3GPP TSG-RAN WG2 #109-e Tdoc R2-200xxxx

Electronic meeting, 24th February – 6th March, 2020

**Title: [DRAFT]** Reply LS on Handling of Fallbacks for combined contiguous and non-contiguous CA or DC configurations in FR2

**Response to:** LS on Handling of Fallbacks for combined contiguous and non-contiguous CA or DC configurations in FR2 (R4-1910239)

**Release:** Rel-15

**Work Item:** NR\_newRAT-Core

**Source:** MediaTek Inc. [To be RAN WG2]

**To:** RAN WG4

**Cc:** -

**Contact Person:**

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**Attachments:** -

**1. Overall Description:**

RAN2 would like to thank RAN4 for their LS on handling of fallbacks for combined contiguous and non-contiguous CA or DC configurations in FR2.

Based on discussions during RAN2#108 and RAN2 #109e, RAN2 did also not reach a common understanding about the main justification for the change requested by RAN4 and the trade-off between benefits in RAN4 and cost from a RAN2 protocol perspective. Therefore, R2 would like to understand more detailed requirements for a solution, and understand better what R4 actually means with not supporting all fallbacks.

RAN2 would like to remind that the principle of implicitly supported fallback BCs was introduced to avoid the unbearable increase of UE capability containers with increasing number of carriers. Even with this principle, some UEs already advertise MRDC capability containers with more than 8 kByte.v

Besides the signalling overhead, some companies raised concerns that support of UEs not supporting all fallback combinations would require significant changes to existing network implementations, would restrict configuration options and would further increase the computational complexity of the capability evaluation on the NW side.

Q1: What is RAN4’s motivation/benefit for the suggested change and its impact to the RAN2 specifications?

Q2: In the LS, RAN4 states that “Deactivating carriers within the CA or DC combination is still possible”, which seems also a way of “supporting fallback” from R2 point of view. Please explain the difference of “not supporting all fallback” through of CA/DC deactivation and RRC reconfiguration.

Q3: On the request to “not supporting all fallbacks for FR2”, which of below options is R4’s expectation:

1. fallback support of a FR2 BC is defined in TS38.101-2 and other undefined fallback is not supported. In this case, fallback support is not only based on R2 specifications and capability report but also R4 specification.
2. Fallback support of a BC is completely based on R2 specifications and capability report regardless of R4 specification. In this case, R2 specifications and capability report needs to provide complete information on supported fallbacks.

For three meeting, RAN2 has analysed a set of solutions to accommodate the suggested change the RAN4 agreement. RAN2 did not yet reached consensus if a RAN2-centric solution should be adopted, however, multiple companies support the solution ([R2-2000600](ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_109_e/Docs/R2-2000600.zip)) to introduce a new separate list for *exceptional* band combinations (i.e. with fallback exceptions) upon NW enabling. The high level concept of the solution is described below.

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| --- |
| * Step 1: NW side indicates with 1-bit in the *UECapabilityEnquiry* message asking UE to report the band combinations with fallback exceptions. * Step 2: UE reports the band combinations with fallback exceptions in a separate band combination container *supportedBandCombinationList-FR2CAFallbackException* together with one bit indication. |

Q4: How does a UE decide an exceptional BC? Is it defined in R4 TS or implemented by UE?

Q5: If an exceptional BC is defined by R4 TS, does R4 foresee an exceptional BC to become normal BC in the future?

**2. Actions:**

**To RAN4:** RAN2 respectfully asks RAN4 to answer to the above questions.

**3. Date of Next TSG-RAN WG2 Meetings:**

TSG-RAN WG2 Meeting #109bis 2020-04-20 to 2020-04-24 Sapporo, JP

TSG-RAN WG2 Meeting #110 2019-05-25 to 2019-05-29 Athens, GR

**4. Annex:**

RAN2 would like to highlight one aspect in the definition of fallback band combinations as excerpted from TS 38.306 below:

“An intra-band non-contiguous band combination is not considered to be a fallback band combination of an intra-band contiguous band combination”.

For the fallbacks from the intra-band contiguous CA, all of the fallback combinations result in intra-band contiguous CA, i.e. by removing the lowest CC or highest CC from a contiguous block of carriers. As given by the definition, an intra-band non-contiguous CA is not a fallback of a contiguous block, and hence not implicitly supported by the UE.