**3GPP TSG RAN WG1 #114** **R1-230xxxx**

**Toulouse, France, August 21st – 25th, 2023**

**Agenda item:** 9.17

**Source:** Samsung

**Title:** Summary of email discussions [114-R18-38.213-NR\_cov\_enh2]

**Document for:** Discussion and decision

# Introduction

The purpose of this document is to collect inputs/comments on the draft CR for TS 38.213 [draftCR\_38213 Coverage](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_114/Inbox/drafts/9.17%28Other%29/%5B38.213%20draft%20CRs%5D/NR_cov_enh2/R1-230xxxx%20draftCR_38213%20Coverage.docx) on the introduction of further NR coverage enhancements. If a comment on a particular aspect has been made by another company, please do not repeat it until, if needed, after a response.

The first checkpoint is on September 5, UTC 13:00.

# First Round Discussion

Please provide your comments on the draft CR for TS 38.213 [draftCR\_38213 Coverage](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_114/Inbox/drafts/9.17%28Other%29/%5B38.213%20draft%20CRs%5D/NR_cov_enh2/R1-230xxxx%20draftCR_38213%20Coverage.docx).

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| Company | Comments |
| LG | First of all, the following seems to be temporarily written last time, but it seems to overlap with the newly written content, so it would be good to delete it.

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| A time period, starting from frame 0, for determining [RO groups] for PRACH transmission with repetitions, is the smallest number of SS/PBCH block to PRACH occasion association pattern period(s) such that at least one RO group is determined for all configured $N\_{preamble}^{rep}$ and the determined [RO group pattern] repeats at every such time period.  |

Next, if a timing offset is configured, it was agreed that the timing offset would be applied between ROs in the same frequency location, and also to use the timing offset from the first valid RO of the previous RO group.

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| AgreementFor a given number of *N* multiple PRACH transmissions, to determine the starting RO of all the RO groups within a time period X:* + If a time offset is configured, then
		- the starting RO of the first RO group for each $n\_{RA}$ is determined from the first valid RO within the time period X, first in increasing order of frequency resource index for frequency multiplexed PRACH occasions; second in increasing order of time resource index.
		- the starting RO of the *n*-th RO group for each $n\_{RA}$ is determined as the RO at the time offset equal to a number of valid ROs from the starting RO of the (*n-1*)-th RO group for the same $n\_{RA}$.
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Therefore, the part below can be modified as follows.

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| For a PRACH transmission with $N\_{preamble}^{rep}$ preamble repetitions within a time period, a first valid PRACH occasion is determined according to the ordering of PRACH occasions and is after $N\_{time}^{RO}$ consecutive valid PRACH occasions in time from ~~a~~ the first ~~last~~ valid PRACH occasion corresponding to previous $N\_{preamble}^{rep}$ preamble repetitions with same frequency location, if any, where $N\_{time}^{RO}$ is the value of *TimeOffsetBetweenStartingRO*, if provided; otherwise, $N\_{time}^{RO}=0$. |

Finally, since the RAR window for multiple PRACH transmissions has been agreed to start after last RO, it might be clear to mention it as below so that it can be distinguished from legacy PRACH transmission.

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| In response to a PRACH transmission, a UE attempts to detect a DCI format 1\_0 with CRC scrambled by a corresponding RA-RNTI during a window controlled by higher layers [11, TS 38.321]. For a PRACH transmission without preamble repetitions, t~~T~~he window starts at the first symbol of the earliest CORESET the UE is configured to receive PDCCH for Type1-PDCCH CSS set, as defined in clause 10.1, that is at least one symbol, after the last symbol of the ~~last~~ PRACH occasion corresponding to the PRACH transmission, where the symbol duration corresponds to the SCS for Type1-PDCCH CSS set as defined in clause 10.1. For a PRACH transmission with preamble repetitions, the window starts at the first symbol of the earliest CORESET the UE is configured to receive PDCCH for Type1-PDCCH CSS set, as defined in clause 10.1, that is at least one symbol, after the last symbol of the last PRACH occasion corresponding to the multiple PRACH transmissions, where the symbol duration corresponds to the SCS for Type1-PDCCH CSS set as defined in clause 10.1. |

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