Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets	)	**WT Docket No. 07-250**
Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones	)	**WT Docket No. 01-309**
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands	)	**WT Docket No. 06-150**

SUPPLEMENTAL REPORT AND COMMENTS
OF
AMERICAN NATIONAL STANDARDS INSTITUTE
ACCREDITED STANDARDS COMMITTEE C63®

As a follow-up to its Report and Comments dated November 22, 2010 filed in the above-referenced proceedings,[1] ANSI ASC C63® is pleased to report the publication of the 4th revision of ANSI C63.19, *American National Standard Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids*, and requests that the Commission recognize this new version. This submission reviews the history of this project and provides a summary of changes from the current published version, ANSI C63.19-2007.

[1] ANSI ASC C63® submitted its Report and Comments dated November 22, 2010 ("ANSI ASC C63® November 2010 Report") in response to the Federal Communications Commission's ("Commission's") Public Notice, DA 10-1936, released on October 12, 2010.

Consistent with Commission Rules Section 1.415(d), this Supplemental Report is being filed in response to the request of an official in the Office of Engineering and Technology ("OET").[2]

I. Project Review

In 2007, the Commission cited the need for a technical standard supporting the application of hearing aid compatibility requirements to the 700 MHz cellular band and potentially other frequency bands.[3] Responding to this need, ANSI ASC C63® approved a new project to review ANSI C63.19:2007 in October of 2007. Subsequently, in an order dated February 28, 2008,[4] the Commission raised the additional issue of hearing aid compatibility (HAC) for mobile phone handsets with multiple transmitting antennas, specifically those that have added Wi-Fi transmitters. In response, ANSI ASC C63® provided the Commission with data and other information on the potential for interference from Wi-Fi and other low-power RF protocols and also incorporated this concern into its revision project.[5]

On April 22, 2010, ANSI ASC C63® authorized the formation of a ballot group for the revised draft of ANSI C63.19. An initial ballot was conducted and closed on September 1, 2010. 90.9% of the balloting group voted affirmative and fourteen (14) parties provided comments on the standard. The working group resolved the comments and conducted a recirculation ballot, which closed November 17, 2010. 95.5% of the balloting group voted affirmative on the recirculation and eight (8) provided comments, primarily editorial. The

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[2] Specifically, William Hurst, Technical Research Branch Chief of OET, asked ANSI ASC C63® to submit this filing.

[3] *See In the Matter of Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets, Petition of American National Standards Institute Accredited Standards Committee C63 (EMC) ANSI ASC C63®*, First Report and Order, WT Docket 07-250 at Paras. 58-68 (rel. February 28, 2008) ("First Report") and *In the Matter of Amendment of the Commission's Rules Governing Hearing Aid-Compatible Mobile Handsets, Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, Petition of American National Standards Institute Accredited Standards Committee C63 (EMC) ANSI ASC C63®*, Second Report and Order and Notice of Proposed Rulemaking, WT Docket No. 07-250 and WT Docket No. 01-309 at Paras. 137-150 (rel. November 7, 2007).

[4] First Report at Paras. 58-68.

[5] *See, e.g., Ex Parte* statement of ANSI C63® in WT Docket No. 07-250 dated July 14, 2008.

working group addressed the comments received and the balloting was successfully completed. The new revision (which is the subject of this submission) was published on May 27, 2011, and supersedes the prior version that was described in the ANSI ASC C63® November 2010 Report.

II. Overview of Revision to ANSI C63.19

In this section, we provide a summary of the changes from the version of the ANSI C63.19 standard currently recognized by the Commission (*i.e.*, the 2007 version) and this new revision. A more detailed account of those differences is provided as Annex A to this submission. The changes made primarily focus on expanding the standard so that it may be applied to a wireless device over an expanded frequency range. In this version, the frequency range is extended to cover 698 MHz to 6 GHz. The test methods have been generalized so that they apply to all RF protocols and modulations. We believe these changes will be supportive of recent Commission actions regarding hearing aid compatibility.

III. Request for Recognition of the New Revision of ANSI C63.19

We respectfully request that the FCC adopt the 2011 edition of ANSI C63.19. We believe this revision will advance the FCC's objective for hearing aid compatibility. Indeed, a major motivation for this project was to meet the developing needs to support HAC in more frequency bands and with new technologies.

IV. Summary

ANSI ASC C63® has reached the end of its work on the 4th edition of ANSI C63.19. This new version provides a significant advancement to prior editions, providing coverage for more frequency bands and improved tests that are more correlated to the desired result and other needs as the subject has matured. Based on the maturing of the standard over time, the new test methods are improved at measuring the potential for hearing aid interference.

Hence, we encourage the Commission to now reference the 2011 edition of ANSI C63.19 instead of the 2007 edition.

We thank the Commission for this opportunity to provide them an update on this project.

Respectfully submitted,

ANSI ASC C63®

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Annex A – Summary of Changes to ANSI C63.19

In this annex, we provide a summary of changes to the current 2007 ANSI C63.19 standard that are contained within the 4th edition of the standard.

I. Expanded Frequency Coverage

The frequency coverage of the standard has been expanded from a range of 800 MHz - 3 GHz to a range of 698 MHz - 6 GHz. This was done so as to include wireless devices that operate in the expanded frequency range.

The required test frequencies for hearing aids have not been expanded. There are several reasons for this. First, the vast majority of interference complaints of hearing aid interference were in the bands covered by the current test requirements. There is no evidence that increasing the required testing would serve a beneficial purpose.

Second, as a general statement, the RF immunity of hearing aids varies gradually with frequency. The current testing is believed to provide reasonable evidence of immunity beyond the tested region.

II. Evaluation of RF protocol interference potential

A new section has been added to the standard providing a means for evaluating the interference potential of RF protocols. It is anticipated that this section will be useful in planning the RF modulations and waveforms for new wireless services.

III. Product Testing Threshold

A product testing threshold has been established. As the committee considered the treatment of low power wireless transmission, like Bluetooth included in many phones to support headsets, it came to believe that criteria could be developed for relieving some modes

from testing. The criteria developed include consideration of the combined effect of RF power and modulation used. Based on an analysis of many measured devices, a threshold of RF power and modulation characteristic has been established that will ensure to a very high probability that any device operating at or below the testing exemption threshold well be a category 4 rating, the highest category, or higher. Additionally, an even more conservative power threshold has been established that ensures a similar likelihood irrespective of modulation characteristics. Devices that meet one or both of these requirements are given an exemption from testing and authorized to label that mode as category 4. This exemption is believed to eliminate device testing that serves no useful purpose, meaning that there is almost no significant probability that a mode meeting the criteria will be a source of hearing aid interference in compliant hearing aids.

IV. Changes to Wireless Device Testing

The measure of wireless devices has changed fundamentally. In previous versions of the standard, the RF field intensity was measured and then adjusted to estimate its potential for hearing aid interference. In the current version, the RF interference potential of the wireless device is measured directly. This change allows for the standard to measure the RF interference potential of any RF protocol as dynamic variation in the interference potential created by variations due to network management and real-time operations. To support this change, new terminology and reference metric was required. The term "RF Interference" was defined with 80% 1 kHz AM selected as the reference modulation by which other modulations would be evaluated:

RF Audio Interference Level: The level in dB (V/m) of an unmodulated RF carrier that, when modulated by an 80% 1 kHz sine wave AM, produces the same level from a weighted square-law detector output as

does the modulated RF signal under test when measured with the same weighted square-law detector.

Based on this definition, another key concept -- the modulation interference factor -- was developed:

modulation interference factor (MIF): The ratio of the RF audio interference level produced by a modulated signal to the field strength of a CW signal, that when modulated by 1 kHz 80% AM produces the same RF interference level.

Based on these concepts, a direct measurement of the RF interference level was developed and is presented in Figure 1.

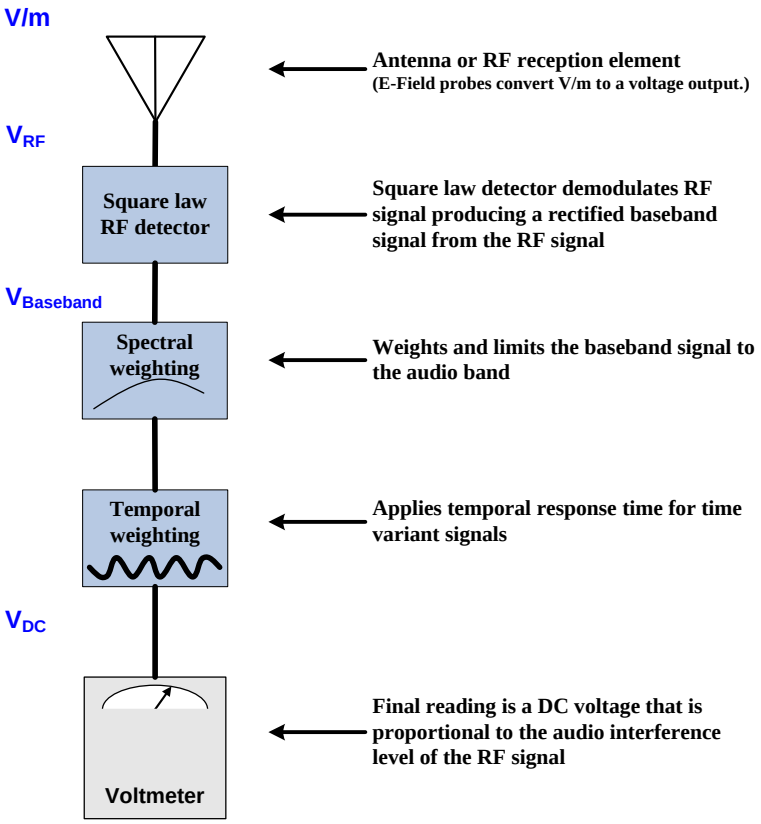

Figure 1 - RF interference level Measurement

V. Changes to Wireless Device Limits

In order to keep the category results aligned when using either the old or new method, the rating tables were adjusted. Accordingly, the limits were adjusted. The reference used to correlate the two methods was the rating of GSM modulation. Based on calculations and measurements, the new limits will give approximately 2.2 dB more margin for a GSM phone to achieve category 3. This relation was made possible because the new measurement directly measures the RF interference potential and certain conservative assumptions, necessary with the previous method, are no longer used. It is believed that this change will benefit handset manufacturers, but will not diminish the protection given to hearing aid users. The interference potential of other protocols will now be compared on an equal footing to GSM modulation, which has compiled the most field experience with regard to interference.

VI. Elimination of H-Field Measurements

RF H-Field measurements are no longer required for wireless devices. (Audio frequency H-Field measurement is still required for evaluation of T-Coil compatibility.) Only the RF H-Field measurement is eliminated. The reason was that after a rigorous survey of the available data for both wireless device emissions and hearing aid immunity, it was found to be redundant with the E-Field data and to not provide sufficient value to justify its added complexity.

VII. Improved Correlation of Hearing Aid Test Methods

The current published version of the standard allows two different test methods for hearing aid RF immunity, the dipole method and the GTEM (Gigahertz Transverse Electromagnetic) method. Data was presented to the committee that demonstrated that the GTEM consistently created a higher level of RF interference in a tested hearing aid for the same assumed field strength, when compared to the dipole based test. Based on the data a separate

limit table was added for testing with the GTEM, allowing a 7 dB lower field level than the corresponding dipole test.[6] This was done to improve the correlation between the two methods.

[6] In fact, the data presented showed that the GTEM test method is often more than 7 dB harsher than the dipole test method. However, in a few cases, the difference was less than 7 dB. On balance, the committee's analysis of the data was that 7 dB was a conservative estimate of the difference. In this case, conservative means that the GTEM will often be somewhat harsher in testing hearing aids than the dipole method, but results will now be more closely correlated.