Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Wireless Telecommunications Bureau Seeks Comment on CTIA'S Request to Extend Use Of the Temporary Volume Control Standard Used to Certify Handsets as Hearing Aid Compatible	)	WT No. 23-388
	)	
Wireless Telecommunications Bureau Seeks Comment on the ATIS Waiver Request on Behalf of the Covered Entities of the Hearing Aid Compatibility Task Force	)	WT No. 20-3

Comments of the
Telecommunications Industry Association

TIA submits these comments in response to the Federal Communications Commission's ("FCC" or "Commission") Public Notice that seeks comment on the petition filed by CTIA to extend use of a temporary volume control standard to certify handset models as hearing aid compatible until a new volume control standard is complete and effective.[1] As a standards-setting body and representative of information communication technology manufacturers and vendors, TIA strongly supports the Commission's goal of achieving 100% Hearing Aid Compatibility ("HAC") for devices. As we have said in this docket in the past, industry needs to complete several actions to realize the HAC Task Force's goal of achieving 100% HAC.[2] Both

[1] Wireless Telecommunications Bureau Seeks Comment on the CTIA's Request to Extend Use of the Temporary Volume Control Standard Used to Certify Handsets as Hearing Aid Compatible, Public Notice DA 25-585, WT Docket Nos. 23-388 and 20-3 (WTB rel. Jul. 8) ("*Extension Public Notice*"); *see also* CTIA Petition for Extension of Waiver, WT Docket Nos. 23-388 and 20-3 (filed Jul. 2, 2025) ("CTIA Petition").

[2] Reply Comments of the Telecommunications Industry Association, WT No. 20-3 (May 12, 2023).

the Public Notice and CTIA's Petition mention the ongoing work within TIA to update TIA 5050, one of the steps required to meet the HAC Task Force's goal of 100% HAC. TIA believes it is important for both the Commission and interested stakeholders to hear more about the progress that has been made on this revision and why granting the CTIA Petition would serve the public interest.

TIA's Performance and Accessibility for Communications Products Committee, known as TR-41, has been diligently working for the past two years to update our existing standard TIA-5050 to address volume control requirements for mobile handsets. Since its launch via a call for participation on January 9, 2023, TR-41's Volume Control Task Group ("VCTG") consists of 35 members, representing 15 different organizations including three representatives from the FCC and has been working on the TIA 5050 update. This group has been meeting on a bi-weekly basis and is currently evaluating the two primary methodologies for measuring distortion in mobile handsets – the delta-POLQA approach and a proposed draft ETSI DTS/STQ-314 standard. The working group is currently working on lab testing and analysis of these methodologies and has laid out several milestones in the attached VCTG June Update, which was provided by the committee to TIA on June 30, 2025.

As can be seen in the attached Committee Update and discussed in the CTIA Petition, the VCTG has made substantial progress, but the work is ongoing and will not be completed by the existing waiver's expiration on September 29, 2025. As such, TIA urges the Commission to extend the waiver and allow handsets to continue to certify to the 2019 ANSI Standard while TR-41 completes its ongoing work to update TIA-5050. By granting the CTIA Petition, the Commission would ensure that industry can continue to deliver new and improved HAC-

compliant handsets to consumers and remain in compliance with the Commission's rules.[3] TIA also supports CTIA's request that the waiver be extended until the Commission updates its rules to reflect the revised TIA-5050 standard.[4] As the CTIA Petition notes, the waiver will be limited in duration due to the substantial progress already made by the VCTG, which is working towards an expected approval of the new TIA-5050 next year.[5] Once finalized, TIA, like CTIA, urges the Commission to adopt the revised standard, which would result in the waiver expiring as it is no longer necessary.

We remain supportive of the Commission's efforts to achieve 100% HAC, and are diligently working to revise TIA-5050 so industry can effectuate the goals of the Commission's HAV Waiver Order. We would be happy to meet with the Commission to provide any further updates on the ongoing status of TR-41's work, and request that the Commission grant the CTIA petition in the interim.

_/s/_____
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June 14, 2025
Enclosure: VCTG June Update

[3] CTIA Petition at 5-6.
[4] Id. At 3; Public Notice at 2.
[5] CTIA Petition at 8; Attachment at 2.

The Volume Control Task Group (VCTG) has been evaluating two primary methodologies for measuring distortion in mobile handsets: the delta-POLQA approach and the draft ETSI DTS/STQ-314 standard proposed by ETSI-STQ. Both are being considered as potential solutions for compliance with volume control requirements. No final path has yet been selected. While both approaches show promise, each presents distinct benefits and challenges that continue to be explored through data analysis, technical discussion, and ongoing collaboration with stakeholders.

Delta-POLQA offers a relatively straightforward extension to existing test methods by comparing POLQA-MOS scores between different volume settings. This method is appealing due to its familiarity and the availability of POLQA tools within many test labs. It aligns with current testing equipment and can be implemented without the need for entirely new procedures. However, concerns have been raised about the algorithm and perceptual meaning of differences in MOS (Mean Opinion Score) that may be generated through this method. For example, a change in MOS from 4.5 to 4.0 may not be perceived similarly as a change in MOS from 2.5 to 2.0, raising questions about the validity of interpreting such differences as measures of distortion.

Reference audio files and distorted audio files have been created. Multiple labs (TCBs and OEMs) have tested the files for a base POLQA-MOS score for each file and the delta-POLQA score between the reference and distorted audio files to examine cross-laboratory reproducibility. Multiple labs using different equipment must be able to achieve consistent and statistically comparable results. However, inconsistencies were observed in results across labs due to normalization/equipment settings that are not standardized. These inconsistencies can be eliminated by standardizing the measurement settings and having them configured as constant settings in the test software measurement procedures once these are available.

If the VCTG takes this path, round robin testing or general testing of a variety of handsets (e.g., with different price points, chipsets) could be done this winter if labs and OEMs commit to testing. Additionally, since normalization and equipment settings are not standardized, the group must define and standardize a normalization process.

In parallel, a better understanding of POLQA score sensitivity is needed to determine whether the observed MOS differences correlate with actual perceptual changes. If the delta-POLQA scores represent meaningful changes in perception, the VCTG will need to determine the performance criteria that would be deemed acceptable.

To support this evaluation, the VCTG has undertaken various efforts. Members have reviewed numerous technical contributions, including audio quality measurements, MOS comparisons, and volume control analyses. Several reports have been submitted and discussed, including delta-POLQA validation sets across several handsets and air interfaces. The group has examined the effects of various conversational gain levels (2N vs. 8N forces) and analyzed discrepancies in male vs. female speech performance. Progress has also been made in establishing standardized equipment and algorithmic settings to ensure greater consistency and reproducibility between test operators and systems.

The other approach to evaluating distortion is ETSI DTS/STQ-314, which introduces a novel distortion metric that is designed to be robust even in the presence of AI-based noise suppression. This method uses processed speech signals for analysis, aligning closely with real-world use cases and user experience. This standard is in draft form, and testing is needed before it can be deemed viable. This

includes test signal generation, recording, and analysis, the latter of which is not yet widely available or familiar to test labs. Currently, one VCTG participant has submitted handset recordings for ETSI evaluation. Additional handset recordings could be an important next step to support the development and validation of the draft standard. The final version is expected to be published by September 2025.[1]

The VCTG must conduct comparative studies between ETSI and delta-POLQA methods using the same test samples and conditions to determine if ETSI's approach yields more consistent or perceptually meaningful results. This includes possibly taking a hybrid approach and evaluating a delta ETSI method. Key gaps that remain include acquiring recordings for all relevant codecs and air interfaces and determining test repeatability across different handsets and labs. Establishing such baseline data will help the group assess the feasibility, practicality, and reliability of the ETSI approach in operational testing environments.

Additionally, group members have been tasked with applying both test methods in their own labs to uncover practical issues related to implementation, equipment compatibility, and operator training. OEMs and test labs will need to commit to additional testing to increase the pace of progress. This is delayed due to the lack of availability of test software for the ETSI method. Vendor consultations are also being considered with Opticom and Head Acoustics to clarify the use of POLQA tools and assess technical efficacy.

In summary, while progress has been made, critical gaps remain in data collection, inter-lab repeatability, and perceptual correlation. The VCTG expects the work on the revisions to the ANSI/TIA-5050 standard to go beyond the September 2025 expiration of the current FCC waiver. Additional time is essential to allow the group to complete thorough cross-method evaluations, standardize test procedures, and ensure that any recommendation, whether delta-POLQA or ETSI STQ, is technically sound, reproducible, and practical for industry-wide adoption. The table below represents an estimated timeframe for completion.

Expected Task/Milestone Completion	**Delta-POLQA**	**ETSI DTS/STQ-314**
Audio file preparation	Complete	Not yet started
Test Plan Development	Q3 2025	Q3 2025
Initial lab testing/Analysis/ Define normalization	Ongoing	Q3 2025
Round robin testing	Q4 2025	Q4 2025
Acceptance criteria	Q1 2026	Q1 2026
ANSI balloting & approval	Q2 2026	

[1] https://portal.etsi.org/eWPM/index.html#/schedule?WKI_ID=70025