3GPP TSG-RAN WG4 Meeting #98-bis-e R4-210xxxx

**Electronic Meeting, Apr. 12-20, 2021**

**Agenda Item: 8.5.1**

**Source: MediaTek Inc.**

**Title: Work plan of R17 NR and MR-DC measurement gap enhancements WI**

**Document for: Approval**

# Introduction

A new RAN plan [1] has been approved in RANP #90e meeting with the agreements on extension of the overall Rel-17 delivering timeline. Also, the WID [2] for R17 NR and MR-DC measurement gap enhancements WI was also approved in RANP #91e meeting to extend the target completion date by 2 quarters. In this contribution, we provide an updated work plan for new WI on RRM measurement gap enhancement in R17 based on this latest work plan.

# Work plan for R17 NR and MR-DC measurement gap enhancements

RAN4 has 8 meetings for core part before RANP #95(March, 2022) and after that RAN4 has 3 meetings for performance part before RANP #97 (September 2022).

1. 3GPP RAN4 #97e meeting (November, 2020, Core part)
	* Discussions on :
		+ the work plan
	* Agreements on:
		+ Consensus on the work plan
2. 3GPP RAN4 #98e meeting (January, 2021, 1TU, Core part)
	* Discussions on :
		+ Pre-configured MG pattern(s)
			- Initial discussion on the mechanisms of activation/deactivation of MG following a DCI or timer based BWP switch.
			- Initial discussion on applicability of pre-configured MG pattern(s).
		+ Multiple concurrent and independent MG patterns
			- Initial discussion on maximum number of concurrent and independent MG patterns active at any time.
			- Initial discussion on applicability of multiple concurrent and independent gap patterns.
		+ Network Controlled Small Gap (NCSG) specification
			- Initial discussion on NCSG design, including VIL, ML and VIRP, for different numerologies in FR1 and FR2.
			- Initial discussion on applicability of NCSG
	* Agreements on:
		+ Technical aspects of RRM requirements of each objective
3. 3GPP RAN4 #98b-e meeting (April, 2021, 1TU, Core part)
	* Discussions on:
		+ Pre-configured MG pattern(s)
			- Further discussion on the mechanisms of activation/deactivation of MG following a DCI or timer based BWP switch.
			- Further discussion on applicability of pre-configured MG pattern(s).
			- Initial discussion on potential RRM impact.
		+ Multiple concurrent and independent MG patterns
			- Further discussion on maximum number of concurrent and independent MG patterns active at any time.
			- Further discussion on applicability of multiple concurrent and independent gap patterns.
			- Initial discussion on potential RRM impact.
		+ Network Controlled Small Gap (NCSG) specification
			- Further discussion on NCSG design, including VIL, ML and VIRP, for different numerologies in FR1 and FR2.
			- Initial discussion on potential RRM impact.
			- Further discussion on applicability of NCSG
	* Agreements on:
		+ Remaining technical aspects of RRM requirements of each objective.
4. 3GPP RAN4 #99e meeting (May, 2021, 1TU, Core part)
	* Discussions on:
		+ Pre-configured MG pattern(s)
			- Further discussion on the mechanisms of activation/deactivation of MG following a DCI or timer based BWP switch.
			- Further discussion on applicability of pre-configured MG pattern(s).
		+ Multiple concurrent and independent MG patterns
			- Further discussion on maximum number of concurrent and independent MG patterns active at any time.
			- Further discussion on applicability of multiple concurrent and independent gap patterns.
		+ Network Controlled Small Gap (NCSG) specification
			- Further discussion on NCSG design, including VIL, ML and VIRP, for different numerologies in FR1 and FR2.
			- Further discussion on applicability of NCSG
	* Agreements on
		+ Remaining technical aspects of RRM requirements of each objective.
5. 3GPP RAN4 #100e meeting (August, 2021, 1TU, Core part)
	* Discussions on:
		+ Pre-configured MG pattern(s)
			- Further discussion on the mechanisms of activation/deactivation of MG following a DCI or timer based BWP switch.
			- Further discussion on applicability of pre-configured MG pattern(s).
		+ Multiple concurrent and independent MG patterns
			- Further discussion on maximum number of concurrent and independent MG patterns active at any time.
			- Further discussion on applicability of multiple concurrent and independent gap patterns.
		+ Network Controlled Small Gap (NCSG) specification
			- Further discussion on NCSG design, including VIL, ML and VIRP, for different numerologies in FR1 and FR2.
			- Further discussion on applicability of NCSG
	* Agreements on
		+ Remaining technical aspects of RRM requirements of each objective.
6. 3GPP RAN4 #100b-e meeting (October, 2021, 1TU, Core part)
	* Discussions on:
		+ Pre-configured MG pattern(s)
			- Further discussion on the mechanisms of activation/deactivation of MG following a DCI or timer based BWP switch.
			- Further discussion on applicability of pre-configured MG pattern(s).
		+ Multiple concurrent and independent MG patterns
			- Further discussion on maximum number of concurrent and independent MG patterns active at any time.
			- Further discussion on applicability of multiple concurrent and independent gap patterns.
		+ Network Controlled Small Gap (NCSG) specification
			- Further discussion on NCSG design, including VIL, ML and VIRP, for different numerologies in FR1 and FR2.
			- Further discussion on applicability of NCSG
	* Agreements on
		+ Conclusion on RRM impact.
		+ Work split on CR responsible companies on TS38.133 and TS36.133.
		+ Initial LS to RAN2 on required signalling.
7. 3GPP RAN4 #101e meeting (November, 2021, 1TU, Core part)
	* Discussions on:
		+ Pre-configured MG pattern(s)
			- Further discuss on remaining open issues.
			- Initial discussion on CR for corresponding RRM requirement.
		+ Multiple concurrent and independent MG patterns
			- Further discuss on remaining open issues.
			- Initial discussion on CR for corresponding RRM requirement.
		+ Network Controlled Small Gap (NCSG) specification
			- Further discuss on remaining open issues.
			- Initial discussion on CR for corresponding RRM requirement.
	* Agreements on
		+ Conclusion on the remaining RRM impact.
		+ Initial draft CR(s) on TS38.133 and TS36.133.
		+ Final LS to RAN2 on required signalling.
8. 3GPP RAN4 #102e meeting (February, 2022, 1TU, Core part)
	* Discussion on:
		+ Pre-configured MG pattern(s)
			- Further discuss on remaining open issues.
			- Further discuss and agree on CR for corresponding RRM requirement.
		+ Multiple concurrent and independent MG patterns
			- Further discuss on remaining open issues.
			- Further discuss and agree on CR for corresponding RRM requirement.
		+ Network Controlled Small Gap (NCSG) specification
			- Further discuss on remaining open issues.
			- Further discuss and agree on CR for corresponding RRM requirement.
	* Agreements on
		+ Finalization on RRM requirement of each objective.
		+ CR(s) on TS38.133, TS36.133
9. 3GPP RAN4 #102b-e meeting (April, 2022, 1TU, Performance part)
	* Discussions on:
		+ Pre-configured MG pattern(s)
			- Initial discussion on test cases design for agreed RRM core requirements.
		+ Multiple concurrent and independent MG patterns
			- Initial discussion on test cases design for agreed RRM core requirements.
		+ Network Controlled Small Gap (NCSG) specification
			- Initial discussion on test cases design for agreed RRM core requirements.
	* Agreements on
		+ Work split on test cases’ CR responsible companies.
10. 3GPP RAN4 #103e meeting (May, 2022, 1TU, Performance part)
	* Discussions on:
		+ Pre-configured MG pattern(s)
			- Further discussion on test cases design for agreed RRM core requirements.
		+ Multiple concurrent and independent MG patterns
			- Further discussion on test cases design for agreed RRM core requirements.
		+ Network Controlled Small Gap (NCSG) specification
			- Further discussion on test cases design for agreed RRM core requirements.
	* Agreements on:
		+ Initial draft CR(s) on test cases in TS38.133.
11. 3GPP RAN4 #104e meeting (August, 2022, 1TU, Performance part)
	* Discussion on:
		+ Pre-configured MG pattern(s)
			- Further discussion on test cases.
		+ Multiple concurrent and independent MG patterns
			- Further discussion on test cases.
		+ Network Controlled Small Gap (NCSG) specification
			- Further discussion on test cases.
	* Agreements on:
		+ Finalization on test cases design.
		+ Agree CR(s) on test cases in TS38.133.

*Proposal 1:* *RAN4 to agree on the latest RRM work plan for “R17 NR and MR-DC measurement gap enhancements WI” as presented in this contribution.*

# Summary

In this contribution, we provided work plan for WI NR RRM measurement gap enhancement for approval.

***Proposal 1:* *RAN4 to agree on the latest RRM work plan for “R17 NR and MR-DC measurement gap enhancements WI” as presented in this contribution.***

# References

[1] RP-202868, “RAN planning for Release 17”, RANP #90 meeting

[2] PR-210679, “Revised WID: NR and MR-DC measurement gap enhancements”, Intel Corporation, MediaTek