**3GPP TSG-RAN WG4 Meeting # 111 R4-2410654**

**Fukuoka Meeting, May 20th – May 24th, 2024**

**Source: Nokia**

**Title:** **WF on RAN4 basket WI work planning**

**Agenda item: 12.3**

**Document for: Approval**

1. Introduction

During RAN4#110, RAN4#110bis and RAN4#111 RAN4 have discussed how RAN4 best can arrange the band combination baskets for Rel-19 as captured in [1] and [2].

1. WF
   1. LTE

**<Way forward>**

* RAN4 recommends having a single LTE basket covering all LTE PC3 CA band combinations, both intra and inter-band CA.

|  |  |  |
| --- | --- | --- |
| **Current Rel-18 LTE Basket:** | **New Rel-19 LTE Basket:** | **TR?** |
| LTE\_CA\_R18\_xBDL\_yBUL | **LTE\_CA\_xBDL\_yBUL\_R19** | Yes |

Table 1 – LTE Basket Rel-19 proposal

* 1. MR-DC

**<Way forward>**

* RAN4 recommends having three MR-DC basket covering all PC3 MR-DC band combinations for both FR1 and FR2.

|  |  |  |
| --- | --- | --- |
| **Current Rel-18 MR-DC Baskets:** | **New Rel-19 MR-DC Baskets:** | **TR?** |
| DC\_R18\_1BLTE\_1BNR\_2DL2UL | **DC\_1BLTE\_1BNR\_2DL2UL\_R19** | Yes |
| DC\_R18\_2BLTE\_1BNR\_3DL2UL DC\_R18\_xBLTE\_2BNR\_yDL2UL | **DC\_xBLTE\_yBNR\_3DL2UL\_R19**  x + y = 3 | Yes |
| DC\_R18\_xBLTE\_1BNR\_yDL2UL DC\_R18\_xBLTE\_2BNR\_yDL2UL DC\_R18\_xBLTE\_yBNR\_zDL2UL DC\_R18\_xBLTE\_yBNR\_zDL3UL | **DC\_xBLTE\_yBNR\_zDLqUL\_R19**  x + y > 3  3 ≤ z ≤ 6  2 ≤ q ≤ 3 (1BLTE\_1or2BNR) | No |

Table 2 – MR-DC Basket Rel-19 proposal

* 1. NR CA/DC

**<Way forward>**

* RAN4 recommends having three NR CA/DC basket covering all PC3 NR CA/DC band combinations for both FR1 and FR2.

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| --- | --- | --- | --- |
| **Current Rel-18 NR CA/DC Baskets:** | **New Rel-19 NR CA/DC Baskets:** | **TR?** | **Notes** |
| NR\_CA\_R18\_intra | **CA\_NR\_intra\_R19** | Yes | Includes intra-band UL contiguous CA+UL-MIMO |
| NR\_CADC\_R18\_2BDL\_xBUL  NR\_SUL\_combos\_R18  NR\_2SUL\_cell\_combos  R18\_3Tx\_NR\_CA\_ENDC | **CADC\_NR\_ 2BDL\_xBUL\_R19** | Yes | UL with both 2 and 3 Tx (3Tx is for inter-band ULCA+UL-MIMO/TxD) |
| NR\_CADC\_R18\_3BDL\_xBUL  NR\_CADC\_R18\_yBDL\_xBUL  NR\_SUL\_combos\_R18  NR\_2SUL\_cell\_combos  R18\_3Tx\_NR\_CA\_ENDC | **CADC\_NR\_ yBDL\_xBUL\_R19**  y > 2 | Yes | UL with both 2 and 3 Tx  (3Tx is for inter-band ULCA+UL-MIMO/TxD) |

Table 3 – MR-DC Basket Rel-19 proposal

* 1. HPUE

**<Way forward>**

* RAN4 recommends having four HPUE basket covering all HPUE band combinations in FR1.

|  |  |  |  |
| --- | --- | --- | --- |
| **Current Rel-18 HPUE Baskets:** | **New Rel-19 Baskets:** | **Notes** | **PCs** |
| HPUE\_NR\_FR1\_TDD\_R18 HPUE\_NR\_FR1\_FDD\_R18  LTE\_NR\_HPUE\_FWVM\_REL18 | **HPUE\_FR1\_NR\_R19** | Single NR band UL operation with both FDD and TDD  PC1 is only targeted FWVM | PC1  PC2 PC1.5 |
| LTE\_NR\_HPUE\_FWVM\_REL18 | **HPUE\_FR1\_LTE\_R19** | Single LTE band UL operation with both FDD and TDD  PC1 is only targeted FWVM | PC1  PC2 PC1.5 |
| HPUE\_FR1\_TDD\_DC\_LTE\_NR\_R18  R18\_3Tx\_NR\_CA\_ENDC | **HPUE\_FR1\_LTE\_NR\_DC\_R19** | UL with both 2 and 3 Tx and both FDD and TDD operation | PC2 PC1.5 |
| HPUE\_NR\_FR1\_TDD\_intra\_CA\_R18  HPUE\_FR1\_TDD\_NR\_CADC\_SUL\_R18  HPUE\_FR1\_FDD\_NR\_CADC\_R18 R18\_3Tx\_NR\_CA\_ENDC | **HPUE\_FR1\_NR\_CADC\_R19** | UL with both 2 and 3 Tx and both FDD and TDD operation | PC2 PC1.5 |

Table 4 – HPUE Basket Rel-19 proposal

References

1. R4-2403721, WF on Rel-19 Band Combination Work, Nokia, Skyworks, ZTE, Samsung, Ericsson, AT&T, Qualcomm, CHTTL, Murata, T-Mobile USA, Apple, MediaTek, Huawei, Verizon.
2. RP-220307, Rel-18 basket WI arrangement, Nokia

Annex: Rel-18 Basket Status

* Rel-18 Basket WI and corresponding rapporteur companies

|  |  |  |
| --- | --- | --- |
| **Category** | **WI code** | **Rapporteur** |
| **LTE** | LTE\_CA\_R18\_xBDL\_yBUL | Huawei |
| **MR-DC** | DC\_R18\_1BLTE\_1BNR\_2DL2UL | [CHTTL](https://portal.etsi.org/webapp/teldir/ListPersDetails.asp?PersId=61837) |
|  | DC\_R18\_2BLTE\_1BNR\_3DL2UL | Huawei |
|  | DC\_R18\_xBLTE\_1BNR\_yDL2UL | [Nokia](https://portal.etsi.org/webapp/teldir/ListPersDetails.asp?PersId=80056) |
|  | DC\_R18\_xBLTE\_2BNR\_yDL2UL | LGE |
|  | DC\_R18\_xBLTE\_yBNR\_zDL2UL | ZTE |
|  | DC\_R18\_xBLTE\_yBNR\_zDL3UL | Samsung |
| **NR CA/DC** | NR\_CA\_R18\_intra | Ericsson |
|  | NR\_CADC\_R18\_2BDL\_xBUL | ZTE |
|  | NR\_CADC\_R18\_3BDL\_xBUL | ZTE |
|  | NR\_CADC\_R18\_yBDL\_xBUL | Ericsson |
|  | NR\_SUL\_combos\_R18-Core | Huawei |
|  | R18\_3Tx\_NR\_CA\_ENDC | Oppo |
| **HPUE** | HPUE\_FR1\_TDD\_NR\_CADC\_SUL\_R18 | China Telecom / Huawei |
|  | LTE\_NR\_HPUE\_FWVM\_REL18 | Nokia |
|  | HPUE\_FR1\_TDD\_DC\_LTE\_NR\_R18 | Ericsson |
|  | HPUE\_NR\_FR1\_TDD\_intra\_CA\_R18 | Huawei |
|  | HPUE\_NR\_FR1\_TDD\_R18 | CMCC / Huawei |
|  | HPUE\_FR1\_FDD\_NR\_CADC\_R18 | China Unicom |
|  | HPUE\_NR\_FR1\_FDD\_R18 | China Unicom |

* Rel-18 rapporteur company and responsible number of Basket WI

|  |  |  |
| --- | --- | --- |
| **No** | **Company** | **# of Rel-18 WI** |
| 1 | Huawei | 4 |
| 2 | Ericsson | 3 |
| 3 | ZTE | 3 |
| 4 | Nokia | 2 |
| 5 | China Unicom | 2 |
| 6 | CMCC | 1 |
| 7 | CHTTL | 1 |
| 8 | China Telecom | 1 |
| 9 | LGE | 1 |
| 10 | Samsung | 1 |
| 11 | Oppo | 1 |