20.19 Updates – HAC & Volume Control Guidance

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Overview

- Background
- HAC Guidance
  - Major Highlights: New in C63.19-2019
  - T-Coil Test
  - Test Report Considerations
  - Testing Considerations
  - Labeling Requirements
  - KDB 285076 publication
- Volume Control Guidance
  - Test Considerations
  - Technical Requirements
  - Test Report Exhibit

Background

- FCC amended rules governing standards for HAC on February 22, 2021
  - Acceptance into the Federal Register is pending and is expected to become effective sometime in May 2021
- New rules fully adopt ANSI C63.19-2019 for mobile handsets
  - Section 7 references ANSI/TIA-5050 -2018 for Volume Control
- There will be a two-year transition period which begins once new rules become effective
- OET is working on publishing a separate attachment to KDB publication 285076 for Volume Control to provide further guidance

HAC GUIDANCE
Major Highlights: New in ANSI 63.2019

- No more M and T-ratings
- Volume Control per TIA-5050 added
- Test frequencies changed:
  - C63.19-2011 from:

    698 MHz to 6 GHz
  - C63.19-2019 from:

    614 MHz to 6 GHz

HAC GUIDANCE
T-Coil Test

- Probe Coil – Transverse position as opposed to the perpendicular
- ABM2 – undesired ABM field ≤–38 dB instead of the maximum noise level as –48 dBA/m
- 676 measurement points with 2 mm spacing. Spacing can increased to 4 mm with interpolation

HAC GUIDANCE
Test Report Considerations

- ANSI standard has its own complete set of testing procedures and mixing these procedures will result in meaningless outcome.
- During the 2-year transition, no mix and match test report is allowed between the C63.19-2011 and C63.19-2019
  - For example, the -20dBm0 for the VoIP will stay effective for the C63.19-2011

HAC GUIDANCE
Testing Considerations

- Testing with both Probe and D-Dot is acceptable
  - If a single-axis field probe is used, it is necessary to rotate the probe to obtain the measurement results.
  - If a D-Dot probe is used, the measures taken to reasonably ensure that the area-average E-field has been adequately represented shall be documented in the test report

HAC GUIDANCE
Labeling Requirement

- If the handset is certified under ANSI 2019 standard, no M and T-rating required
- If the handset is certified under 2019, information must be clearly displayed indicating the handset's amplification capabilities, including numerical metrics or ratings for handset volume control, on the packaging material of the handset and must also provide an explanation of those capabilities in the handset's user manual or as an insert in the packaging material for the handset.
- volume control metrics or ratings displayed shall be the lowest metrics or ratings assigned to the handset

HAC GUIDANCE
KDB 285076 publication

- OET is working on updating the KDB 285076
  - Existing KDBs will be updated to reflect the changes
  - A separate KDB for Volume Control is being developed

Volume Control
Test Considerations

- Test mobile handset for all supported audio voice codecs
- No need to repeat test for same codec on multiple air interfaces
  - For example, if an audio codec is supported over LTE and GSM, only test over one of the air interfaces
- Over-the-top (OTT) pre-installed services, such as Google Duo and Apple Facetime, <u>are</u> required to meet the Volume Control requirements

Volume Control
Technical Requirements

- **Receive Volume Control Performance**
  - ASL of -20 dBm0 is required for all codecs
  - If a device supports multiple tone control settings, only one tone control setting per codec needs to be compliant
- **Receive Distortion and Noise Performance**
  - Devices that support superwideband, fullband, or any other audio codecs that exceed the wideband definition (50-7000Hz) shall be treated as wideband devices for the purposes of Volume Control compliance

Volume Control
Technical Requirements (cont.)

- **Receive Acoustic Frequency Response Performance**
  - Ensure proper transformation is used from the DRP to FF or DF (based on 3GPP TS 26.131 and measured IAW TS 26.132)
  - Note that DF shall only be used for measuring the frequency response and shall not be used for Conversational Gain measurements
  - DO NOT use the R40 frequency spacing; always use the 1/12 octave frequency spacing

Volume Control
Test Report Exhibit

- Volume Control report shall be submitted separate from RF and T-coil HAC test report exhibits
- It shall include a summary table in forward containing all tested codecs, showing all relevant test metrics
  - Where appropriate, include Volume Control settings that do not meet the requirements showing how compliance was achieved
- Provide a BLUF (Bottom Line Up Front) in summary (i.e., do all audio codecs meet the requirements and what was the worst-case (i.e., lowest) volume control setting?)
- Filings that include Volume Control shall be submitted for PAG review until further notice

Questions?

Thank You!