**3GPP TSG-RAN WG2 #131 *R2-***

**Bengaluru, India, 25 - 29 August 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **2** | **Current version:** |  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Introduction of 7MHz channel bandwidth | | | | | | | | | |
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| ***Source to WG:*** | T-Mobile USA, | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | |  |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | RAN4 asked in their LSs R4-2503017 (R2-2501744) and R4-2508088 to introduce 7MHz channel bandwidth in UE capability signalling. | | | | | | | | |
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| ***Summary of change:*** | | Channel bandwidth 7 MHz is added to the following UE capability information elements:  In BandNR:   * channelBWs-DL/UL bit value for 7MHz   In FeatureSetDownlinkPerCC:   * extensions for 7 MHz added for supportedBandwidthDL and supportedMinBandwidthDL   In FeatureSetUplinklinkPerCC:   * extensions for 7 MHz added for supportedBandwidthUL and supportedMinBandwidthDL   In field descriptions for channelBWs-DL/UL, the extension fields for max and min DL/UL channel bandwidth 7MHz are added to the lists of fields that the Network validates to determine whether the UE supports a certain channel bandwidth.  **Impact Analysis**  Impacted 5G architecture options: NR SA, (NG)EN-DC, NE-DC,NR-DC  Impacted functionality: NR band support  Inter-operability:  If the network is implemented according to the CR and the UE is not, or if the UE is implemented according to the CR and the network is not, there are no interoperability issues. | | | | | | | | |
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| ***Consequences if not approved:*** | | 7MHz channel bandwidth cannot be supported and used in UEs and networks. | | | | | | | | |
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| ***Clauses affected:*** | | 4.2.7.2, 4.2.7.6, 4.2.7.8 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **Y** |  | Other core specifications | | | | TS 38.331 CR 5308r2 | | |
| ***affected:*** | |  | **N** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **N** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | R2-2502570, R2-2505387 | | | | | | | | |

#### 4.2.7.2 *BandNR parameters*

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| ***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 NCR-MT, to determine whether the NCR-MT supports a channel bandwidth of 100 MHz, the network checks c*hannelBW-DL-NCR-r18*.  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, except for NTN bands. For IAB-MT and NCR-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*. To determine whether the NCR-MT supports a channel bandwidth of 200 MHz, the network checks c*hannelBW-DL-NCR-r18*.  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, the fifth leftmost bit indicates 7MHz, 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, (e)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 and FR2, taking restrictions in TS 38.101-5 [34] into consideration.  This feature is applicable only for FR1 and FR2-1 and FR2-NTN 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 for the band combination with other bandwidth combination set than BCS5, the network may ignore this capability and validate instead the *channelBW-90mhz*, the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, and *supportedBandwidthCombinationSetIntraENDC-v1790*. To determine whether the UE supports a channel bandwidth of 90 MHz for the band combination with BCS5, the network may ignore this capability and validate instead the *channelBW-90mhz*, the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, *supportedAggBW-FR1-r17*, and *supportedBandwidthCombinationSetIntraENDC-v1790*. To determine whether the UE supports a channel bandwidth of 400 MHz, the network may ignore this capability and validate the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, the *supportedBandwidthDL*, and *supportedBandwidthCombinationSetIntraENDC-v1790*. To determine whether the UE supports a channel bandwidth of 3MHz, the network may ignore this capability and validate instead the *support3MHz-ChannelBW-Symmetric-r18,* the *supportedBandwidthCombinationSet*, the *asymmetricBandwidthCombinationSet* (for a band supporting asymmetric channel bandwidth as defined in clause 5.3.6 of TS 38.101-1 [2]), the *supportedBandwidthDL-v1840* and the *supportedMinBandwidthDL-v1840.* For serving cell(s) with other channel bandwidths:  - If *supportedAggBW-FR1-r17* is reported, 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-v1780/supportedBandwidthDL-v18xy*, *supportedMinBandwidthDL-r17/supportedBandwidthDL-v18xy*, *supportedAggBW-FR1-r17*, and *supportedBandwidthCombinationSetIntraENDC-v1790.*  - Otherwise, 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/supportedBandwidthDL-v1710/supportedBandwidthDL-v18xy,* *supportedMinBandwidthDL-r17/supportedMinBandwidthDL-v18xy*, *supportedAggBW-FR2-r17*, and *supportedBandwidthCombinationSetIntraENDC-v1790.* | Band | Yes | N/A | N/A |
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| ***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 NCR-MT, to determine whether the NCR-MT supports a channel bandwidth of 100 MHz, the network checks *channelBW-UL-NCR-r18*.  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, except for NTN bands. For IAB-MT and NCR-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*. To determine whether the NCR-MT supports a channel bandwidth of 200 MHz, the network checks *channelBW-UL-NCR-r18*.  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, the fifth leftmost bit indicates 7MHz, 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, (e)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 and FR2, taking restrictions in TS 38.101-5 [34] into consideration.  This feature is applicable only for FR1 and FR2-1 and FR2-NTN band, otherwise it is absent.  NOTE 1: 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 for the band combination with other bandwidth combination set than BCS5, the network may ignore this capability and validate instead the *channelBW-90mhz*, the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC,* and *supportedBandwidthCombinationSetIntraENDC-v1790*. To determine whether the UE supports a channel bandwidth of 90 MHz for the band combination with BCS5, the network may ignore this capability and validate instead the *channelBW-90mhz*, the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, *supportedAggBW-FR1-r17,* and *supportedBandwidthCombinationSetIntraENDC-v1790*. To determine whether the UE supports a channel bandwidth of 400 MHz, the network may ignore this capability and validate the *supportedBandwidthCombinationSet*, the *supportedBandwidthCombinationSetIntraENDC*, the *supportedBandwidthUL,* and *supportedBandwidthCombinationSetIntraENDC-v1790*. To determine whether the UE supports a channel bandwidth of 3MHz, the network may ignore this capability and validate instead the *support3MHz-ChannelBW-Symmetric-r18, support3MHz-ChannelBW-Asymmetric-r18,* the *supportedBandwidthCombinationSet,* the *asymmetricBandwidthCombinationSet* (for a band supporting asymmetric channel bandwidth as defined in clause 5.3.6 of TS 38.101-1 [2]), the *supportedBandwidthUL-v1840* and the *supportedMinBandwidthUL-v1840*. For serving cell(s) with other channel bandwidths:  - If *supportedAggBW-FR1-r17* is reported, 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-v1780/supportedBandwidthUL-v18xy*, *supportedMinBandwidthUL-r17/supportedBandwidthUL-v18xy*, *supportedAggBW-FR1-r17,* and *supportedBandwidthCombinationSetIntraENDC-v1790.*  - Otherwise, 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/supportedBandwidthUL-v1710/supportedBandwidthUL-v18xy, supportedMinBandwidthUL-r17/supportedMinBandwidthUL-v18xy*, *supportedAggBW-FR2-r17,* and *supportedBandwidthCombinationSetIntraENDC-v1790.*  NOTE 2: For SRS carrier switching to a PUSCH-less cell, to determine whether the UE supports a channel bandwidth 90MHz/400MHz for SRS configuration, the network validates the supported DL bandwidth, e.g. if the 90MHz is supported by the downlink, the network can configure SRS with 90MHz on the PUSCH-less carrier. SRS carrier switching on PUSCH-less SCells is not supported when channel bandwidth configured for DL is not supported in UL according to *channelBWs-UL*. | Band | Yes | N/A | N/A |
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#### 4.2.7.6 *FeatureSetDownlinkPerCC* parameters

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| ***supportedBandwidthDL, supportedBandwidthDL-v1710, supportedBandwidthDL-v1780, supportedBandwidthDL-v1840, supportedBandwidthDL-v18xy***  Indicates maximum DL channel bandwidth supported for a given SCS that UE supports within a single CC (and in case of DAPS handover for the source or target cell), which is defined in Table 5.3.5-1 in TS 38.101-1 [2] / TS 38.101-5 [34] for FR1 and Table 5.3.5-1 in TS 38.101-2 [3] / Table 5.3.5-2 in TS 38.101-5 [34] for FR2.  For FR1, all the bandwidths listed in TS 38.101-1 [2] / TS 38.101-5 [34], Table 5.3.5-1 for each band shall be mandatory with a single CC unless indicated optional. For FR2 (except for FR2-NTN), the set of mandatory CBW is 50, 100, 200 MHz. For FR2-NTN, the set of mandatory CBW is 50, 100 MHz. When this field is included in a band combination with a single band entry and a single CC entry (i.e. non-CA band combination), the UE shall indicate the maximum channel bandwidth for the band according to TS 38.101-1 [2], TS 38.101-2 [3], and TS 38.101-5 [34].For FR2, *supportedBandwidthDL-v1710* is included if the maximum DL channel bandwidth supported by the UE within a single CC is greater than 400MHz. When the *supportedBandwidthDL* and the *supportedBandwidthDL-v1710* are reported together for a CC, the network which is able to decode the *supportedBandwidthDL-v1710* ignores the *supportedBandwidthDL*.  When the *supportedBandwidthDL* and the *supportedBandwidthDL-v1840* are reported together for a CC, the network which is able to decode the *supportedBandwidthDL-v1840* ignores the *supportedBandwidthDL*.  The UE may report a *supportedBandwidthDL* wider than the *channelBWs-DL*; this *supportedBandwidthDL* may not be included in the Table 5.3.5-1 of TS 38.101-1 [2] / TS 38.101-2[3] / TS 38.101-5 [34] and Table 5.3.5-2 of TS 38.101-5 [34] for the case that the UE is unable to report the actual supported bandwidth according to the Table 5.3.5-1 of TS 38.101-1 [2] / TS 38.101-2 [3] / TS 38.101-5 [34] and Table 5.3.5-2 of TS 38.101-5 [34]. For each band, (e)RedCap UEs shall indicate its maximum channel bandwidth, which is 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.  The *supportedBandwidthDL-v1780* is only applicable to Bandwidth Combination Set 5 (BCS5) of FR1 NR CA (including NR CA part of (NG)EN-DC and NE-DC) and FR1 NR-DC. If the UE reports *supportedAggBW-FR1-r17*, the UE shall report *supportedBandwidthDL-v1780*.  NOTE: See the note in the field decription of *channelBWs-DL* for the determination of supported DL channel bandwidth. | FSPC | CY | N/A | N/A |
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| ***supportedMinBandwidthDL-r17, supportedMinBandwidthDL-v1840, supportedMinBandwidthDL-v18xy***  Indicates minimum DL channel bandwidth supported for a given SCS that UE supports within a single CC (and in case of intra-frequency DAPS handover for the source and target cells), which is defined in Table 5.3.5-1 in TS 38.101-1 [2] for FR1 and Table 5.3.5-1 in TS 38.101-2 [3] for FR2. This parameter is only applicable to the Bandwidth Combination Set 5 (BCS5). The UE shall indicate this parameter for at least one CC of a BCS5 band combination. This field does not restrict the bandwidths configured for a single CC (i.e. non-CA case). | FSPC | CY | N/A | N/A |
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#### 4.2.7.8 *FeatureSetUplinkPerCC* parameters

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| ***supportedBandwidthUL, supportedBandwidthUL-v1710, supportedBandwidthUL-v1780, supportedBandwidthUL-v1840, supportedBandwidthUL-v18xy***  Indicates maximum UL channel bandwidth supported for a given SCS that UE supports within a single CC (and in case of DAPS handover for the source or target cell), which is defined in Table 5.3.5-1 in TS 38.101-1 [2] / TS 38.101-5 [34] for FR1 and Table 5.3.5-1 in TS 38.101-2 [3] / Table 5.3.5-2 in TS 38.101-5 [34] for FR2.  For FR1, all the bandwidths listed in TS 38.101-1 [2] / TS 38.101-5 [34], Table 5.3.5-1 for each band shall be mandatory with a single CC unless indicated optional. For FR2 (except for FR2-NTN), the set of mandatory CBW is 50, 100, 200 MHz. For FR2-NTN, the set of mandatory CBW is 50, 100 MHz. When this field is included in a band combination with a single band entry and a single CC entry (i.e. non-CA band combination), the UE shall indicate the maximum channel bandwidth for the band according to TS 38.101-1 [2], TS 38.101-2 [3], and TS 38.101-5 [34].For FR2, *supportedBandwidthUL-v1710* is included if the maximum UL channel bandwidth supported by the UE within a single CC is greater than 400MHz. When the *supportedBandwidthUL* and the *supportedBandwidthUL-v1710* are reported together for a CC, the network which is able to decode the *supportedBandwidthUL-v1710* ignores the *supportedBandwidthUL*.  When the *supportedBandwidthUL* and the *supportedBandwidthUL-v1840* are reported together for a CC, the network which is able to decode the *supportedBandwidthUL-v1840* ignores the *supportedBandwidthUL*.  The UE may report a *supportedBandwidthUL* wider than the *channelBWs-UL*; this *supportedBandwidthUL* may not be included in the Table 5.3.5-1 of TS 38.101-1 [2] / TS 38.101-2 [3] / TS 38.101-5 [34] and Table 5.3.5-2 of TS 38.101-5 [34], for the case that the UE is unable to report the actual supported bandwidth according to the Table 5.3.5-1 of TS 38.101-1 [2] / TS 38.101-2 [3] / TS 38.101-5 [34] and Table 5.3.5-2 of TS 38.101-5 [34]. For each band, (e)RedCap UEs shall indicate its maximum channel bandwidth, which is 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.  The *supportedBandwidthUL-v1780* is only applicable to Bandwidth Combination Set 5 (BCS5) of FR1 NR CA (including NR CA part of (NG)EN-DC and NE-DC) and FR1 NR-DC. If the UE reports *supportedAggBW-FR1-r17*, the UE shall report *supportedBandwidthUL-v1780*.  NOTE: See the note in the field decription of *channelBWs-UL* for the determination of supported UL channel bandwidth. | FSPC | CY | N/A | N/A |
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| ***supportedMinBandwidthUL-r17, supportedMinBandwidthUL-v1840, supportedMinBandwidthUL-v18xy***  Indicates minimum UL channel bandwidth supported for a given SCS that UE supports within a single CC (and in case of intra-frequency DAPS handover for the source and target cells), which is defined in Table 5.3.5-1 in TS 38.101-1 [2] for FR1 and Table 5.3.5-1 in TS 38.101-2 [3] for FR2. This parameter is only applicable to the Bandwidth Combination Set 5 (BCS5). The UE shall indicate this parameter for at least one CC of a BCS5 band combination. This field does not restrict the bandwidths configured for a single CC (i.e. non-CA case). | FSPC | CY | N/A | N/A |

<no more changes>