**Document Cover Sheet**

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| **Project Number** | PN-3-XXXX (leave blank if unknown or not applicable) |
| **Document Title** | POLQA MOS-LQO score and conversational gain evaluation |
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| **Distribution** | TR-41 |
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**Abstract**

 This submission is to provide some measurement results of ITU-T P.863 POLQA MOS-LQO score and conversational gain ANSI/TIA-5050-2018 for TIA TR41 VC Task Group. It’s for committee members to know how loudness influences POLQA MOS scores according to conversational gain.

1. **Measurement test setup**
* Artificial Heads: Head acoustics HMS II.3 with Type 3.3 artificial ear
* Telecom Audio Analyzer System:
	+ Hardware: Head acoustics Labcore
	+ Software: Head acoustics ACQUA
	+ ACQUA Standard Test Suite
		- Conversational Gain: HAC-Suite Code 60021 for TIA-5050-2018
		- RLR: Code 6777 for 3GPP TS 26.131 and TS 26.132
		- POLQA score: Code 6857 for P.863
1. **Measurement result and analysis**
* The measurement results for AMR-NB with 12.2kpbs show in Table 1.
* The measurement results for AMR-WB with 12.65kpbs show in Table 2.
* Maximum volume step loudness of NB and WB meets both requirements of 3GPP TS26.131 RLR and TIA-5050 Conversational Gain.
* Max-1, Max-2, and Max-3 volume steps loudness results meet 3GPP TS26.131 RLR requirements, but they are not able to meet TIA-5050 Conversational Gain requirements fully in 8N and 2N conditions.
* Loudness gaps between volume steps of AMR-NB only cause 0.1 difference in POLQA MOS score.
* Loudness gaps between volume steps of AMR-WB causes 0.2 difference in POLQA MOS score, and different applying forces cause 0.2 difference in POLQA MOS score.

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|  AMR-NB12.2kbps | Volume step | RLR (dB) | Conversation Gain (dBSPL) | POLQA8N / 2N |
| 8N(-13 ~ 5) | 8N (Req. >88) | 2N (Req. >76) |
| Max. | -8.8 | 89.4 | 86.0 | 4.0 / 4.0 |
| Max-1 | -4.7 | 84.3 | 81.2 | 4.0 / 4.0 |
| Max-2 | -0.6 | 80.1 | 76.8 | 4.0 / 4.0 |
| Max-3(Nom.) | 3.3 | 76.3 | 73.2 | 3.9 / 3.9 |

**Table 1: Downlink Loudness Results of AMR-NB 12.2kbps**

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| --- | --- | --- | --- | --- |
|  AMR-WB12.65kbps | Volume step | RLR (dB) | Conversation Gain (dBSPL) | POLQA8N / 2N |
| 8N(-13 ~ 5) | 8N (Req. >88) | 2N (Req. >76) |
| Max. | -9.3 | 88.8 | 84.5 | 3.9 / 3.9 |
| Max-1 | -5.3 | 84.2 | 80.4 | 3.8 / 3.8 |
| Max-2 | -1.1 | 80.3 | 76.1 | 3.7 / 3.5 |
| Max-3(Nom.) | 1.4 | 78.0 | 74.4 | 3.7 / 3.5 |

**Table 2: Downlink Loudness Results of AMR-WB 12.65kbps**

1. **Conclusion**

 We recommend TR41 VC Tack Group could collect some POLQA MOS score test results of the telephone products in the market based on their volume steps with enough RLR and Conversational Gain. After that, Tack Group could evaluate the appropriate criteria for consideration adoption of POLQA into the further revision of TIA-5050 standard.

1. **Reference**

 We have proposed the requirements for POLQA MOS on Doc. TR41-VCTG-2023-02-28-003 below in the last meeting.

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| Bandwidth / Bit rate(FR/EFR/AMR/EVS) | Equal to or higher than 12.2kbps | Lower than 12.2kbps |
| NB | MOS ≧ 3.8 | MOS ≧ 3.2 |
| WB | MOS ≧ 3.8 | MOS ≧ 3.2 |
| SWB | MOS ≧ 3.8 | MOS ≧ 3.2 |