3GPP TSG-RAN WG2 Meeting #117-e R2-22xxxxx

Online, 21 February – 03 March 2022

**Agenda item: 7.2**

**Source: Huawei**

**Title: Report of [AT117-e][304][NBIOT R15] DRX active time after Scheduling Request or SPS BSR (Huawei))**

**Document for: Report**

# 1 Scope of the offline discussion

This is the offline email discussion ‘[AT117-e][304][NBIOT R15] DRX active time after Scheduling Request or SPS BSR (Huawei)”, as indicated below:

* [AT117-e][304][NBIOT R15] DRX active time after Scheduling Request or SPS BSR (Huawei)

**Status**: Started

**Scope:** Discussion of whether correction is needed, and work on the CRs.

      **Intended outcome:** Report in R2-2203571, and revised CRs (if needed – Tdocs can be allocated if necessary).

      **Deadline:** Thursday 24th February 1200 UTC

# 2 Participants

|  |  |  |
| --- | --- | --- |
| **Company** | **Name** | **e-mail address** |
| Huawei | Odile Rollinger | odile.rollinger@huawei.com |
| ZTE | Ting Lu | lu.ting@zte.com.cn |
| Qualcomm | Mungal Dhanda | mdhanda@qti.qualcomm.com |
| Ericsson | Emre A. Yavuz | emre-yavuz@ericsson.com |

# 3 Offline discussion

This offline discusses the documents below:

[R2-2203214](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_117-e/docs/R2-2203214.zip) Correction to DRX active time after a Scheduling Request or a SPS BSR has been sent in NB-IoT Huawei, HiSilicon CR Rel-15 36.321 15.11.0 1528 - F NB\_IOTenh2-Core

[R2-2203215](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_117-e/docs/R2-2203215.zip) Correction to DRX active time after a Scheduling Request or a SPS BSR has been sent in NB-IoT Huawei, HiSilicon CR Rel-16 36.321 16.6.0 1529 - A NB\_IOTenh2-Core

The intention is to check whether the intention of the CR is agreeable and whether there are comments on the actual proposed changes.

Companies are requested to provide comments in the table below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments).

|  |  |  |
| --- | --- | --- |
| **Company** | **Do you agree with the intent of the change?** | **Detailed comments** |
| MediaTek | Yes | A rewording is proposed as :- for NB-IoT, a Scheduling Request is sent on a dedicated PRACH resource for SR and is pending (as described in clause 5.4.4); or- for NB-IoT, a BSR is sent on a configured uplink grant and a PDCCH indicating a new transmission addressed to the C-RNTI of the MAC entity has not been received (as described in clauses 5.4.5); or The reason for the first change is to make statement more specific.The reason for the second change is that accoring to 36.321 5.4.5, “All triggered BSRs shall be cancelled when a BSR is included in a MAC PDU for transmission.” So when the BSR has been sent, it is cancelled and theresore not in a state of pending.I also wondering why the CBRA in connected mode for UL grant is not optimized as such. Was there any previous agreement(maybe for LTE) regarding that only the UL grant request (e.g. BSR or SR)was sent on the dedicated resources can keep in Active Time to wait for UL grant, and the one sent on common resources(e.g. contention based random access) was not allowed? |
| ZTE | No | For NB-IoT, the dedicated resource for SR can only be configured on the NPRACH carrier, which may be different from the dedicated carrier, and the CFRA procedure should be followed. Therefore, after the UE sends a sheduling request on a dedicated PRACH resource, CSS-RA should be minitored before receiving RAR. And after receiving RAR, the UE switches to the dedicated carrier. We think such process has no impact on the Active Time definition for C-DRX. So we think the first bullet added (*- for NB-IoT, a Scheduling Request is sent on a PRACH resource for SR and is pending (as described in clause 5.4.4); or*) is not needed.According to the TS 36.321, if a UL grant has been configured for an asynchronous HARQ process for this subframe, UL HARQ RTT Timer or *drx-ULRetransmissionTimer* will be started. And after the UL HARQ RTT Timer expires, *drx-InactivityTimer* will be started or restarted. This process is applicable to the BSR over SPS.Moreover, according to the following description in TS 36.321, it can be seen that the time while *drx-ULRetransmissionTimer* or *drx-InactivityTimer* is running has already been included in the Active Time:

|  |
| --- |
| *When a DRX cycle is configured, the Active Time includes the time while:**- onDurationTimer or drx-InactivityTimer or drx-RetransmissionTimer or drx-RetransmissionTimerShortTTI or drx-ULRetransmissionTimer or drx-ULRetransmissionTimerShortTTI or mac-ContentionResolutionTimer (as described in clause 5.1.5) is running; or**...* |

Therefore, we think the second bullet added (*- for NB-IoT, a BSR is sent on a configured uplink grant and is pending (as described in clauses 5.4.5); or*) is also not needed. |
| Qualcomm | Agree | Agree with ZTE for the case of SR with PRACH, C-DRX is not applicable while the random access procedure is active for SR.For the case of SR with SPS:1. We don’t think this is an essential change, it is an optimisation. As such it should be avoided for frozen releases. Whether this change can be done for Release 17 depends on whether the solution is acceptable or it needs more work.
2. As stated on the cover-sheet, if only UE or NW implements this CR then there is a disadvantages rather then no performance impact (i.e., either UE will endup using more power or network wasting resources).

For how long after transmission of sechduling request would the UE refrain from entering DRX mode (i.e., for how long should UE remain in ON state wating for a grant)? |
| Huawei, HiSilicon | Yes | Agree with ZTE that the case for SPS BSR is covered by the first bulletDiagree with ZTE and QC for SR with PRACH. This is not a RACH procedure. The UE sends the PRACH preamble and then resume normal operation, there is no RAR |
| Ericsson | No | Agree with Qualcomm that this is not an essential change, but rather an optimization which can be avoided at this late stage. |

Conclusion:

The case of SPS BSR is already covered by the specification.

For SR using a dedicated NPRACH resource, two companies support, two companies think that it is not applicable.

Two companies think it is an optimisation and should be avoided at a late stage in a frozen release. Rapporteur thinks if introduced in a later release, a capability will be needed.

**Observation 1**: SPS BSR is already covered by the specification

**Proposal 1:** RAN2 to confirm that SR using a dedicated NPRACH reource does not involve a RACH procedure and that C-DRX is applicable.

**Proposal 2:** RAN2 to discuss whether the change for SR using a dedicated NPRACH resource would be acceptable for Rel-17.

# 4 Conclusion

To be completed