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**

REPORT and COMMENTS
of
AMERICAN NATIONAL STANDARDS INSTITUTE
ACCREDITED STANDARDS COMMITTEE C63®

ANSI ASC C63® provides this report on its project to revise ANSI C63.19, *American National Standard Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.* We hope that this summary of changes from the current published version, ANSI C63.19-2007, and projected schedule revisions will be of help to the Commission. This is the latest in a series of reports on this topic. These reports seek to keep the Commission informed of ANSI ASC C63®'s continuing effort to address new and emerging wireless technologies for hearing aid compatibility (HAC). This revision project is in

direct response to and support of FCC WTB / OET requests and Orders.[1] Its initial motivation was to expand the standard so as to be applicable to the 700 MHz band but has accepted additional spectrum to be addressed, as will be described in the body of the report.

This report will begin with a summary of the changes made in the current draft from the current published version of the standard. It concludes with a discussion of the current status and projected schedule of the project.

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; however, the required test frequencies for hearing aids have not been expanded. There are two 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 expanding 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 various RF protocols. It is anticipated that this section will be useful in planning the RF modulations and waveforms for new wireless services.

[1] FCC Report and Order 08-68, released February 28, 2008; WT Docket 07-250; ¶¶ 58-68; FCC Report and Order 07-72, released April 27, 2007;WT Docket 01-309; ¶¶ 137-150.

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 decided 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. 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 M4 rating, the highest category. Additionally, an even a 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 M4. 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 measurement 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 draft the RF interference potential of the wireless device is measured directly. This change permits the measurement of 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 metrics were required. The term RF Interference is 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 80% 1 kHz AM produces the same RF interference level.

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

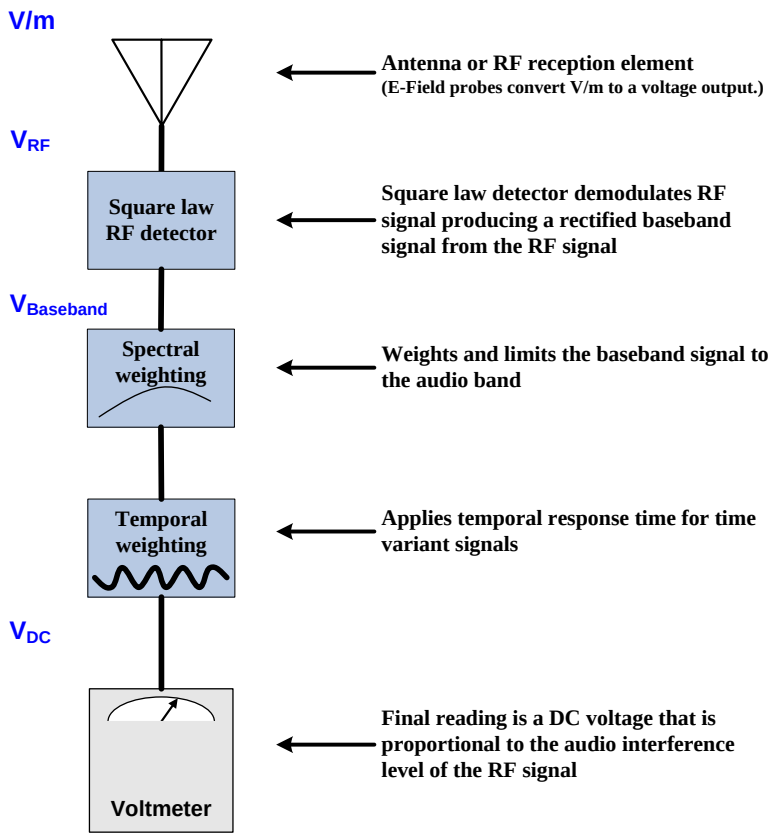

Figure 1 - RF interference level Measurement

V. Changes to Wireless Device Limits

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 make it approximately 2.2 dB easier for a GSM phone to achieve category M3. 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.) 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 did 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 method. Data was presented to the committee that demonstrated that the GTEM consistently created the 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. This was done to improve the correlation between the two methods.

VIII. Project Schedule

On April 22, 2010 ANSI ASC C63® authorized the formation of a ballot group for the revised draft of ANSI C63.19. The invitation to ballot was issued on May 11, 2010 and closed on June 11, 2010. At this time the ballot group is being reviewed for balance.

In parallel with the formation of the ballot group a series of round-robin tests were completed. The purpose of these tests was to evaluate the draft revision and develop data on the lab-to-lab repeatability of the new draft.

The new draft is expected to begin the ballot process in the near future and should complete the process by the 4th quarter 2010.

IX. Conclusions

ANSI ASC C63® is nearing the end of its work to both improve and refine ANSI C63.19 and address the need to evaluate new wireless technologies. A draft revision is entering the ballot process and the project after any ballot comment resolution should be completed in the third or early fourth quarter of 2010.

We thank the Commission for this opportunity to provide an update on this project and look forward, in the near future, to providing an announcement of the successful completion of this project.

Respectfully submitted,

ANSI ASC C63®

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