**3GPP TSG RAN WG1 #118bis R1-2408996**

**Hefei, China, August 19th – 23th, 2024**

**Source: Moderator (OPPO)**

**Title: Summary #4 on Rel-19 asymmetric DL sTRP/UL mTRP**

**Agenda Item: 9.2.4**

**Document for: Discussion and Decision**

# Introduction

This document summarizes remaining issues proposed in company contributions of AI 9.2.4

# Issues for Discussions

## Pathloss Offset

**Proposal 1.4**

* Support Type 3 PHR reporting in a serving cell/BWP where the UE is configured with two separate SRS CLPC adjustment state, for the case if only one UL carrier is configured in the serving cell and the UE is configured for PUSCH transmissions on the UL carrier
	+ FFS: How to report Type3 PHR and/or Type1 PHR
* Support: CMCC, Google, MTK, Panasonic, ZTE, OPPO, DOCOMO, Nokia, Xiaomi, China Telecom, CATT, Fujitsu, ETRI, Sony, TCL,
* Concern: Samsung, Spreadtrum, Huawei/HiSilicon, Lenovo, vivo, Transsion

Table 1-2: Company input for Issues 1.x

|  |  |
| --- | --- |
| **Company**  | **Comments** |
| Mod00 | For the concerning companies: please let us know if/how the proposal is revised to make you be ok or live with the proposal |
|  |  |
|  |  |

## Two Separate CLPC adjustment states for SRS

**Version 1: Proposal 2.1**

About the extended value range 1~X of starting bit of blocks in DCI format 2\_3 in Rel-19, **support Alt1**:

* Alt1: X = 45 (to be captured in RAN2 spec)
	+ This feature is a separate UE capability and is appliable to any Rel-19 UE who supports this UE capability, regardless this UE supports two separate SRS CLPC adjustment states or not.
	+ Note: X=45 can be used for operations in FR1 in shared spectrum or FR2-2 and X = 43 otherwise

**Very Strong: vivo, Ericsson**

**Version 2: Proposal 2.1**

About the extended value range 1~X of starting bit of blocks in DCI format 2\_3 in Rel-19, **support Alt2**:

* Alt2: X = 44 (to be captured in RAN2 spec)
	+ This feature is only applicable to UE who is configured with two separate SRS CLPC adjustment states.
	+ This a separate optional UE feature.
	+ Note: X=44 can be used for operations in FR1 in shared spectrum for FR2-2 and X = 42 otherwise

**Very Strong: Qualcomm, Apple, Google**

**Proposal 2.2:**

In rel-19, if *followUnifiedTCI-StateSRS* is not provided for a SRS resource set, for a SRS resource from the SRS resource set,

* the SRS shall use the PL offset and SRS CLPC state adjustment index indicated by the TCI state of the SRS resource with lowest SRS resource Id in the SRS resource set.
* If none of the SRS resources in the set is configured with a TCI state:
	+ The SRS shall use the PL offset and SRS CLPC adjustment state configured in the SRS resource set
	+ Introduce one new RRC parameter to configure a PL offset in the SRS resource set
	+ Introduce one new RRC parameter to configure the 2nd separate CLPC adjustment state in the SRS resource set.

The *referenceSignal* in the UL TCI state associated with the SRS resource can be optionally configured

**Proposal 2.3**:

Support DCI format 1\_1 to indicate TPC command for SRS CLPC adjustment state(s) separate from PUSCH:

* Introduce a 1-bit SRS CLPC indicator to indicate one of the separate SRS CLPC adjustment states, and a 2-bit TPC command indicator to indicate TPC command for one of the separate SRS CLPC adjustment states where:
	+ The 2-bit TPC command indicator are present for scheduled CC/BWP if UE reports supporting a UE capability, and a corresponding RRC parameter is configured (which is a new RRC to enable this).
	+ The 1-bit SRS CLPC indicator is present for the scheduled CC/BWP if the 2-bit TPC command indicator is present and two separate SRS CLPC adjustment states are configured

Table 2-2: Company input for Issues 2.x

|  |  |
| --- | --- |
| **Company**  | **Comments** |
| Mod00 | Re 2.1: Please show if you have Very Strong Concern on either Version 1 or version 2.Re 2.2: I updated the proposal according to some offline offline comments.Re 2.3: The concerning companies: please let us if it is possible we can revise the proposal to make you be ok and can live with the proposal. |
| Mod | A new version of proposal 2.3 is provided. |
|  |  |

# Contributions in RAN1#118bis

1. R1-2407681 Enhancements for asymmetric DL sTRP/UL mTRP scenarios Huawei, HiSilicon
2. R1-2407701 Enhancements for asymmetric DL sTRP/UL mTRP scenarios Spreadtrum Communications
3. R1-2407729 Discussion on enhancements for asymmetric DL sTRP/UL mTRP scenarios China Telecom, ZTE
4. R1-2407756 Enhancement for asymmetric DL sTRP/UL mTRP scenarios Tejas Network Limited
5. R1-2407776 Discussion on enhancements for asymmetric DL sTRP/UL mTRP scenarios ZTE Corporation, Sanechips, China Telecom
6. R1-2407815 Asymmetric DL sTRP/UL mTRP deployments MediaTek Inc.
7. R1-2407821 Discussion on asymmetric DL sTRP/UL mTRP scenarios TCL
8. R1-2407856 Remaining issues on asymmetric DL sTRP/UL mTRP scenarios vivo
9. R1-2407900 Discussion on enhancement for asymmetric DL sTRP/UL mTRP scenarios CMCC
10. R1-2407964 Discussion on enhancement for asymmetric DL sTRP/UL mTRP scenarios Xiaomi
11. R1-2408042 Enhancement for asymmetric DL sTRP/UL mTRP scenarios CATT
12. R1-2408111 Discussion on UL-only mTRP operation Fujitsu
13. R1-2408118 Discussion on enhancements for asymmetric DL sTRP/UL mTRP scenarios Transsion Holdings
14. R1-2408167 Enhancements on asymmetric DL sTRP/UL mTRP scenarios OPPO
15. R1-2408190 Discussion on Rel-19 Asymmetric mTRP Operation InterDigital, Inc.
16. R1-2408202 Enhancement for asymmetric DL sTRP/UL mTRP scenarios Lenovo
17. R1-2408224 Discussion on enhancements for asymmetric DL sTRP and UL mTRP scenarios NEC
18. R1-2408294 Enhancements for asymmetric DL/UL scenarios Intel Corporation
19. R1-2408339 Discussions on asymmetric DL sTRP/UL mTRP scenarios LG Electronics
20. R1-2408351 Enhancement for asymmetric DL sTRP/UL mTRP scenarios Sharp
21. R1-2408369 Discussion on enhancement for asymmetric DL sTRP and UL mTRP scenarios Google
22. R1-2408406 Enhancement for asymmetric DL sTRP/UL mTRP scenarios Sony
23. R1-2408460 Enhancements for asymmetric DL sTRP/UL mTRP Apple
24. R1-2408564 Discussion on UL enhancement in asymmetric TRP scenarios ETRI
25. R1-2408584 Enhancement for asymmetric DL sTRP UL mTRP scenarios Ericsson
26. R1-2408640 Views on Rel-19 asymmetric DL sTRP/UL mTRP scenarios Samsung
27. R1-2408741 Enhancement for asymmetric DL sTRP/UL mTRP scenarios Nokia
28. R1-2408781 Discussion on enhancement for asymmetric DL sTRP/UL mTRP scenarios NTT DOCOMO, INC.
29. R1-2408845 Enhancement for asymmetric DL sTRP and UL mTRP deployment scenarios Qualcomm Incorporated
30. R1-2408891 Discussion on asymmetric DL sTRP and UL mTRP ASUSTeK