**3GPP TSG-RAN WG2 Meeting #114-e R2-210xxxx**

**E-Meeting, May 2020**

**Title:**  [draft] LS response on two PUCCH capability

**Response to:** R2-2104716 (R1-2104121)

**Release:** Rel-16

**Work Item:** NR\_L1enh\_URLLC-Core

**Source:** OPPO [to be RAN2]

**To:** RAN1

**Cc:**

**Contact Person:**

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**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**Attachments:** none

**1. Overall Description:**

For the follow issue In LS R2-2104716 (R1-2104121) from RAN1:

*RAN1 would like to clarify that FG 11-4c, FG11-4d, FG 11-4f and FG 11-4h are for two codebooks where one of the two is sub-slot based codebook, and the other is slot-based codebook. RAN1 would like to ask RAN2 to check if following sentences in TS38.306 in current places are appropriate considering above restriction on FG 11-4c/4d/4f/4h. If not appropriate, RAN2 can consider editing sentences.*

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| ***twoPUCCH-Type5-r16***Indicates whether the UE supports two PUCCH of format 0 or 2 for two HARQ-ACK codebooks with one 7\*2-symbol subslot based HARQ-ACK codebook. When simultaneously configured with two slot-based HARQ-ACK codebooks, the capability for each HARQ-ACK codebook is subjected to the capability reported by *twoPUCCH-F0-2-ConsecSymbols.****twoPUCCH-Type6-r16***Indicates whether the UE supports two PUCCH of format 0 or 2 in consecutive symbols for two HARQ-ACK codebooks with one 2\*7-symbol subslot based HARQ-ACK codebook. When simultaneously configured with two slot-based HARQ-ACK codebooks, the capability for each HARQ-ACK codebook is subjected to the capability reported by twoPUCCH-F0-2-ConsecSymbols.***twoPUCCH-Type8-r16***Indicates whether the UE supports one PUCCH format 0 or 2 and one PUCCH format 1, 3 or 4 in the same subslot for HARQ-ACK codebooks with one 2\*7-symbol subslot based HARQ-ACK codebook. When simultaneously configured with two slot-based HARQ-ACK codebooks, the capability for each HARQ-ACK codebook is subjected to the capability reported by onePUCCH-LongAndShortFormat.***twoPUCCH-Type10-r16***Indicates whether the UE supports two PUCCH transmissions in the same subslot for two HARQ-ACK codebooks with one 2\*7-symbol subslot which are not covered by *twoPUCCH-Type5-r16* and *twoPUCCH-Type7-r16*. When simultaneously configured with two slot-based HARQ-ACK codebooks, the capability for each HARQ-ACK codebook is subjected to the capability reported by *twoPUCCH-AnyOthersInSlot.* |

RAN2 discussed this issue, and decided to relocate the related sentences all into *twoHARQ-ACK-Codebook-type1-r16* as follows

| ***twoHARQ-ACK-Codebook-type1-r16***Indicates whether the UE supports two HARQ-ACK codebooks with up to one subslot based HARQ-ACK codebook (i.e. slot-based + slot-based, or slot-based + subslot based) simultaneously constructed for supporting HARQ-ACK codebooks with different priorities at a UE. The capability signalling comprises the following parameters:-     *sub-SlotConfig-NCP-r16* indicates the maximum number of actual PUCCH transmissions for HARQ-ACK within a slot for NCP with 2-symbol\*7 sub-slot configuration;-     *sub-SlotConfig-ECP-r16* indicates the maximum number of actual PUCCH transmissions for HARQ-ACK within a slot for ECP with 2-symbol\*6 sub-slot configuration;For the 7-symbol\*2 sub-slot configuration of NCP or the 6-symbol\*2 sub-slot configuration of ECP, the value of the maximum number of actual PUCCH transmissions for HARQ-ACK within a slot is {2}.NOTE 1:   If the UE indicates support of this feature and is simultaneously configured with two slot-based HARQ-ACK codebooks:* whether the UE supports two PUCCH of format 0 or 2 for each HARQ-ACK codebook is subjected to the capability reported by *twoPUCCH-F0-2-ConsecSymbols.*
* whether the UE supports two PUCCH of format 0 or 2 in consecutive symbols for each HARQ-ACK codebook is subjected to the capability reported by *twoPUCCH-F0-2-ConsecSymbols.*
* whether the UE supports one PUCCH format 0 or 2 and one PUCCH format 1, 3 or 4 in the same subslot for each HARQ-ACK codebook is subjected to the capability reported by *onePUCCH-LongAndShortFormat*.
* whether the UE supports two PUCCH transmissions in the same subslot for each HARQ-ACK codebook is subjected to the capability reported by *twoPUCCH-AnyOthersInSlot.*

 NOTE 2:   If a UE reports both *multiPUCCH-r16* and *twoHARQ-ACK-Codebook-type1-r16*, it can support two slot-based HARQ-ACK codebooks, and one slot-based and one-sub-slot-based HARQ-ACK codebooks. If a UE reports *twoHARQ-ACK-Codebook-type1-r16* but does not report *multiPUCCH-r16*, it can only support two slot-based HARQ-ACK codebooks. | FS | No | N/A | N/A |
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**2. Actions:**

To RAN WG1: RAN2 respectfully requests RAN1 to feedback if any concern on the change above.

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

TSG RAN WG2 Meeting #115-e 16 August – 27 August 2021 eMeeting

TSG RAN WG2 Meeting #116-e 1 November– 12 November 2021 eMeeting