**3GPP TSG-RAN4 Meeting #110bis R4-240xxxx**

**Changsha, China, 15th – 19th April, 2024**

**Source:** China Telecom

**Title:** WF on feature list for NR\_MC\_enh\_UERF\_R18

**Agenda item:** 6.13.4

**Document for:** Approval

# Background

This WF captures the agreements for UE feature list about the UE capability related ***Preferred switching band pairs*** and ***Switching period restriction for fallback band combination***.

For the capabilities related to ***Preferred switching band pairs***, the adhoc meeting agreement in this meeting is

If 38-5 is merged to 38-4, 38-5 will be removed from feature list.

For the capability of ***Switching period restriction for fallback band combination*** the background information is:

In LS R4-2321986, RAN4 to RAN2 on the ambiguous switching period for the fallback band combinations:

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| * UE could additionally optionally indicate in a parent BC whether to support the fallback low order BC with the same Tx switching period capability. The network determines switching period for band pair among the applicable ones and signals to the UE with RRC signalling. |

The agreements in RAN2#125, Feb, 2024

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| * For a given BC supporting UL Tx switching across up to 4 bands: * When the optional capability is not reported, it means all the fallback BCs are supported by the UE as legacy with the same switching capabilities reported in the parent BC including switching period as legacy. * When the optional capability is reported, it means all the fallback BCs are supported by the UE with the largest switching period value, i.e. 210us. * No matter the optional capability is reported or not, the UE can advertise fallback band combinations with different/same switching period by separate BandCombination entries as legacy in case of different fallback |

In this meeting, the adhoc agreement has been made for issue 1-2-2.

# Wayforward

**Agreement:**

#### Issue 1-2-1: UE capabilities related to ***Preferred switching band pairs***

**Option 1:**

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| ***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*** |
| 38.  NR\_MC\_enh | 38-5 | preferredBandPairs for four-band switching case | 1. Support the indication of the switching period can be improved to min {max(Tswitch\_A-C, Tswitch\_B-D), max(Tswitch\_A-D, Tswitch\_B-C)} assuming UE’s preferred (switched-from, switched-to) band pairs for parallel UL transmission switching for a band combination consisting of four different bands. | 38-1 | Yes | N/A | [Network can only assume the maximum switch period] | Per BC | No | FR1 only | Support mixture of FDD/TDD | [Note: Detailed information can refer to the LS to RAN2 in R4-2317609] | Optional with capability signalling |

**Option 2:**

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| ***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*** |
| 38.  NR\_MC\_enh | 38-4 | Additional switching Period for switching case across three or four bands for Dual UL | 1. Indicate additionally the supported Tx switching period for switching case across three or four bands, when Rel-18 UL Tx switching is configured by uplinkTxSwitchingMoreBands-r18. If the capability is not reported, the switching period reported in switchingPeriodFor2T-r18 or switchingPeriodFor1T-r18 applies, as specified in TS 38.214 and TS 38.101-1. | 38-1 | Yes | N/A | UL Tx switching across more than 2 bands cannot be supported for the band pair in the band combination. | Per BC | No | FR1 only | Support mixture of FDD/TDD | Component 1 candidate value: {35us, 140 us, 210us} | Optional with capability signaling |
| 38.  NR\_MC\_enh | 38-5 | Void |  |  |  |  |  |  |  |  |  |  |  |

#### Issue 1-2-2: UE capability of ***Switching period restriction for fallback band combination***

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| ***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*** |
| 38.  NR\_MC\_enh | 38-7 | Switching period restriction for fallback band combination | Indicates whether the same value of switching period is applicable to the fallback band combinations for a given band combination supporting UL Tx switching across up to 4 bands.When the field is included for a band combination, it represents the largest value, i.e. 210us is supported for each band pair in all fallback band combinations for a given band combination supporting UL Tx switching across up to 4 bands. | 38-1 | Yes | N/A | The same switching period reported for each band pair in this band combination is supported for the same band pair in all the fallback band combinations. | Per BC | No | FR1 only | Support mixture of FDD/TDD |  | Optional with capability signalling |