**3GPP TSG RAN WG1 #110 R1-22xxxxx**

Toulouse, France, 22nd – 26th August, 2022

Source: CATT

Title: [110-NR-7.2.10-CRs] Comments on R1-2206371 SCell dormancy without DRX

Agenda Item: 7.2.10

Document for: Discussion and Decision

# Introduction

The SCell dormancy is a power saving feature in reducing PDCCH monitoring for SCell in Rel-16. The L1 based SCell dormancy indication had separated design for DCI format outside and within Active Time with the assumption of DRX being configured. All the subsequent standardization of L1 based SCell dormancy indication follow two independent designs within and outside Active time. However, the Rel-16 UE power saving WID [2] and MR DC WID [6] do not have objective to restrict the L1 based SCell dormancy indication used only when DRX is configured.

# Discussion on SCell Dormancy without DRX configuration

The SCell dormancy was discussed in part of Rel-16 UE power saving study for dynamic adaptation of SCell(s) with fast SCell activation and reducing PDCCH monitoring on activated SCell [1]. During Rel-16 UE power saving work item discussion in RAN4, the SCell dormancy was included in the Rel-16 UE works with the following Note in [2] ,

In RAN#85, the UE power saving offline discussion was summarized in [3] with the conclusion that the SCell dormancy would be discussed in NR DC/CA session and the UE dormancy behavior agreed in RAN2 would be used for UE power saving without any condition on the configuration of DRX.

## Discussion Point 1

* Should SCell dormancy be supported in the scenario when DRX is not configured in Rel-16?
	+ If the answer is “Yes” SCell dormancy is supported when DRX is configured, what is the solution
		- Alt 1: The physical layer procedure of L1 signaling for SCell dormancy indication and RRC configuration parameter for dormant BWP used for SCell dormancy within Active Time should be used for SCell dormancy physical procedure and RRC dormant BWP configuration when DRX is not configured.
		- Alt 2: New CR to have specification correction to address the UE behavior and configuration when DRX is not configured.
	+ If the answer is “No”
		- Should the specification be clarified?

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| **Company** | **Yes/No** | **Comment** |
| CATT | Yes | Alt 1The objective of Rel-16 SCell dormancy does not have any restriction to have SCell dormancy operation only when DRX is configured. The procedure and RRC configuration for Active Time should be reused for SCell dormancy when DRX is not configured.  |
| ZTE | Yes | Alt.1.Similar view as CATT. |
| Intel | Yes | We believe the procedure should be supported when DRX is not configured. One question on Alt-1 and Alt-2. Does Alt 1 mean a conclusion but no specification change, while Alt-2 means specification changes? |
| Qualcomm | Yes | We believe the agreement was clear enough when it was made. I.e., if DRX is not configured, UE is always within “active time”. Hence, no further clarification or CR is needed.Agreements**:*** For the L1 based Scell dormancy indication sent on primary cell within active time
	+ UE is configured with at least two BWPs for an Scell
		- The explicit information field in DCI indicates switching to/from dormant BWP configured for the Scell
			* FFS definition of dormant BWP
			* FFS whether or not to the same BWP switching delay to the non-dormant to dormant transition delay
	+ Note: Rel15 behavior for case when 1BWP is configured for the Scell (i.e., no dormancy indication for that Scell)
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| Spreadtrum | Yes | Alt 1 and no addition specification is needed.  |
| Huawei, HiSilicon | Yes | We consider the agreement and spec is clear |

# References

1. TR38.840v16.0.0, “Study on UE Power Saving”.
2. RP-191607, “New WID: UE Power Saving in NR”, CATT, CAICT
3. RP-192250, “Result of power saving offline discussion”, CATT
4. TS38.213v17.2.0, “Physical Layer Procedure for control”
5. TS38.331v17.1.0, “Radio Resource Control (RRC) Protocol”.
6. RP-192336, “Revised WID: Multi-RAT Dual-Connectivity and Carrier Aggregation enhancements”, Ericsson