**3GPP TSG-RAN WG4 Meeting # 107 R4-23XXXXX**

**Incheon, KR, May 22nd – May 26th , 2023**

**Agenda item:** 10.3

**Source:** Moderator (Apple)

**Title:** Topic summary for [107][202] Maintenance\_R17

**Document for:** Information

# Introduction

*Briefly introduce background, the scope of this email discussion (e.g. list of treated agenda items) and provide some guidelines for email discussion if necessary.*

In this summary, the following topic is included.

* On monitoring of paging occasions for CG-SDT with HD-FDD Redcap UEs (R2-2304562)

# Topic #1:

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

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| **T-doc number** | **Title** | **Company** | **Proposals / Observations** |
| [**R4-2307456**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2307456.zip) | Discussion on reply LS on Monitoring of paging occasions for CG-SDT with HD-FDD Redcap UEs | vivo | **Proposal 1: To align RAN1/2/4 specification, delete the corresponding part “For RedCap UE in HD-FDD mode, if a paging occasion overlaps with CG-SDT transmission then the UE shall monitor the paging during the paging occasion. In this case the UE is allowed to drop the CG-SDT transmission.”**  **Draft LS reply:**  Based on discussions in RAN4#107, RAN4 would like to inform that in order to align RAN1/2/4 specification, RAN4 decides to delete the following part “For RedCap UE in HD-FDD mode, if a paging occasion overlaps with CG-SDT transmission then the UE shall monitor the paging during the paging occasion. In this case the UE is allowed to drop the CG-SDT transmission” from section 5.1B.2.6 of TS38.133 |
| [**R4-2308340**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2308340.zip) | Reply LS on Monitoring of paging occasions for CG-SDT with HD-FDD Redcap UEs | Huawei, HiSilicon | **Draft LS reply:**  For RedCap UE in HD-FDD mode, the UE is required to monitor for SI change indication in any paging occasion at least once per modification period during SDT,   * if the initial downlink BWP on which the SDT procedure is ongoing is associated with a CD-SSB, or * if the separate downlink BWP on which the SDT procedure is ongoing is associated with a CD-SSB.   In case the paging occasions overlap with CG-SDT transmission, the UE is allowed to drop the CG-SDT transmission. |
| [**R4-2308341**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2308341.zip) | Modification on interruption in paging reception for HD-FDD RedCap UEs | Huawei, HiSilicon | CR:  For RedCap UE in HD-FDD mode, the UE is required to monitor for SI change indication in any paging occasion at least once per modification period during SDT if the initial downlink BWP on which the SDT procedure is ongoing is associated with a CD-SSB or if the separate downlink BWP on which the SDT procedure is ongoing is associated with a CD-SSB. In case the paging occasions overlap with CG-SDT transmission, the UE is allowed to drop the CG-SDT transmission. |
| [**R4-2309226**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2309226.zip) | Monitoring of paging occasions for CG-SDT with HD-FDD Redcap UEs | Ericsson | **Proposal: The current specification text related to maximum interruption in paging reception for HD-FDD in clause 5.1B.26 in TS 38.133 is revised as follows:**   * “*For RedCap UE in HD-FDD mode, if all paging occasions within a modification period overlap with CG-SDT transmission then the UE shall monitor the paging during at least one paging occasion. In this case the UE is allowed to drop the CG-SDT transmission.*” |
| [**R4-2309230**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2309230.zip) | CR on monitoring of paging occasions for CG-SDT with HD-FDD Redcap UEs | Ericsson | CR:  For RedCap UE in HD-FDD mode, if all paging occasions within a modification period overlap with CG-SDT transmission then the UE shall monitor the paging during at least one paging occasion. In this case the UE is allowed to drop the CG-SDT transmission. |
| [**R4-2309429**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2309429.zip) | Discussion on Monitoring of paging occasions for CG-SDT with HD-FDD Redcap Ues | Qualcomm Incorporated | **Proposal 1: NW should not configure CG-SDT occasions overlaps with all paging occasions for a HD RedCap UE.**  **Proposal 2: If NW configure CG-SDT occasions overlaps with any paging occasions, it is up-to UE implementation whether to monitor the paging during the overlapping paging occasions.** |
| R4-2309667 | Open issues on RRM core requirements for RedCap | Nokia, Nokia Shanghai Bell | 1. RAN4 to adopt the following change in subclause 5.1B.2.6 Maximum interruption in paging reception:   For RedCap UE in HD-FDD mode, the UE shall monitor paging for SI change indication in any paging occasion at least once per modification period [2] during SDT if the initial downlink BWP on which the SDT procedure is ongoing is associated with a CD-SSB. In case the determined paging occasion overlaps with the CG-SDT transmission, the UE shall determine another paging occasion in the modification period, else if no paging occasion is identified, ~~if a paging occasion overlaps with CG-SDT transmission then the UE shall monitor the paging during the paging occasion. In this case~~ the UE is allowed to drop the CG-SDT transmission. |
| R4-2309668 | CR 38.133 Correction of RedCap UE behavior in case of overlap of paging occasion and CG-SDT transmission | Nokia, Nokia Shanghai Bell | CR |

## Open issues summary

Regarding R2-2304562 on monitoring of paging occasions for CG-SDT with HD-FDD Redcap UEs based on specification text in RAN2 and relevant sections in RAN1 and RAN4,

Current RAN2 specifications do not explicitly specify what happens for UEs in half duplex mode if a paging occasion conflicts with a CG-SDT occasion.

It is RAN2’s understanding that although information pertaining to this can be found in e.g., 38.213, clause 17.2 or in 38.133, clause 5.1B.2.6, the UE is only required to monitor paging for SI change indication in any paging occasion at least once per modification period during SDT if the initial downlink BWP on which the SDT procedure is ongoing is associated with a CD-SSB.

Similar to connected mode behaviour, since the UE is only required to monitor the paging in any paging occasion at least once per modification period, there should be other paging occasions available (within the modification period) to monitor the paging for SI change even if some of them overlap with the CG-SDT occasion(s).

Hence, RAN2 would like to ask RAN1 and RAN4 to take the above understanding into account and discuss possible amendment on misalignment between RAN2 specifications and RAN1 and/or RAN4 specifications.

### Sub-topic 1-1: Should there be any network handling to void overlapping of CG-SDT occasions with all paging occasions for a HD RedCap UE?

*Sub-topic description*

*Open issues and candidate options before meeting:*

* Proposals
  + Option 1: NW should not configure CG-SDT occasions overlaps with all paging occasions for a HD RedCap UE. (Qualcomm)
  + Option 2: Other, please specify.
* Recommended WF
  + TBA

### Sub-topic 1-2: What if the configurerad CG-SDT occasions are overlapping with any paging occasions?

* Proposals
  + Option 1: The scenario where a paging occasion overlaps with CG-SDT transmission will not happen. (vivo)
  + Option 2: In case the paging occasions overlap with CG-SDT transmission, the UE is allowed to drop the CG-SDT. (Huawei)
  + Option 3: Any paging occasion within the modification period can be used to monitor the paging for SI change. In case the paging occasion always overlaps with CG-SDT transmission, the UE is allowed to drop the CG-SDT. (Ericsson, Nokia)
  + Option 4: It is up to UE implementation whether to monitor the paging during the overlapping paging occasions. (Qualcomm)
* Recommended WF
  + TBA

### Sub-topic 2-3: Whether LS to RAN2 is needed?

*Sub-topic description:*

*Open issues and candidate options before meeting:*

* Proposals
  + Option 1: Yes
    - 1a: Huawei LS draft in R4-2308340
    - 1b: vivo LS draft in R4-2307456
    - Other
  + Option 2: No
* Recommended WF
  + TBA

### CRs/TPs

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| **CR/TP number** | **title** | **company** |
| [**R4-2308341**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2308341.zip) | Modification on interruption in paging reception for HD-FDD RedCap UEs | Huawei |
| [**R4-2309230**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_107/Docs/R4-2309230.zip) | CR on monitoring of paging occasions for CG-SDT with HD-FDD Redcap UEs | Ericsson |
| **R4-2309668** | CR 38.133 Correction of RedCap UE behavior in case of overlap of paging occasion and CG-SDT transmission | Nokia |