**3GPP TSG RAN WG1 Meeting #92 R1-1801320**

**Athens, Greece, February 26th – March 2nd, 2018**

**3GPP TSG-RAN WG2 NR Ad hoc 0118 R2-1801570**

**Vancouver, Canada, 22nd January – 26th January 2018**

**Title:** LS to RAN1 on beam failure recovery

**Response to:** -

**Release:** Rel-15

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

**Source:** RAN2

**To:** RAN1

**Cc:**

**Contact Person:**

#### Name: Pierre Bertrand

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**Attachments:** -

**1. Overall Description:**

RAN2 thanks RAN1 for their liaison statements on “LS to RAN2 on Beam Failure Recovery” (R2-1800003/ R1-1721346).

Beam failure recovery trigger

RAN2 understands from RAN1 LS and RAN1 specification, that beam recovery request is decided in MAC by “the number of consecutive detected beam failure instances exceeding a configured maximum number”, and PHY layer provides every “detected beam failure instance” to MAC. RAN2 discussed the counting of these events and observed that some information was missing from RAN1 to properly implement it. E.g. two options for managing this counter in MAC were mentioned as below:

Option 1: PHY delivers two types of notifications to MAC, namely “beam failure instance” and “no beam failure instance”. The former would e.g. result in MAC incrementing the counter and the latter in MAC resetting the counter. But this requires RAN1 to design a “no beam failure” criteria and notification.

Option 2: PHY delivers to MAC “beam failure instance” notifications only and MAC maintains a timer for resetting the counter: the timer is (re)started upon every new reception of “beam-failure instance”. At timer expiry the counter is reset. But this also requires RAN1 to provide RAN2 with an indication of the maximum time interval of the beam failure “checks” in PHY so that RAN2 can design the timer accordingly or more generally to provide RAN2 with guidance on the timer values.

Details of the two options remain so RAN2 expects further details from RAN1 on which approach they would prefer and the necessary parameters required for MAC to implement the “beam-failure instance” counter properly.

Q1: RAN2 asks RAN1 to clarify the principles of “beam-failure instance” counter maintenance, as well as the associated expected parameters and information/events received from the physical layer.

Beam failure recovery procedure

RAN1 mentioned in their LS the use of a timer *beamFailureRecoveryTimer*. On the other hand, RAN2 thinks *PreambleTransMax-BFR* mightplay similar role in the associated RA procedure. Therefore RAN2 would like to understand the exact role and usage of the *beamFailureRecoveryTimer*.

Q2: Can RAN1 clarify the exact role and usage of the *beamFailureRecoveryTimer*?

Carrier aggregation

RAN2 notes that BFR is only supported on the PCell. The question for support of BFR on SCell is open and RAN2 will wait for RAN1 on this matter. RAN2 has not worked on this so far, but would like to know promptly from RAN1 if and how they envision supporting BFR in CA.

Q3: RAN2 would like to know promptly from RAN1 if and how they envision supporting BFR in CA.

**2. Actions:**

**To RAN1**

**ACTION:** RAN2 kindly asks RAN1 to answer the questions provided in this LS.

**3. Date of Next TSG-RAN2 Meetings:**

TSG-RAN WG2 meeting #101 26 Feb - 02 Mar 2018 Athens, Greece

TSG-RAN WG2 meeting #101bis 16 Apr - 20 Mar 2018 Sanya, China