UL using CBG transmission information (CBGTI) as specified in TS 38.214 [12]. | UE | No | No | No |
| ***cbg-TransInOrderPUSCH-UL-r16***Indicates whether the UE supports CBG-based re-transmission(s) of a TB using CBG transmission information (CBGTI) as specified in TS 38.214 [12] in the following two cases (both are considered as in-order CBG-based retransmission(s)):1. if the initial PUSCH transmission was not cancelled due to gNB scheduling/indication/configuration; and2. if the initial PUSCH transmission was cancelled due to gNB scheduling/indication/configuration and the following condition is satisfied: the UE is scheduled for a re-transmission of a CBG #N in a given TB when CBG #N-1 has been transmitted before or is scheduled in the same UL grant that includes CBG#N. | UE | No | No | No |
| ***cg-TimeDomainAllocationExtension-r17***Indicates whether UE supports the *timeDomainAllocation-v1710* configured in *rrc-ConfiguredUplinkGrant* to indicate 16 or more entries in PUSCH TDRA table. This field is only applicable if the UE supports both *pusch-RepetitionTypeB-r16* and either *configuredUL-GrantType1* or *configuredUL-GrantType1-v1650.* | UE | No | No | No |
| ***cli-RSSI-FDM-DL-r16***Indicates whether serving cell DL signal/channel (e.g. PDSCH/PDCCH) and CLI-RSSI FDMed reception is supported as specified in TS 38.215 [13]. | UE | No | TDD only | Yes |
| ***cli-SRS-RSRP-FDM-DL-r16***Indicates whether serving cell DL signal/channel (e.g. PDSCH/PDCCH) and SRS-RSRP FDMed reception is supported as specified in TS 38.215 [13]. | UE | No | TDD only | Yes |
| ***codebookVariantsList-r16***Indicates the list of *SupportedCSI-RS-Resource* applicable to the codebook types supported by the UE. | UE | No | No | No |
| ***configuredUL-GrantType1***Indicates whether the UE supports Type 1 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value of one. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *configuredUL-GrantType1-r16* applies. | UE | No | No | No |
| ***configuredUL-GrantType2***Indicates whether the UE supports Type 2 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value of one. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *configuredUL-GrantType2-r16* applies. | UE | No | No | No |
| ***cqi-4-BitsSubbandTN-NonSharedSpectrumChAccess-r17***Indicates whether the UE supports subband CQI reporting with 4 bits per subband for TN and non-shared spectrum channel access. | UE | No | No | No |
| ***cqi-TableAlt***Indicates whether UE supports the CQI table with target BLER of 10^-5. | UE | No | No | Yes |
| ***cri-RI-CQI-WithoutNon-PMI-PortInd-r16***Indicates whether UE supports *CSI-ReportConfig* with the *reportQuantity* set to '*cri-RI-CQ*' and the *non-PMI-PortIndication* is not configured.UE indicating support of this feature shall also indicate support of *csi-ReportFramework*. | UE | No | No | Yes |
| ***crossSlotScheduling-r16***Indicates whether UE supports dynamic indication of applicable minimum scheduling restriction by DCI format 0\_1 and 1\_1, and the minimum scheduling offset for PDSCH and aperiodic CSI-RS triggering offset (K0), and PUSCH (K2), and the extended value range for aperiodic CSI-RS triggering offset. Support of this feature is reported for licensed and unlicensed bands, respectively. When this field is reported, either of *non-SharedSpectrumChAccess-r16* or *sharedSpectrumChAccess-r16* shall be reported, at least. | UE | No | No | No |
| ***csi-ReportFramework***See *csi-ReportFramework* in 4.2.7.2. For a band combination comprised of FR1 and FR2 bands, this parameter, if present, limits the corresponding parameter in *MIMO-ParametersPerBand*. | UE | Yes | No | N/A |
| ***csi-ReportFrameworkExt-r16***See *csi-ReportFramework* in 4.2.7.2. For a band combination comprised of FR1 and FR2 bands, this parameter, if present, limits the corresponding parameter in *MIMO-ParametersPerBand*. | UE | No | No | N/A |
| ***csi-ReportWithoutCQI***Indicates whether UE supports CSI reporting with report quantity set to 'CRI/RI/i1' as defined in clause 5.2.1.4 of TS 38.214 [12]. | UE | No | No | Yes |
| ***csi-ReportWithoutPMI***Indicates whether UE supports CSI reporting with report quantity set to 'CRI/RI/CQI' as defined in clause 5.2.1.4 of TS 38.214 [12]. | UE | No | No | Yes |
| ***csi-RS-CFRA-ForHO***Indicates whether the UE can perform reconfiguration with sync using a contention free random access with 4-step RA type on PRACH resources that are associated with CSI-RS resources of the target cell. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *csi-RS-CFRA-ForHO-r16* applies. | UE | No | No | No |
| ***csi-RS-IM-ReceptionForFeedback***See *csi-RS-IM-ReceptionForFeedback* in 4.2.7.2. For a band combination comprised of FR1 and FR2 bands, this parameter, if present, limits the corresponding parameter in *MIMO-ParametersPerBand*. | UE | Yes | No | N/A |
| ***csi-RS-ProcFrameworkForSRS***See *csi-RS-ProcFrameworkForSRS* in 4.2.7.2. For a band combination comprised of FR1 and FR2 bands, this parameter, if present, limits the corresponding parameter in *MIMO-ParametersPerBand*. | UE | No | No | N/A |
| ***csi-TriggerStateNon-ActiveBWP-r16***Indicates whether the UE supports CSI trigger states containing non-active BWP. | UE | No | No | No |
| ***dci-DL-PriorityIndicator-r16***Indicates whether the UE supports the priority indicator field configured in DCI formats 1\_1 and 1\_2 in a BWP when configured to monitor both DCI formats 1\_1 and 1\_2 in the BWP. | UE | No | No | No |
| ***dci-Format1-2And0-2-r16***Indicates whether the UE supports monitoring DCI format 1\_2 for DL scheduling and monitoring DCI format 0\_2 for UL scheduling. | UE | No | No | No |
| ***dci-UL-PriorityIndicator-r16***Indicates whether the UE supports the priority indicator field configured in DCI formats 0\_1 and 0\_2 in a BWP when configured to monitor both DCI formats 0\_1 and 0\_2 in the BWP. A UE supporting this feature shall also support *ul-IntraUE-Mux-r16* and *dci-Format1-2And0-2-r16*. | UE | No | No | No |
| ***defaultSpatialRelationPathlossRS-r16***Indicates the UE support of default spatial relation and pathloss reference RS for dedicated PUCCH/SRS and PUSCH. The UE indicating support of this also indicates the capabilities of supported SRS resources and maximum supported spatial relations for the supported FR2 bands using *supportedSRS-Resources* and *maxNumberConfiguredSpatialRelations.* | UE | No | No | FR2 only |
| ***dl-64QAM-MCS-TableAlt***Indicates whether the UE supports the alternative 64QAM MCS table for PDSCH. | UE | No | No | Yes |
| ***dl-SchedulingOffset-PDSCH-TypeA***Indicates whether the UE supports DL scheduling slot offset (K0) greater than 0 for PDSCH mapping type A. | UE | Yes | Yes | Yes |
| ***dl-SchedulingOffset-PDSCH-TypeB***Indicates whether the UE supports DL scheduling slot offset (K0) greater than 0 for PDSCH mapping type B. | UE | Yes | Yes | Yes |
| ***downlinkSPS***Indicates whether the UE supports PDSCH reception based on semi-persistent scheduling. One SPS configuration is supported per cell group. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *downlinkSPS-r16* applies. | UE | No | No | No |
| ***dynamicBetaOffsetInd-HARQ-ACK-CSI***Indicates whether the UE supports indicating beta-offset (UCI repetition factor onto PUSCH) for HARQ-ACK and/or CSI via DCI among the RRC configured beta-offsets. | UE | No | No | No |
| ***dynamicHARQ-ACK-Codebook***Indicates whether the UE supports HARQ-ACK codebook dynamically constructed by DCI(s). This field shall be set to *supported*. | UE | Yes | No | No |
| ***dynamicHARQ-ACK-CodeB-CBG-Retx-DL***Indicates whether the UE supports HARQ-ACK codebook size for CBG-based (re)transmission based on the DAI-based solution as specified in TS 38.213 [11]. | UE | No | No | No |
| ***dynamicPRB-BundlingDL***Indicates whether UE supports DCI-based indication of the PRG size for PDSCH reception. | UE | No | No | No |
| ***dynamicSFI***Indicates whether the UE supports monitoring for DCI format 2\_0 and determination of slot formats via DCI format 2\_0. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *dynamicSFI-r16* applies. | UE | No | Yes | Yes |
| ***dynamicSwitchRA-Type0-1-PDSCH***Indicates whether the UE supports dynamic switching between resource allocation Types 0 and 1 for PDSCH as specified in TS 38.212 [10]. | UE | No | No | No |
| ***dynamicSwitchRA-Type0-1-PUSCH***Indicates whether the UE supports dynamic switching between resource allocation Types 0 and 1 for PUSCH as specified in TS 38.212 [10]. | UE | No | No | No |
| ***enhancedPowerControl-r16***For DG-PUSCH, one bit (separately from SRI) in UL grant is used to indicate the P0 value if SRI is present in the UL grant, and 1 or 2 bits is used to indicate the P0 value if SRI is not present in the UL grant. | UE | No | No | Yes |
| ***extendedCG-Periodicities-r16***Indicates that the UE supports extended periodicities for CG Type 1 (if the UE indicates *configuredUL-GrantType1* or *configuredUL-GrantType1-v1650* capability) or CG Type 2 (if the UE indicates *configuredUL-GrantType2* or *configuredUL-GrantType2-v1650* capability) as specified by *periodicityExt-r16* field of IE *ConfiguredGrantConfig* in TS 38.331 [9]. | UE | No | No | No |
| ***extendedSPS-Periodicities-r16***Indicates that the UE supports extended periodicities for downlink SPS as specified by *periodicityExt-r16* field of IE *SPS-Config* in TS 38.331 [9]. | UE | No | No | No |
| ***fdd-PCellUL-TX-AllUL-Subframe-r16***Indicates whether the UE configured with *tdm-patternConfig-r16* can be semi-statically configured with LTE UL transmissions in all UL subframes not limited to the reference tdm-pattern (only for type 1 UE) in case of LTE FDD PCell. UE indicating support can configure its LTE FDD PCell with this feature on the band combination which indicates support of either *tdm-restrictionFDD-endc-r16*or *tdm-restrictionDualTX-FDD-endc-r16*. | UE | No | FDD only | FR1 only |
| ***harqACK-CB-SpatialBundlingPUCCH-Group-r16***Indicates whether the UE supports HARQ-ACK codebook type and HARQ-ACK spatial bundling configuration per PUCCH group as specified in TS 38.213 [11]. If the UE indicates support of this, it also supports two NR PUCCH groups with same numerology by setting *twoPUCCH-Group* to *supported.* | UE | No | No | No |
| ***harqACK-separateMultiDCI-MultiTRP-r16***Indicates whether the UE support of separate HARQ-ACK. The capability signalling of this feature includes the following:- *maxNumberLongPUCCHs-r16* indicates maximum number of long PUCCHs within a slot for separate HARQ-AckThe UE that indicates support of this feature shall support *multiDCI-MultiTRP-r16.* | UE | No | No | No |
| ***harqACK-jointMultiDCI-MultiTRP-r16***Indicates whether the UE support of joint HARQ-ACK. The UE that indicates support of this feature shall support *multiDCI-MultiTRP-r16.* | UE | No | No | No |
| ***k1-RangeExtensionATG-r18***Indicates whether the UE supports extended K1 value range of (0..31) for unpaired spectrum. The UE indicating support of this feature shall also indicate support of *airToGroundNetwork-r18*. | UE | No | TDD only | FR1 only |
| ***pucch-F0-2WithoutFH***Indicates whether the UE supports transmission of a PUCCH format 0 or 2 without frequency hopping. When included, the UE does not support PUCCH formats 0 and 2 without frequency hopping. When not included, the UE supports the PUCCH formats 0 and 2 without frequency hopping. | UE | Yes | No | Yes |
| ***pucch-F1-3-4WithoutFH***Indicates whether the UE supports transmission of a PUCCH format 1, 3 or 4 without frequency hopping. When included, the UE does not support PUCCH formats 1, 3 and 4 without frequency hopping. When not included, the UE supports the PUCCH formats 1, 3 and 4 without frequency hopping. | UE | Yes | No | Yes |
| ***interleavingVRB-ToPRB-PDSCH***Indicates whether the UE supports receiving PDSCH with interleaved VRB-to-PRB mapping as specified in TS 38.211 [6]. | UE | Yes | No | No |
| ***interSlotFreqHopping-PUSCH***Indicates whether the UE supports inter-slot frequency hopping for PUSCH transmissions. | UE | No | No | No |
| ***intraSlotFreqHopping-PUSCH***Indicates whether the UE supports intra-slot frequency hopping for PUSCH transmission, except for PUSCH scheduled by PDCCH in the Type1-PDCCH common search space before RRC connection establishment. | UE | Yes | No | Yes |
| ***maxHARQ-ProcessNumberATG-r18***Indicates the maximal supported HARQ process numbers for UL and for DL respectively. For each value of *maxHARQ-ProcessNumberATG-r18*, value u16d32 indicates the maximal supported HARQ process number is 16 for UL and 32 for DL, value u32d16 indicates the maximal supported HARQ process number is 32 for UL and 16 for DL, value u32d32 indicates the maximal supported HARQ process number is 32 for UL and 32 for DL. The UE indicating support of this feature shall also indicate support of *airToGroundNetwork-r18*. | UE | No | No | FR1 only |
| ***maxLayersMIMO-Adaptation-r16***Indicates whether the UE supports the network configuration of *maxMIMO-Layers* per DL BWP. If the UE supports this feature, the UE needs to report *maxLayersMIMO-Indication*. | UE | No | No | Yes |
| ***maxLayersMIMO-Indication***Indicates whether the UE supports the network configuration of *maxMIMO-Layers* as specified in TS 38.331 [9]. | UE | Yes | No | No |
| ***maxNumberPathlossRS-update-r16***Indicates the maximum number of configured pathloss reference RSs for PUSCH/PUCCH/SRS by RRC that the UE can support for MAC-CE based pathloss reference RS update. | UE | No | No | No |
| ***maxNumberSearchSpaces***Indicates whether the UE supports up to 10 search spaces in an SCell per BWP. | UE | No | No | No |
| ***maxNumberSRS-PosPathLossEstimateAllServingCells-r16***Indicates the maximum number of pathloss estimates that the UE can simultaneously maintain for all the SRS resource sets for positioning across all cells in addition to the up to four pathloss estimates that the UE maintains per serving cell for the PUSCH/PUCCH/SRS transmissions. The UE shall include this field if the UE supports any of *olpc-SRS-PosBasedOnPRS-Serving-r16, olpc-SRS-PosBasedOnSSB-Neigh-r16* and *olpc-SRS-PosBasedOnPRS-Neigh-r16.* Otherwise, the UE does not include this field; | UE | No | No | No |
| ***maxNumberSRS-PosSpatialRelationsAllServingCells-r16***Indicates the maximum number of maintained spatial relations for all the SRS resource sets for positioning across all serving cells in addition to the spatial relations maintained spatial relations per serving cell for the PUSCH/PUCCH/SRS transmissions. It is only applied for FR2. The UE can include this field only if the UE supports any of *spatialRelation-SRS-PosBasedOnSSB-Serving-r16*, *spatialRelation-SRS-PosBasedOnCSI-RS-Serving-r16*, *spatialRelation-SRS-PosBasedOnPRS-Serving-r16*, *spatialRelation-SRS-PosBasedOnSSB-Neigh-r16* or *spatialRelation-SRS-PosBasedOnPRS-Neigh-r16*. Otherwise, the UE does not include this field; | UE | No | No | FR2 only |
| ***maxTotalResourcesForAcrossFreqRanges-r16***Indicates the maximum total number of SSB/CSI-RS/CSI-IM resources for beam management, pathloss measurement, BFD, RLM and new beam identification across frequency ranges (both FR1 and FR2) that the UE supports.The capability signalling includes the following:- *maxNumberResWithinSlotAcrossCC-AcrossFR-r16* indicates maximum total number of SSB/CSI-RS/CSI-IM resources configured to measure within a slot across all CCs across all frequency ranges for any of L1-RSRP measurement, L1-SINR measurement, pathloss measurement, BFD, RLM and new beam identification.- *maxNumberResAcrossCC-AcrossFR-r16* indicates maximum total number of SSB/CSI-RS/CSI-IM resources configured across all CCs across all frequency ranges for any of L1-RSRP measurement, L1-SINR measurement, pathloss measurement, BFD, RLM and new beam identification.gNB takes into conjunction of this feature and the features *maxTotalResourcesForOneFreqRange-r16****,*** *beamManagementSSB-CSI-RS, maxNumberCSI-RS-BFD, maxNumberSSB-BFD* and *maxNumberCSI-RS-SSB-CBD* when configuring SSB/CSI-RS/CSI-IM resources for beam management, pathloss measurement, BFD, RLM and new beam identification across frequency ranges. The signalled values apply to the shortest slot duration defined in any FR(s) that are supported by the UE.NOTE 1: The "configured to measure" RS is counted within the duration of a reference slot in which the corresponding reference signals are transmitted.NOTE 2: Regarding the "configured to measure" RS counting- (basic usage 1): If one resource is used for one or multiple of BFD/RLM, it is counted as one.- (basic usage 2): If one resource is used for one or multiple of New Beam Identification/PL-RS/L1-RSRP, add 1.- L1-RSRP measurement includes cases associated with reports with *reportQuantity* set to '*ssb-Index-RSRP*', '*cri-RSRP*' or with *reportQuantity* set to '*none*' and *CSI-RS-ResourceSet* with *trs-Info* not configured.- If one resource is used for L1-SINR in addition to basic usage 1 & 2, add N if referred N times by one or more CSI Reporting settings with *reportQuantity-r16* = '*ssb-Index-SINR-r16*' or '*cri-SINR-r16*'. | UE | No | No | No |
| ***maxTotalResourcesForOneFreqRange-r16***Indicates the maximum total number of SSB/CSI-RS/CSI-IM resources for beam management, pathloss measurement, BFD, RLM and new beam identification for one frequency range that the UE supports.The capability signalling includes the following:*- maxNumberResWithinSlotAcrossCC-OneFR-r16* indicates maximum total number of SSB/CSI-RS/CSI-IM resources configured to measure within a slot across all CCs in one frequency range for any of L1-RSRP measurement, L1-SINR measurement, pathloss measurement, BFD, RLM and new beam identification*- maxNumberResAcrossCC-OneFR-r16* indicates maximum total number of SSB/CSI-RS/CSI-IM resources configured across all CCs in one frequency range for any of L1-RSRP measurement, L1-SINR measurement, pathloss measurement, BFD, RLM and new beam identification.gNB takes into conjunction of this feature and the features *beamManagementSSB-CSI-RS, maxNumberCSI-RS-BFD, maxNumberSSB-BFD* and *maxNumberCSI-RS-SSB-CBD* when configuring SSB/CSI-RS/CSI-IM resources for beam management, pathloss measurement, BFD, RLM and new beam identification across one frequency range.NOTE 1: The reference slot duration is the shortest slot duration defined for the reported FR supported by the UE.NOTE 2: For RS configured for new beam identification, they are always counted regardless of beam failure event.NOTE 3: The *maxNumberResWithinSlotAcrossCC-AcrossFR-r16* only counts those in active BWP but the *maxNumberResAcrossCC-AcrossFR-r16* counts all configured including both active and inactive BWP.NOTE 4: The "configured to measure" RS is counted within the duration of a reference slot in which the corresponding reference signals are transmitted.NOTE 5: Regarding the "configured to measure" RS counting- (basic usage 1): If one resource is used for one or multiple of BFD/RLM, it is counted as one.- (basic usage 2): If one resource is used for one or multiple of New Beam Identification/PL-RS/L1-RSRP, add 1.- L1-RSRP measurement includes cases associated with reports with *reportQuantity* set to '*ssb-Index-RSRP*', '*cri-RSRP*' or with *reportQuantity* set to '*none*' and *CSI-RS-ResourceSet* with *trs-Info* not configured.- If one resource is used for L1-SINR in addition to basic usage 1 & 2, add N if referred N times by one or more CSI Reporting settings with *reportQuantity-r16* = '*ssb-Index-SINR-r16*' or '*cri-SINR-r16*'. | UE | No | No | Yes |
| ***monitoringDCI-SameSearchSpace-r16***Indicates whether the UE supports monitoring both DCI format 0\_1/1\_1 and DCI format 0\_2/1\_2 in the same search space. If the UE supports this feature, the UE needs to report *dci-Format1-2And0-2-r16*. | UE | No | No | No |
| ***mTRP-PDCCH-singleSpan-r17***Indicates the support of PDCCH repetition for PDCCH monitoring with a single span of three contiguous OFDM symbols that is within the first four OFDM symbols in a slot. It is applicable to 15kHz SCS only.The UE indicating support of this feature shall also indicate support of *pdcch-MonitoringSingleSpanFirst4Sym-r16* and *mTRP-PDCCH-Repetition-r17*. | UE | No | No | FR1 only |
| ***multipleCORESET***Indicates whether the UE supports configuration of up to two PDCCH CORESETs per BWP in addition to the CORESET with CORESET-ID 0 in the BWP. If this is not supported, the UE supports one PDCCH CORESET per BWP in addition to the CORESET with CORESET-ID 0 in the BWP. It is mandatory with capability signalling for FR2 and optional for FR1. | UE | CY | No | Yes |
| ***mux-HARQ-ACK-PUSCH-DiffSymbol***Indicates whether the UE supports HARQ-ACK piggyback on a PUSCH with/without aperiodic CSI once per slot when the starting OFDM symbol of the PUSCH is different from the starting OFDM symbols of the PUCCH resource that HARQ-ACK would have been transmitted on. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *mux-HARQ-ACK-PUSCH-DiffSymbol-r16* applies. | UE | Yes | No | Yes |
| ***mux-HARQ-ACK-withoutPUCCH-onPUSCH-r16***Indicates that the UE is implemented according to the definition in TS 38.213 [11] for multiplexing HARQ-ACK in a PUSCH in a PUCCH slot when the UE has no HARQ-ACK for any DL activity to transmit, but it receives UL grant(s) with UL-TDAI field indicating HARQ-ACK multiplexing on a PUSCH, and it transmits multiple PUSCHs in the PUCCH slot. | UE | No | No | No |
| ***mux-MultipleGroupCtrlCH-Overlap***Indicates whether the UE supports more than one group of overlapping PUCCHs and PUSCHs per slot per PUCCH cell group for control multiplexing. | UE | No | No | Yes |
| ***mux-SR-HARQ-ACK-CSI-PUCCH-MultiPerSlot***Indicates whether the UE supports multiplexing SR, HARQ-ACK and CSI on a PUCCH or piggybacking on a PUSCH more than once per slot when SR, HARQ-ACK and CSI are supposed to be sent with the same or different starting symbol in a slot. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *mux-SR-HARQ-ACK-CSI-PUCCH-MultiPerSlot-r16* applies. | UE | No | No | Yes |
| ***mux-SR-HARQ-ACK-CSI-PUCCH-OncePerSlot****sameSymbol* indicates the UE supports multiplexing SR, HARQ-ACK and CSI on a PUCCH or piggybacking on a PUSCH once per slot, when SR, HARQ-ACK and CSI are supposed to be sent with the same starting symbols on the PUCCH resources in a slot. *diffSymbol* indicates the UE supports multiplexing SR, HARQ-ACK and CSI on a PUCCH or piggybacking on a PUSCH once per slot, when SR, HARQ-ACK and CSI are supposed to be sent with the different starting symbols in a slot. The UE is mandated to support the multiplexing and piggybacking features indicated by *sameSymbol* while the UE is optional to support the multiplexing and piggybacking features indicated by *diffSymbol*.If the UE indicates *sameSymbol* in this field and does not support *mux-HARQ-ACK-PUSCH-DiffSymbol*, the UE supports HARQ-ACK/CSI piggyback on PUSCH once per slot, when the starting OFDM symbol of the PUSCH is the same as the starting OFDM symbols of the PUCCH resource(s) that would have been transmitted on.If the UE indicates *sameSymbol* in this field and supports *mux-HARQ-ACK-PUSCH-DiffSymbol*, the UE supports HARQ-ACK/CSI piggyback on PUSCH once per slot for which case the starting OFDM symbol of the PUSCH is the different from the starting OFDM symbols of the PUCCH resource(s) that would have been transmitted on. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *mux-SR-HARQ-ACK-CSI-PUCCH-OncePerSlot-r16* applies. | UE | FD | No | Yes |
| ***mux-SR-HARQ-ACK-PUCCH***Indicates whether the UE supports multiplexing SR and HARQ-ACK on a PUCCH or piggybacking on a PUSCH once per slot, when SR and HARQ-ACK are supposed to be sent with the different starting symbols in a slot. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *mux-SR-HARQ-ACK-PUCCH-r16* applies. | UE | No | No | Yes |
| ***newBeamIdentifications2PortCSI-RS-r16***Indicates whether the UE supports 2 port CSI-RS for new beam identification with the same resource counting as in *maxTotalResourcesForOneFreqRange-r16* and *maxTotalResourcesForAcrossFreqRanges-r16*. | UE | No | No | No |
| ***nzp-CSI-RS-IntefMgmt***Indicates whether the UE supports interference measurements using NZP CSI-RS. | UE | No | No | No |
| ***oneFL-DMRS-ThreeAdditionalDMRS-UL***Defines whether the UE supports DM-RS pattern for UL transmission with 1 symbol front-loaded DM-RS with three additional DM-RS symbols. | UE | No | No | Yes |
| ***oneFL-DMRS-TwoAdditionalDMRS-UL***Defines support of DM-RS pattern for UL transmission with 1 symbol front-loaded DM-RS with 2 additional DM-RS symbols and more than 1 antenna ports. | UE | Yes | No | Yes |
| ***onePortsPTRS***Defines whether UE supports PT-RS with 1 antenna port in DL reception and/or UL transmission. It is mandatory with UE capability signalling for FR2 and optional for FR1. The left most in the bitmap corresponds to DL reception and the right most bit in the bitmap corresponds to UL transmission. | UE | CY | No | Yes |
| ***onePUCCH-LongAndShortFormat***Indicates whether the UE supports transmission of one long PUCCH format and one short PUCCH format in TDM in the same slot. | UE | No | No | Yes |
| ***pathlossEstimation2PortCSI-RS-r16***Indicates whether the UE supports 2 port CSI-RS for pathloss estimation with the same resource counting as in *maxTotalResourcesForOneFreqRange-r16* and *maxTotalResourcesForAcrossFreqRanges-r16*. | UE | No | No | No |
| ***pCell-FR2***Indicates whether the UE supports PCell operation on FR2. | UE | Yes | No | FR2 only |
| ***pdcch-MonitoringSingleOccasion***Indicates whether the UE supports receiving PDCCH in a search space configured to be monitored within a single span of any three contiguous OFDM symbols in a slot with the capability of supporting at least 44 blind decodes in a slot for 15 kHz subcarrier spacing. | UE | No | No | FR1 only |
| ***pdcch-BlindDetectionCA***Indicates PDCCH blind decoding capabilities supported by the UE for CA with more than 4 CCs as specified in TS 38.213 [11]. The field value is from 4 to 16.NOTE: FR1-FR2 differentiation is not allowed in this release, although the capability signalling is supported for FR1-FR2 differentiation. | UE | No | No | No |
| ***pdcch-BlindDetectionMCG-UE***Indicates PDCCH blind decoding capabilities supported for MCG when in NR-DC. The field value is from 1 to 15. The UE sets the value in accordance with the constraints specified in TS 38.213 [11].Additionally, if the UE does not report *pdcch-BlindDetectionCA*, and if X is the maximum number of CCs supported by the UE across all NR-DC band combinations then there is at least one parameter pair (X1, X2) such that X1 + X2 = X and the UE supports at least one NR-DC band combination with X1 CCs in MCG and X2 CCs in SCG and for which X1 <= *pdcch-BlindDetectionMCG-UE* and X2 <= *pdcch-BlindDetectionSCG-UE*. | UE | No | No | Yes |
| ***pdcch-BlindDetectionSCG-UE***Indicates PDCCH blind decoding capabilities supported for SCG when in NR-DC. The field value is from 1 to 15. The UE sets the value in accordance with the constraints specified in TS 38.213 [11].Additionally, if the UE does not report *pdcch-BlindDetectionCA*, and if X is the maximum number of CCs supported by the UE across all NR-DC band combinations then there is at least one parameter pair (X1, X2) such that X1 + X2 = X and the UE supports at least one NR-DC band combination with X1 CCs in MCG and X2 CCs in SCG and for which X1 <= *pdcch-BlindDetectionMCG-UE* and X2 <= *pdcch-BlindDetectionSCG-UE*. | UE | No | No | Yes |
| ***pdcch-MonitoringAnyOccasionsWithSpanGapCrossCarrierSch-r16***Indicates how the UE supports *pdcch-MonitoringAnyOccasionsWithSpanGap* in case of cross-carrier scheduling with different SCSs in the scheduling cell and the scheduled cell.Value 'mode2' indicates *pdcch-MonitoringAnyOccasionsWithSpanGap* is supported for the band of the scheduling/triggering/indicating cell.Value 'mode3' indicates *pdcch-MonitoringAnyOccasionsWithSpanGap* is supported in both the band of the scheduled/triggered/indicated cell and the band of the scheduling/triggering/indicating cell.UE indicating support of these feature indicates support of *pdcch-MonitoringAnyOccasionsWithSpanGap* and *crossCarrierSchedulingDL-DiffSCS-r16*.NOTE: For *pdcch-MonitoringAnyOccasionsWithSpanGap*, the supported set (set1, set2 or set 3) for cross-carrier scheduling with the different SCSs in the scheduling cell and the scheduled cell is still based on the indicated value for the band of the scheduling cell. | UE | No | No | No |
| ***pdcch-MonitoringSingleSpanFirst4Sym-r16***Indicates whether the UE supports receiving PDCCH in a search space configured to be monitored within a single span of any three contiguous OFDM symbols that are within the first four OFDM symbols in a slot with the capability of supporting at least 44 blind decodes in a slot for 15 kHz subcarrier spacing. | UE | No | No | FR1 only |
| ***pdsch-256QAM-FR1***Indicates whether the UE supports 256QAM modulation scheme for PDSCH for FR1 as defined in 7.3.1.2 of TS 38.211 [6].It is mandatory with capability signalling for non-RedCap UEs and optional for RedCap UEs. | UE | CY | No | FR1 only |
| ***pdsch-MappingTypeA***Indicates whether the UE supports receiving PDSCH using PDSCH mapping type A with less than seven symbols. This field shall be set to *supported*. | UE | Yes | No | No |
| ***pdsch-MappingTypeB***Indicates whether the UE supports receiving PDSCH using PDSCH mapping type B. | UE | Yes | No | No |
| ***pdsch-RepetitionMultiSlots***Indicates whether the UE supports receiving PDSCH scheduled by DCI format 1\_1 when configured with *pdsch-AggregationFactor* > 1, as defined in 5.1.2.1 of TS 38.214 [12]. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *pdsch-RepetitionMultiSlots-r16* applies. | UE | No | No | No |
| ***pdsch-RE-MappingFR1-PerSymbol/pdsch-RE-MappingFR1-PerSlot***Indicates the maximum number of supported PDSCH Resource Element (RE) mapping patterns for FR1, each described as a resource (including NZP/ZP CSI-RS, CRS, CORESET and SSB) or bitmap. The number of patterns coinciding in a symbol in a CC and in a slot in a CC are limited by the respective capability parameters. Value n10 means 10 RE mapping patterns and n16 means 16 RE mapping patterns, and so on. The UE shall set the fields *pdsch-RE-MappingFR1-PerSymbol* and *pdsch-RE-MappingFR1-PerSlo*t to at least n10 and n16, respectively. In the exceptional case that the UE does not include the fields, the network may anyway assume that the UE supports the required minimum values. | UE | Yes | No | FR1 only |
| ***pdsch-RE-MappingFR2-PerSymbol/pdsch-RE-MappingFR2-PerSlot***Indicates the maximum number of supported PDSCH Resource Element (RE) mapping patterns for FR2, each described as a resource (including NZP/ZP CSI-RS, CORESET and SSB) or bitmap. The number of patterns coinciding in a symbol in a CC and in a slot in a CC are limited by the respective capability parameters. Value n6 means 6 RE mapping patterns and n16 means 16 RE mapping patterns, and so on. The UE shall set the fields *pdsch-RE-MappingFR2-PerSymbol* and *pdsch-RE-MappingFR2-PerSlo*t to at least n6 and n16, respectively. In the exceptional case that the UE does not include the fields, the network may anyway assume that the UE supports the required minimum values. | UE | Yes | No | FR2 only |
| ***precoderGranularityCORESET***Indicates whether the UE supports receiving PDCCH in CORESETs configured with CORESET-precoder-granularity equal to the size of the CORESET in the frequency domain as specified in TS 38.211 [6]. | UE | No | No | No |
| ***pre-EmptIndication-DL***Indicates whether the UE supports interrupted transmission indication for PDSCH reception based on reception of DCI format 2\_1 as defined in TS 38.213 [11]. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *pre-EmptIndication-DL-r16* applies. | UE | No | No | No |
| ***pucch-F2-WithFH***Indicates whether the UE supports transmission of a PUCCH format 2 (2 OFDM symbols in total) with frequency hopping in a slot. This field shall be set to *supported*. | UE | Yes | No | Yes |
| ***pucch-F3-WithFH***Indicates whether the UE supports transmission of a PUCCH format 3 (4~14 OFDM symbols in total) with frequency hopping in a slot. This field shall be set to *supported*. | UE | Yes | No | Yes |
| ***pucch-F3-4-HalfPi-BPSK***Indicates whether the UE supports pi/2-BPSK for PUCCH format 3/4 as defined in 6.3.2.6 of TS 38.211 [6]. It is mandatory with capability signalling for FR1 and FR2. This capability is not applicable to IAB-MT. | UE | Yes | No | Yes |
| ***pucch-F4-WithFH***Indicates whether the UE supports transmission of a PUCCH format 4 (4~14 OFDM symbols in total) with frequency hopping in a slot. | UE | Yes | No | Yes |
| ***pusch-Repetition-CG-SDT-r17***Indicates whether the UE supports PUSCH repetitions for CG-SDT, as defined in TS 38.214 [12]. A UE supporting this feature shall also indicate the support of *type1-PUSCH-RepetitionMultiSlots* or *pusch-RepetitionTypeB-r16*. When UE indicates *type1-PUSCH-RepetitionMultiSlots* and *pusch-Repetition-CG-SDT-r17*, the UE supports PUSCH repetition for type A. When UE indicates *pusch-RepetitionTypeB-r16* and *pusch-Repetition-CG-SDT-r17*, UE supports PUSCH repetition for type B. A UE can include this feature only if the UE indicates the support of *cg-SDT-r17*. | UE | No | No | No |
| ***pusch-RepetitionMultiSlots***Indicates whether the UE supports transmitting PUSCH scheduled by DCI format 0\_1 when configured with *pusch-AggregationFactor* > 1, as defined in clause 6.1.2.1 of TS 38.214 [12]. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *pusch-RepetitionMultiSlots-r16* applies. | UE | Yes | No | No |
| ***pucch-Repetition-F1-3-4***Indicates whether the UE supports transmission of a PUCCH format 1 or 3 or 4 over multiple slots with the repetition factor 2, 4 or 8. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *pucch-Repetition-F1-3-4-r16* applies. | UE | Yes | No | No |
| ***pusch-HalfPi-BPSK***Indicates whether the UE supports pi/2-BPSK modulation scheme for PUSCH as defined in 6.3.1.2 of TS 38.211 [6]. It is mandatory with capability signalling for FR1 and FR2. This capability is not applicable to IAB-MT. | UE | Yes | No | Yes |
| ***pusch-LBRM***Indicates whether the UE supports limited buffer rate matching in UL as specified in TS 38.212 [10]. | UE | No | No | Yes |
| ***pusch-RepetitionTypeA-r16***Indicates whether the UE supports the dynamic indication of the number of repetitions for PUSCH transmission as specified in TS 38.214 [12], clause 6.1.2.1. Support of this field is reported for shared spectrum channel access and non-shared spectrum channel access, respectively. UE indicating support of this feature shall support at least one of *type2-PUSCH-RepetitionMultiSlots* and *pusch-RepetitionMultiSlots* for shared spectrum and non-shared spectrum respectively. | UE | No | No | No |
| ***ra-Type0-PUSCH***Indicates whether the UE supports resource allocation Type 0 for PUSCH as specified in TS 38.214 [12]. | UE | No | No | No |
| ***rateMatchingCtrlResrcSetDynamic***Indicates whether the UE supports dynamic rate matching for DL control resource set. | UE | Yes | No | No |
| ***rateMatchingResrcSetDynamic***Indicates whether the UE supports receiving PDSCH with resource mapping that excludes the REs corresponding to resource sets configured with RB-symbol level granularity indicated by *bitmaps* (see *patternType* in *RateMatchPattern* in TS 38.331[9]) based on dynamic indication in the scheduling DCI as specified in TS 38.214 [12]. | UE | No | No | No |
| ***rateMatchingResrcSetSemi-Static***Indicates whether the UE supports receiving PDSCH with resource mapping that excludes the REs corresponding to resource sets configured with RB-symbol level granularity indicated by *bitmaps* and *controlResourceSet* (see *patternType* in *RateMatchPattern* in TS 38.331[9]) following the semi-static configuration as specified in TS 38.214 [12]. | UE | Yes | No | No |
| ***scs-60kHz***Indicates whether the UE supports 60kHz subcarrier spacing for data channel in FR1 as defined in clause 4.2-1 of TS 38.211 [6]. | UE | No | No | FR1 only |
| ***semiOpenLoopCSI***Indicates whether UE supports CSI reporting with report quantity set to 'CRI/RI/i1/CQI ' as defined in clause 5.2.1.4 of TS 38.214 [12]. | UE | No | No | Yes |
| ***semiStaticHARQ-ACK-Codebook***Indicates whether the UE supports HARQ-ACK codebook constructed by semi-static configuration. | UE | Yes | No | No |
| ***simultaneousTCI-ActMultipleCC-r16***Indicates the UE support of simultaneous TCI state activation across multiple CCs. If the UE indicates support of this for a FR, the UE shall support this on the supported bands of the indicated FR where the UE reports the support of TCI-states for PDSCH using *tci-StatePDSCH.* | UE | No | No | Yes |
| ***simultaneousSpatialRelationMultipleCC-r16***Indicates the UE support of simultaneous spatial relation across multiple CCs for aperiodic and semi-persistent SRS. The UE indicating support of this also indicates the capabilities of maximum and active supported spatial relations for the supported FR2 bands using *maxNumberConfiguredSpatialRelations* and *maxNumberActiveSpatialRelations.* | UE | No | No | FR2 only |
| ***slotBasedDynamicPUCCH-Rep-r17***Indicates whether the UE supports both slot based dynamic PUCCH repetition and slot based dynamic repetition indication for PUCCH formats 0/1/2/3/4.UE indicating support of this feature shall also indicate support of *pucch-Repetition-F1-3-4* or *pucch-Repetition-F0-2-r17.* | UE | No | No | No |
| ***spatialBundlingHARQ-ACK***Indicates whether the UE supports spatial bundling of HARQ-ACK bits carried on PUCCH or PUSCH per PUCCH group. With spatial bundling, two HARQ-ACK bits for a DL MIMO data is bundled into a single bit by logical "AND" operation. | UE | Yes | No | No |
| ***spatialRelationUpdateAP-SRS-r16***Indicates the UE support of spatial relation update for AP-SRS using MAC CE. The UE indicating support of this also indicates the capabilities of supported SRS resources and maximum supported spatial relations for the supported FR2 bands using *supportedSRS-Resources* and *maxNumberConfiguredSpatialRelations.* | UE | No | No | FR2 only |
| ***spCellPlacement***Indicates whether the UE supports a SpCell on FR1-FDD, FR1-TDD and/or FR2-TDD depending on which additional SCells of other frequency range(s) / duplex mode(s) are configured. It is applicable to NR SA and NR-DC (both MCG and SCG), where UL is configured on more than one of FR1-FDD, FR1-TDD and FR2-TDD in a cell group. If not included, the UE supports SpCell on any serving cell with UL in supported band combinations. | UE | No | No | No |
| ***sps-HARQ-ACK-Deferral-r17***Indicates whether the UE supports SPS HARQ-ACK deferral in case of TDD collision comprised of the following functional components:- Identify HARQ-ACK bits of active SPS configurations for deferral in the initial PUCCH slot;- Determination of the target PUCCH slot for SPS HARQ-ACK deferral;- Multiplexing and transmission of deferred SPS HARQ-ACK information in the target PUCCH slot;- Handling of the collision for the same HARQ process due to deferred SPS HARQ-ACK.Support of this feature is reported for licensed and unlicensed bands, respectively.When this field is reported, either of *non-SharedSpectrumChAccess-r16* or *sharedSpectrumChAccess-r16* shall be reported, at least.A UE supporting this feature shall also indicate support of *downlinkSPS*. | UE | No | TDD only | No |
| ***sp-CSI-IM***Indicates whether the UE supports semi-persistent CSI-IM. | UE | No | No | Yes |
| ***sp-CSI-ReportPUCCH***Indicates whether UE supports semi-persistent CSI reporting using PUCCH formats 2, 3 and 4. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *sp-CSI-ReportPUCCH-r16* applies. | UE | No | No | No |
| ***sp-CSI-ReportPUSCH***Indicates whether UE supports semi-persistent CSI reporting using PUSCH. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *sp-CSI-ReportPUSCH-r16* applies. | UE | No | No | No |
| ***sp-CSI-RS***Indicates whether the UE supports semi-persistent CSI-RS. | UE | Yes | No | Yes |
| ***sps-ReleaseDCI-1-1-r16***Indicates whether the UE supports SPS release by DCI format 1\_1. If the UE supports this feature, the UE needs to report *downlinkSPS*. | UE | No | No | No |
| ***sps-ReleaseDCI-1-2-r16***Indicates whether the UE supports SPS release by DCI format 1\_2. If the UE supports this feature, the UE needs to report *downlinkSPS* and *dci-Format1-2And0-2-r16*. | UE | No | No | No |
| ***srs-AdditionalRepetition-r17***Indicates support of the value "n3" for *repetitionFactor-r17*.The UE indicating support of this feature shall also indicate support of *srs-increasedRepetition-r17*. | UE | No | No | No |
| ***srs-PeriodicityAndOffsetExt-r16***Indicates whether the UE supports the periodicity of semi-persistent and periodic SRS with 128, 256, 512, and 20480 slots. | UE | No | No | No |
| ***supportedActivatedPRS-ProcessingWindow-r17***Indicates the number of supported activated PRS processing windows across all active DL BWPs. The UE can include this field only if the UE supports one of *prs-ProcessingWindowType1A-r17*, *prs-ProcessingWindowType1B-r17* or *prs-ProcessingWindowType2-r17*. Otherwise, the UE does not include this field. | UE | No | No | No |
| ***supportedDMRS-TypeDL***Defines supported DM-RS configuration types at the UE for DL reception. Type 1 is mandatory with capability signalling. Type 2 is optional. If this field is not included, Type 1 is supported. | UE | FD | No | Yes |
| ***supportedDMRS-TypeUL***Defines supported DM-RS configuration types at the UE for UL transmission. Support of both type 1 and type 2 is mandatory with capability signalling. If this field is not included, Type 1 is supported. | UE | FD | No | Yes |
| ***supportRepetitionZeroOffsetRV-r16***Indicates whether UE supports the value 0 for the parameter *sequenceOffsetforRV*.The UE indicating support of this capability shall also indicate support of *supportInter-slotTDM-r16* with *maxNumberTCI-states-r16* set to 2 for at least one band. | UE | No | No | No |
| ***supportRetx-Diff-CoresetPool-Multi-DCI-TRP-r16***Indicates that retransmission scheduled by a different *CORESETPoolIndex* for multi-DCI multi-TRP is not supported.For multi-DCI multi-TRP operation, if this feature is reported, UE does not support retransmission scheduled by PDCCH received in a different *CORESETPoolIndex* compared to the *CORESETPoolIndex* of the initial transmission, i.e., the UE is not expected to receive, for the same HARQ process ID, DCI from a different *CORESETPoolIndex* that schedules the retransmission, i.e., NDI not flipped. This applies to both PDSCH and PUSCH retransmissions.UE indicating support of this feature shall indicate support of *multiDCI-MultiTRP-r16.* | UE | No | No | No |
| ***ta-BasedPDC-TN-NonSharedSpectrumChAccess-r17***Indicates whether the UE supports propagation delay compensation based on legacy TA procedure for TN and non-shared spectrum channel access. | UE | No | No | No |
| ***targetSMTC-SCG-r16***Indicates the support of configuration of SMTC of target SCG cell with field *targetCellSMTC-SCG*. | UE | No | No | No |
| ***tdd-MultiDL-UL-SwitchPerSlot***Indicates whether the UE supports more than one switch points in a slot for actual DL/UL transmission(s). | UE | No | TDD only | Yes |
| ***tdd-PCellUL-TX-AllUL-Subframe-r16***Indicates whether the UE configured with *tdm-patternConfig-r16* can be semi-statically configured with LTE UL transmissions in all UL subframes not limited to the reference tdm-pattern (only for type 1 UE) in case of TDD PCell. UE indicating support can configure LTE TDD PCell with this feature on the band combination which indicates support of *tdm-restrictionTDD-endc-r16*. | UE | No | TDD only | FR1 only |
| ***tpc-PUCCH-RNTI***Indicates whether the UE supports group DCI message based on TPC-PUCCH-RNTI for TPC commands for PUCCH. | UE | No | No | Yes |
| ***tpc-PUSCH-RNTI***Indicates whether the UE supports group DCI message based on TPC-PUSCH-RNTI for TPC commands for PUSCH. | UE | No | No | Yes |
| ***tpc-SRS-RNTI***Indicates whether the UE supports group DCI message based on TPC-SRS-RNTI for TPC commands for SRS. | UE | No | No | Yes |
| ***twoDifferentTPC-Loop-PUCCH***Indicates whether the UE supports two different TPC loops for PUCCH closed loop power control. | UE | Yes | Yes | Yes |
| ***twoDifferentTPC-Loop-PUSCH***Indicates whether the UE supports two different TPC loops for PUSCH closed loop power control. | UE | Yes | Yes | Yes |
| ***twoFL-DMRS***Defines whether the UE supports DM-RS pattern for DL reception and/or UL transmission with 2 symbols front-loaded DM-RS without additional DM-RS symbols.The left most in the bitmap corresponds to DL reception and the right most bit in the bitmap corresponds to UL transmission. | UE | Yes | No | Yes |
| ***twoFL-DMRS-TwoAdditionalDMRS-UL***Defines whether the UE supports DM-RS pattern for UL transmission with 2 symbols front-loaded DM-RS with one additional 2 symbols DM-RS. | UE | Yes | No | Yes |
| ***twoPUCCH-AnyOthersInSlot***Indicates whether the UE supports transmission of two PUCCH formats in TDM in the same slot, which are not covered by *twoPUCCH-F0-2-ConsecSymbols* and *onePUCCH-LongAndShortFormat*. | UE | No | No | Yes |
| ***twoPUCCH-F0-2-ConsecSymbols***Indicates whether the UE supports transmission of two PUCCHs of format 0 or 2 in consecutive symbols in a slot. | UE | No | Yes | Yes |
| ***twoStepRACH-r16***Indicates whether the UE supports the following basic structure and procedure of 2-step RACH:- Fallback procedures from 2-step RA type to 4-step RA type;- MSGA PRACH resource and format determination;- MSGA PUSCH configuration;- Validation and transmission of MSGA PRACH and PUSCH;- Mapping between preamble of MSGA PRACH and PUSCH occasion with DMRS resource of MSGA PUSCH;- MSGB monitoring and decoding;- PUCCH transmission for HARQ-ACK feedback to a MSGB;- Power control for MSGA PRACH, MSGA PUSCH and PUCCH carrying HARQ-ACK feedback to MSGB.- Reconfiguration with sync using a contention free random access with 2-step RA type on MSGA PRACH and PUSCH resources that are associated with SSB resources of the target cell. | UE | No | No | No |
| ***twoTCI-Act-servingCellInCC-List-r16***Indicates whether the UE supports receiving the Enhanced TCI States Activation/Deactivation for UE-specific PDSCH MAC CE (as specified in TS 38.321 [8] clause 6.1.3.24) indicating a serving cell configured as part of *simultaneousTCI-UpdateList1* or *simultaneousTCI-UpdateList2* as specified in TS 38.331 [9].If the UE indicates support of *simultaneousTCI-ActMultipleCC-r16* for a FR and support of at least one of *singleDCI-SDM-scheme-r16*, *supportFDM-SchemeA-r16*, *supportFDM-SchemeB-r16*, *supportTDM-SchemeA-r16* or *supportInter-slotTDM-r16* for at least one band or component carrier of this FR, the UE shall indicate support of *twoTCI-Act-servingCellInCC-List-r16* for this FR. | UE | CY | No | Yes |
| ***type1-HARQ-ACK-Codebook-r16***Indicates whether the UE supports Type 1 HARQ-ACK codebook for TDRA using the starting symbol of the PDCCH monitoring occasion in which the DL assignment is detected as the reference of the SLIV. If the UE supports this feature, the UE needs to report *dci-Format1-2And0-2-r16*. Support for FR1/FR2 is differentiated from the viewpoint of the scheduled carrier. | UE | No | No | Yes |
| ***type1-PUSCH-RepetitionMultiSlots***Indicates whether the UE supports Type 1 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value equal to 2, 4, or 8 with a single repetition of the transport block within each slot, and redundancy version pattern as indicated by UL-TWG-RV-rep. A UE supporting this feature shall also support Type 1 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value of one. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *type1-PUSCH-RepetitionMultiSlots-r16* applies. | UE | No | No | No |
| ***type2-CG-ReleaseDCI-0-1-r16***Indicates whether the UE supports type 2 configured grant release by DCI format 0\_1. If the UE supports this feature, the UE needs to report *configuredUL-GrantType2* or *configuredUL-GrantType2-v1650*. | UE | No | No | No |
| ***type2-CG-ReleaseDCI-0-2-r16***Indicates whether the UE supports type 2 configured grant release by DCI format 0\_2. If the UE supports this feature, the UE needs to report *configuredUL-GrantType2* or *configuredUL-GrantType2-v1650* and *dci-Format1-2And0-2-r16*. | UE | No | No | No |
| ***type2-HARQ-ACK-Codebook-r16***Indicates whether the UE supports Type 2 HARQ-ACK codebook when HARQ-ACK feedback in a codebook corresponds to more than one unicast DL DCI for same scheduled cell in a monitoring occasion of a scheduling cell using the PDSCH starting time in addition to the existing monitoring occasion and Cell index to order the HARQ-ACK feedback. | UE | No | No | No |
| ***type2-PUSCH-RepetitionMultiSlots***Indicates whether the UE supports Type 2 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value equal to 2, 4, or 8 with a single repetition of the transport block within each slot, and redundancy version pattern as indicated by UL-TWG-RV-rep. A UE supporting this feature shall also support Type 2 PUSCH transmissions with configured grant as specified in TS 38.214 [12] with UL-TWG-repK value of one. This applies only to non-shared spectrum channel access. For shared spectrum channel access, *type2-PUSCH-RepetitionMultiSlots-r16* applies. | UE | No | No | No |
| ***type2-SP-CSI-Feedback-LongPUCCH***Indicates whether UE supports Type II CSI semi-persistent CSI reporting over PUCCH Formats 3 and 4 as defined in clause 5.2.4 of TS 38.214 [12]. | UE | No | No | No |
| ***uci-CodeBlockSegmentation***Indicates whether the UE supports segmenting UCI into multiple code blocks depending on the payload size. | UE | Yes | No | Yes |
| ***ul-64QAM-MCS-TableAlt***Indicates whether the UE supports the alternative 64QAM MCS table for PUSCH with and without transform precoding respectively. | UE | No | No | Yes |
| ***ul-SchedulingOffset***Indicates whether the UE supports UL scheduling slot offset (K2) greater than 12. | UE | Yes | Yes | Yes |
| ***unifiedJointTCI-commonUpdate-r17***Indicates the maximum number of configured CC lists per cell group for common multi-CC TCI state ID update and activation.The UE indicating support of this feature shall also indicate support of *unifiedJointTCI-commonMultiCC-r17* or *unifiedSeparateTCI-commonMultiCC-r17*. | UE | No | No | No |
| ***uplinkPreCompensationATG-r18***Indicates whether the UE supports the uplink time and frequency pre-compensation and timing relationship enhancements comprised of the following functional components:- Support of UE specific TA calculation based on its position and the serving ATG base station reference location.- For TA update in RRC\_CONNECTED state, support of combination of both open (i.e. UE autonomous TA estimation) and closed (i.e., received TA commands) control loops- Support of pre-compensation of the calculated TA in its uplink transmissions- Support of frequency pre-compensation to counter shift the Doppler experienced.- Support of determining timing of the scheduling of PUSCH, PUCCH and PDCCH ordered PRACH, CSI reference resource, transmission of aperiodic SRS activation of TA command, first PUSCH transmission in CG Type 2 with cell-specific K\_offset if indicated- Support of receiving ATG base station reference location and cell- specific K\_offset in system informationSupport of this feature is mandatory for UE supporting *airToGroundNetwork-r18*. | UE | CY | No | FR1 only |

<<skipped>>

5 Optional features without UE radio access capability parameters

5.1 PWS features

| **Definitions for feature** |
| --- |
| **CMAS**It is optional for UE to support CMAS reception as specified in TS 38.331 [9]. It is optional for a CMAS-capable UE to support Geofencing information (*warningAreaCoordinates*) as specified in TS 38.331 [9]. |
| **ETWS**It is optional for UE to support ETWS reception as specified in TS 38.331 [9]. |
| **KPAS**It is optional for UE to support Korean Public Alert System (KPAS) reception as specified in TS 38.331 [9]. KPAS uses the same AS mechanisms as defined for CMAS. Therefore a KPAS-capable UE shall support all behaviour that is included in TS 38.331 [9] and TS 38.304 [21] for a CMAS-capable UE. |
| **EU-Alert**It is optional for UE to support EU-Alert reception as specified in TS 38.331 [9]. EU-Alert uses the same AS mechanisms as defined for CMAS. Therefore a EU-Alert-capable UE shall support all behaviour that is included in TS 38.331 [9] and TS 38.304 [21] for a CMAS-capable UE. |

5.2 UE receiver features

| **Definitions for feature** |
| --- |
| **SU-MIMO Interference Mitigation advanced receiver**- R-ML (reduced complexity ML) receivers with enhanced inter-stream interference suppression for SU-MIMO transmissions with rank 2 with 2 RX antennas- R-ML (reduced complexity ML) receivers with enhanced inter-stream interference suppression for SU-MIMO transmissions with rank 2, 3, and 4 with 4 RX antennasUE supporting the feature is required to meet the Enhanced Receiver Type requirements in TS 38.101-4 [18]. |

5.3 RRC connection

| **Definitions for feature** |
| --- |
| **RRC connection release with deprioritisation**It is optional for UE to support *RRCRelease* with *deprioritisationReq* as specified in TS 38.331 [9]. |
| **RRC connection establishment failure with temporary offset**It is optional for UE to support RRC connection establishment failure with temporary offset (*Qoffsettemp*) as specified in TS 38.331 [9]. |
| **Selection of acceptable E-UTRA cell upon HO failure during EPS fallback for emergency call**It is optional for UE to support selecting an acceptable E-UTRA cell supporting emergency call if no suitable E-UTRA cell is available upon handover failure during EPS fallback when the UE has an ongoing emergency call as specified in TS 38.331 [9]. |
| **E-UTRA cell selection upon HO failure during EPS services fallback**It is optional for UE to support selecting a suitable E-UTRA cell, and support selecting an acceptable E-UTRA cell supporting emergency call if no suitable E-UTRA cell is available upon handover failure when the UE is performing emergency services fallback as specified in TS 38.331 [9]. |

5.4 Other features

| **Definitions for feature** |
| --- |
| **eCall over IMS**It is optional for UE to support eCall over IMS as specified in TS 38.331 [9]. |
| **Access Category 1 selection assistance information enhancement**It is optional for UE that is configured for delay tolerant service to support Access Category 1 selection assistance information enhancement, according to *uac-AC1-SelectAssistInfo-r16* as specified in TS 38.331 [9]. |
| **Random access prioritization for MPS and MCS**It is optional for UE that is configured for MPS or MCS to support random access prioritization for Access Identity 1 or 2 as specified in TS 38.321 [8]. |
| **HSDN cell reselection**It is optional for UE to support HSDN cell reselection priority handling in RRC\_IDLE/RRC\_INACTIVE as specified in TS 38.304 [21] and TS 38.331 [9]. |
| **TRS occasions for idle mode and RRC\_INACTIVE UEs**It is optional for UE to support reading TRS configuration from SIB and receiving L1 indication for TRS availability.NOTE: Receiving L1 indication via DCI format 2\_7 is supported only if the UE supports receiving DCI format 2\_7. |
| **Minimization of service interruption**It is optional for UE to support minimization of service interruption including reporting to NAS of disaster roaming information for available PLMNs and Access Barring check for Access Identity 3, as specified in TS 38.331 [9]. |
| **Random access prioritisation for Slicing**It is optional for UE to support slice-based prioritisation for random access as specified in TS 38.321 [8]. |
| **Random access partitioning for Slicing**It is optional for UE to support slice-based RACH partitioning as specified in TS 38.321 [8]. |
| **Relaxed cell reselection on GEO**It is optional for UE to support the relaxed cell reselection on GEO. |
| **Support of polarization signalling in NR NTN**It is optional for UE to support the polarization signalling in NR NTN comprised of the following functional components:- Support polarization indication reception in SIB indicating DL and/or UL polarization information using respective polarization type parameters to indicate: RHCP or LHCP or linear;- Support polarization signalling for target serving cell in handover command message;- Support polarization signalling for non-serving cell in RRM measurement configuration. |

5.5 Sidelink Features

| **Definitions for feature** |
| --- |
| **Short-term time-scale TDM for in-device coexistence**It is optional for UE to support prioritization between LTE sidelink transmission/reception and NR sidelink transmission/reception.This field is only applicable if the UE supports at least one of *sl-Reception-r16*, *sl-TransmissionMode1-r16* and *sl-TransmissionMode2-r16*, and if the UE supports V2X sidelink communication in the band combination. |
| **Rank 2 PSSCH transmission**It is optional for UE to support rank 2 PSSCH transmission. This field is only applicable if the UE supports *csi-ReportSidelink-r16* with *csi-RS-PortsSidelink* = p2. |
| **Receiving NR sidelink of S-SSB**It is optional for UE to receive S-SSB in NR sidelink and support synchronisation to a reference UE. |

5.6 RRM measurement features

| **Definitions for feature** |
| --- |
| **High speed inter-frequency IDLE/INACTIVE measurements**It is optional for UE to support high speed inter-frequency measurements in RRC\_IDLE/RRC\_INACTIVE as specified in TS 38.133 [5]. |
| **Location-based measurement initiation**It is optional for the UE in RRC\_IDLE/RRC\_INACTIVE to support location based RRM measurements of neighbour cells in NTN quasi-Earth fixed system as specified in TS 38.304 [21]. |
| **Relaxed measurement**It is optional for UE to support relaxed RRM measurements of neighbour cells in RRC\_IDLE/RRC\_INACTIVE as specified in TS 38.304 [21]. |
| **Rel-17 relaxed measurement for RRC\_IDLE/RRC\_INACTIVE**It is optional for RedCap UE to support Rel-17 relaxed RRM measurements of neighbour cells in RRC\_IDLE/RRC\_INACTIVE as specified in TS 38.304 [21]. |
| **Enhanced RRM requirements for measurements in IDLE and INACTIVE modes**It is optional for UE to support enhanced RRM requirements for measurements for NTN bands (FR1 only and FDD only) in RRC\_IDLE/RRC\_INACTIVE as specified in TS 38.133 [5]. If UE does not support this feature, other NTN measurement requirements (as specified in TS 38.133 [5], clause 4.2C.2 for RRC\_IDLE and clause 5.1C.2 for RRC\_INACTIVE) are applied for both LEO and GEO. |
| **Time-based measurement initiation**It is optional for the UE in RRC\_IDLE/RRC\_INACTIVE to support time based RRM measurements of neighbour cells in NTN quasi-Earth fixed system as specified in TS 38.304 [21]. |
| **Enhanced RRM requirements for measurements in IDLE and INACTIVE modes for ATG**It is optional for the UE in RRC\_IDLE/RRC\_INACTIVE to support the enhanced inter-frequency cell re-selection requirements for ATG (as specific in TS 38.133 Table 4.2D.2.4-2). If UE does not support this feature, other measurement requirements as specified in TS 38.133 [5], Table 4.2D.2.4-1 are applied. |

5.7 MDT and SON features

| **Definitions for feature** |
| --- |
| **Mobility history information storage**It is optional for UE to support the storage of PCell mobility history information and the reporting in *UEInformationResponse* message as specified in TS 38.331 [9]. |
| **Cross RAT RLF Report**It is optional for UE to support the delivery of EUTRA RLF report to an NR node upon request from the network. |
| **Radio Link Failure Report for inter-RAT MRO EUTRA**It is optional for UE to support:- Inclusion of EUTRA CGI and associated TAC, if available, and otherwise to include the physical cell identity and carrier frequency of the target PCell of the failed handover as *failedPCellId* in *RLF-Report* upon request from the network as specified in TS 38.331 [9].- Inclusion of EUTRA CGI and associated TAC as *previousPCellId* in *RLF-Report* as specified in TS 38.331 [9].- Inclusion of *eutraReconnectCellId* in *reconnectCellId* in the *RLF-Report* as specified in TS 38.331 [9] upon UE has radio link failure or handover failure and successfully re-connected to an E-UTRA cell. |
| **SCG Failure Report for MRO**It is optional for UE to support the delivery of the SCG failure related parameters for MRO in *SCGFailureInformation* message to the network. |
| **SpCell ID indication**It is optional for UE to support the delivery of the *spCellID-r17* in the RA-Report, if the RA procedure is performed in a SCell of the MCG/SCG. |

5.8 Extended DRX features

| **Definitions for feature** |
| --- |
| **Rel-17 extended DRX in RRC\_IDLE**It is optional for UE to support Rel-17 extended DRX cycle up to 10485.76 seconds and paging in extended DRX in RRC\_IDLE as specified in TS 38.331 [9] and TS 38.304 [21]. A UE that supports extended DRX shall also support *inactiveStatePO-Determination-r17*. |

5.9 Sidelink Relay Features

| **Definitions for feature** |
| --- |
| **L3 sidelink relay UE operation**It is optional for UE to support L3 sidelink relay UE operation as specified in TS 38.331 [9]. |
| **L3 sidelink remote UE operation**It is optional for UE to support L3 sidelink remote UE operation as specified in TS 38.331 [9]. |

5.10 MBS features

| **Definitions for feature** |
| --- |
| **Broadcast reception**It is optional for UE to support broadcast reception as specified in TS 38.331 [9]. A UE that supports the feature shall also support:- Group-common PDCCH/PDSCH for broadcast with CRC scrambled by MCCH-RNTI;- Group-common PDCCH/PDSCH for broadcast with CRC scrambled by G-RNTI(s) for MTCH;- CFR configuration for broadcast;- CORESET and common search space for broadcast;- DCI format 4\_0 with CRC scrambled with G-RNTI/MCCH-RNTI for broadcast;- Inter-slot TDM between unicast PDSCH and MCCH group-common PDSCH or MTCH group-common PDSCH, or between MCCH group-common PDSCH and MTCH group-common PDSCH, or among unicast PDSCH and MCCH group-common PDSCH and MTCH group-common PDSCH in different slots;- MCCH change notification indication via DCI;- RRC configured slot-level repetition up to 8 for MTCH;- One G-RNTI per UE is supported for broadcast reception;- Support of FDMed MCCH and PBCH;- Support of up to 64QAM for FR1/FR2;- 4 broadcast MRBs as the minimum number;- PDCP 12 bits SN;- ROHC with profiles 0x0000, 0x0001 and 0x0002;- 4 ROHC context sessions;- RLC UM with 6 bits SN;- RLC UM with 12 bits SN;- DRX with long DRX cycle for MBS broadcast as specified in TS 38.321 [8]. |

5.11 Idle/inactive measurement for voice fallback features

| **Definitions for feature** |
| --- |
| **Idle/Inactive measurement for voice fallback**It is optional for UE to support the idle/inactive measurement for EPS fallback in RRC\_IDLE/RRC\_INACTIVE as specified in TS 38.331 [9]. |

6 Conditionally mandatory features without UE radio access capability parameters

| **Features** | **Condition** |
| --- | --- |
| Acquisition of SI messages with explicit SI window positions | It is mandatory to support acquisition of SI messages with explicit SI window positions for UEs which support the SIB types in *schedulingInfoList2* as specified in TS 38.331 [9]. |
| AS layer memory size for QoE paused measurement reports | It is mandatory to support the minimum AS layer memory size of 64KB for QoE paused measurement reports for UEs which support *qoe-Streaming-MeasReport-r17*, *qoe-MTSI-MeasReport-r17* or *qoe-VR-MeasReport-r17*. |
| Downlink SDAP header | Either NAS reflective QoS or *as-ReflectiveQoS* is supported. |
| Extended values for *drx-HARQ-RTT-TimerDL/UL* | It is mandatory for UEs which support FR2-2 bands with SCS 480kHz and/or 960kHz. |
| IMS emergency call | It is mandatory to support IMS emergency call over PLMN for UEs which are IMS voice capable in NR.It is mandatory to support IMS emergency call over SNPN for UEs that are SNPN capable and IMS voice capable over SNPNs. |
| Logged measurements suspension due to IDC interference | It is mandatory to support Logged measurements suspension due to IDC interference for UEs which are supporting logged measurements in RRC\_IDLE and RRC\_INACTIVE upon request from the network and in-device coexistence indication as specified in TS 38.331 [9]. |
| MAC subheaders with one-octet eLCID field | It is mandatory to support MAC subheaders with one-octet eLCID field for UEs/IAB-MTs supporting MAC CEs using extended LCID values as specified in TS 38.321 [8]. |
| Paging cause in RAN paging message | It is mandatory for a UE to support paging cause in RAN paging if UE supports paging cause in CN paging. |
| Skipping UL configured grant if no data to transmit, as specified in release-15 version of TS 38.321 [8]. | Either configuredUL-GrantType1 or *configuredUL-GrantType1-v1650* or configuredUL-GrantType2 or *configuredUL-GrantType2-v1650* is supported. |
| TA reporting during initial access | It is mandatory to support TA reporting during initial access for UEs supporting *uplink-TA-Reporting-r17* or *uplinkTA-ReportingATG-r18* as specified in TS 38.321 [8]. |
| ATG specific P-max | It is mandatory to support the ATG specific P-max configured by network for UEs supporting *airToGroundNetwork-r18*. |

END OF CHANGE

Annex

**Annex-A from R4-2321993 (to be removed)**

1. NR\_ATG

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Features** | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** | **Need for the gNB to know if the feature is supported** | **Applicable to the capability signalling exchange between UEs (V2X WI only)”.** | **Consequence if the feature is not supported by the UE** | **Type****(the ‘type’ definition from UE features should be based on the granularity of 1) Per UE or 2) Per Band or 3) Per BC or 4) Per FS or 5) Per FSPC)** | **Need of FDD/TDD differentiation** | **Need of FR1/FR2 differentiation** | **Capability interpretation for mixture of FDD/TDD and/or FR1/FR2** | **Note** | **Mandatory/Optional** |
| 35. NR\_ATG | 35-1 | Enhanced RRM requirements for measurements in IDLE and INACTIVE modes | Indicate the support of enhanced inter-frequency cell re-selection requirements for ATG (as specific in TS 38.133 Table 4.2D.2.4-2) |  | no | N/A | If UE does not support the capability, legacy measurement requirements (as specified in TS 38.133, Table 4.2D.2.4-1) are applied. | Per UE | No | FR1 only | N/A |  | Optional without capability signaling |
| 35. NR\_ATG | 35-2 | Antenna type | Indicate whether UE supports the RF and RRM requirements with antenna array as specified in TS 38.101-1 section 6.1J, 7.1J and TS 38.133. If the field is absent, the RF and RRM requirements with omni-directional antenna applies as specified in TS 38.101-1 section 6.1J, 7.1J and TS 38.133.  |  | yes | N/A | If UE does not support this feature group, performance cannot be guaranteed.  | Per Band | No | FR1 only | N/A |  | Mandatory with capability signaling for UE supports NR communication via ATG |
| 35. NR\_ATG | 35-3 | Rated max output power | Indicate the support of rated maximum output power at maximum modulation order and full PRB configurations |  | yes | N/A | If UE does not support the capability, network does not know ATG UE’s maximum output power. | Per band | No | FR1 only | N/A | Value range from 23dBm to 40dBm with 1dB as granularity | Mandatory with capability signaling for UE supports NR communication via ATG |
| 35. NR\_ATG | 35-4 | ATG specific P-max | Indicate the support of ATG specific P-max configured by network.  |  | no | N/A | If UE does not support ATG specific P-max value, ATG UE can’t identify configured maximum output power PCMAX,f,c | Per UE | No | FR1 only | N/A | Value range from -21dBm to 42dBm | Mandatory without capability signaling for UE supports NR communication via ATG |

**Annex-B from LS from R4-2321609 (to be removed)**

Following Layer-1 new ATG UE features should be introduced.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Feature group** | **Components** | **Prerequisite feature groups** | **Need for the gNB to know if the feature is supported** | **Applicable to the capability signalling exchange between UEs (V2X WI only)”.** | **Consequence if the feature is not supported by the UE** | **Type****(the ‘type’ definition from UE features should be based on the granularity of 1) Per UE or 2) Per Band or 3) Per BC or 4) Per FS or 5) Per FSPC)** | **Need of FDD/TDD differentiation** | **Need of FR1/FR2 differentiation** | **Capability interpretation for mixture of FDD/TDD and/or FR1/FR2** | **Note** | **Mandatory/Optional** |
| Uplink Time and Frequency pre-compensation and timing relationship enhancements | Support of UE specific TA calculation based on its GNSS-acquired position and the indicated BS location.Support of open (i.e. UE autonomous TA estimation) and closed (i.e., received TA commands) loop control for TA update in RRC\_CONNECTED state.Support of pre-compensation of the calculated TA in the uplink transmissions.Support of frequency pre-compensation to account for the Doppler experienced on the service link.Support of determining timing of the scheduling of PUSCH, PUCCH and PDCCH ordered PRACH, CSI reference resource, transmission of aperiodic SRS activation of TA command, first PUSCH transmission in CG Type 2 with cell-specific K\_offset if indicated.Support of UE receiving cell-specific K\_offset in system information. |  | Yes | N/A | If UE does not support this feature, the performance of ATG UE cannot be guaranteed due to the large propagation delay. | Per UE | No | FR1 only | N/A |  | Mandatory with capability signaling for UE supports NR communication via ATG |
| UE reporting of TA information | Support UE reporting of TA information | [Uplink Time and Frequency pre-compensation and timing relationship enhancements] | Yes | N/A | If UE does not support this feature, UE cannot report the TA information to network. | Per UE | No | FR1 only | N/A |  | Optional with capability siganling |
| Increasing the number of HARQ processes | The maximal supported HARQ process number is X for UL and Y for DL |  | Yes | N/A | If UE does not support this feature, the HARQ process is number is limited.  | Per UE | No | FR1 only | N/A |  | Optional with capability signalling |
| K1 range extension | Support of extended K1 value range of (0..31) for unpaired spectrum |  | Yes | N/A | If UE does not support this feature, K1 value is limited. | Per UE | TDD only | FR1 only | N/A |  | Optional with capability signalling |

Following Layer-2 and Layer-3 new ATG UE features should be introduced.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Feature group** | **Components** | **Prerequisite feature groups** | **Need for the gNB to know if the feature is supported** | **Applicable to the capability signalling exchange between UEs (V2X WI only)”.** | **Consequence if the feature is not supported by the UE** | **Type****(the ‘type’ definition from UE features should be based on the granularity of 1) Per UE or 2) Per Band or 3) Per BC or 4) Per FS or 5) Per FSPC)** | **Need of FDD/TDD differentiation** | **Need of FR1/FR2 differentiation** | **Capability interpretation for mixture of FDD/TDD and/or FR1/FR2** | **Note** | **Mandatory/Optional** |
| Location based CHO | Support of location based CHO with event A3, A4, A5 | 17-3 CHO | Yes | N/A | If UE does not support this feature, location based CHO cannot be configured. | [Per band] | No | FR1 only | N/A |  | Optional with capability siganling |

**Annex-C from RAN2#124 agreements (to be removed)**

* Similar to NTN, introduce master capability for UE to indicate support of ATG essential features, i.e., new SIBxx, cell specific Koffset, UE specific TA calculation, time/frequency compensation.
* Introduce per UE UL TA reporting capability, i.e., uplink-TA-Reporting-ATG-r18, conditional on the support of ATG specific essential features (NOT uplinkPreCompensation-r17).
* Introduce maxOutputPower-ATG-r18 with 5 bit INTEGER to indicate UE’s rate maximum output power. For ATG capable UE, it is mandatory with per band UE capability signaling.
* With UE’s rate maximum output power, clarify the existing power class UE capabilities signaling (e.g., ue-PowerClass) does not apply to ATG. Clarify in stage 2 that CA/DC is not supported for ATG in this release
* As per RAN4 LS, add clarification in the description of field P-Max that in ATG cell, actual value of P-Max = 9 + field value [dBm].
* As per RAN4 LS, introduce mandatory enumerated 1 bit per band UE capability AntennaType-r18 whether the ATG UE supports the requirements defined for ATG UE with antenna array.