

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

In the Matter of)	
)	
Office of Engineering and Technology)	
seeking comments on modifying the)	ET Docket No. 19-48
Equipment Authorization Rules to reflect)	
the updated versions of the currently)	
referenced ANSI C63.4 and ISO/IEC)	
17025 standards)	

ANSI ASC C63® Reply Comments

American National Standards Institute Accredited Standards Committee C63® (“ASC C63”) hereby submits these Reply Comments in the above-captioned proceeding. These comments address issues that were raised and discussed in comments submitted by industry participants that have an interest in this proceeding.

Introduction

ASC C63 is the principal standards organization that is responsible for developing EMC measurement standards and testing procedures for use by the Commission and electronics manufacturers who market their products in the United States. ASC C63 is comprised of over 40 members who serve voluntarily and represent a broad cross-section of equipment manufacturers, testing laboratories, trade associations, government agencies (including the FCC, NIST and FDA), laboratory accreditation bodies and independent EMC consultants. ASC C63 members provide technical input and training on product compliance standards for both government and industry.

For over 25 years, the Commission has referenced ASC C63 standards in its rules. The first ASC C63 standard, ANSI C63.4, used for measuring emissions from digital devices, was published in 1988, following a six-year review of the Commission’s original measurement procedure, MP4. The most recent edition of ANSI C63.4-2014 was adopted by the Commission in ET Docket No. 13-44 and is now widely used throughout the electronics industry for the EMC measurements required to establish compliance with Commission rules.

In September 2017, ASC C63 completed an amendment to ANSI C63.4-2014 to resolve certain normalized site attenuation (NSA) issues associated with measuring equipment that was greater than 2 meters in height, the maximum volumetric NSA measurement height permitted under the standard. This amendment, published as ANSI C63.4a-2017 (“C63.4a”), was adopted by an overwhelming majority of the C63 members, including balloting groups that represent some of the same companies that recently filed comments in opposition to C63.4a in this proceeding. Importantly, no changes were considered during the C63.4 balloting process to modify the C63.4a draft standard that is the subject of this proceeding.

In November 2018, ASC C63 petitioned the FCC to update its rules to recognize the new test site validation procedures set forth in C63.4a. In response, the FCC initiated this docket proceeding to consider the adoption of C63.4a along with ISO/IEC 17025:2017, an international standard that also deals with laboratory testing and calibration.

I. ASC C63 agrees with other industry commenters that ISO/IEC 17025:2017 should be adopted into FCC rules.

ISO/IEC 17025:2017 is an international standard that covers both quality and technical characteristics of EMC testing laboratories. This standard is used by accreditation bodies around the world to assure a high-level of test lab capability and quality. In the U.S., many EMC laboratories are assessed to meet the requirements in this standard. ASC C63 formed Subcommittee 6 to address the important topic of test laboratory accreditation and both ASC C63 and the chair of Subcommittee 6 endorse the use of ISO/IEC 17025:2017.

ACS C63 also supports the transition period (two years are remaining) to the mandatory use of ISO/IEC 17025:2017; provided however, that the FCC only accept test lab accreditations for labs that meet the requirements of Clause 8.1 - Option A of the standard, and that such accreditations explicitly state that the test lab is accredited only in accordance with Option A.

II. The industry has long been aware of the test site validation issues for EUTs above 2 meters in height that are addressed by C63.4a.

The requirement for validating test sites within the test volume defined by an imaginary vertical cylinder where the height is the highest point where emissions from EUTs can emanate, has been explicitly stated in C63.4 since the 2001 edition and implicitly referenced in other earlier editions

of the standard. All C63.4 editions, including the current 2014 edition, only provide ideal NSA values for a test volume of 2 meters in height.

Emissions from EUTs taller than 2 meters in height are required to be measured in a controlled and validated test chamber. However, without such controls or validation in place, there exists the serious potential that the reproducibility and repeatability of tests will be compromised among test sites that measure EUTs taller than 2 meters. Hence, C63 was tasked with alleviating the height restrictions in C63.4-2014, and specifically added tables and guidelines on how to compute the site attenuation for EUTs between 2 and 3 meters in height. It was felt that there was no EUTs (or a very limited few) that would be taller than 3 meters in height; accordingly, C63.4a-2017 was adopted with 93% approval.

There has been a growing concern that the height limitation has been largely ignored by test labs and, in fact, has not been shown as a deficiency when these laboratories were assessed under the requirements of C63.4. It is not clear what reasons were given for ignoring the height limitation, as C63 members have been aware of the problem and vocal about seeking alleviation of the C63.4-2014 height restriction to handle taller EUTs. C63 responded to these concerns with the adoption of C63.4a-2017, which categorically states that emissions from EUTs in the test volume, especially for those EUTs taller than 2 meters, shall have the test chamber validated up to the full height of the EUT.¹ There can be no claim of surprise that C63.4a imposes new test site requirements that would be proposed to the FCC for adoption.

III. Until C63 test site validation standards are adopted by IEC/CISPR, the industry should be allowed to validate their test sites under CISPR 16-1-4:2019.

ASC C63 has begun the process of moving the test site validation criteria for the frequency range 30 MHz to 1000 MHz from C63.4 to separate and new C63 standards. The purpose of this move

¹ The requirement for EUT height to fit within the NSA validated volume was explicitly stated in C63.4-2001, when the following was added at the end of the first paragraph in 5.4.6.5:

“The maximum height of the EUTs to be measured, above the reference ground plane, shall not exceed the height at which the volumetric measurements were performed. The maximum volumetric measurement height is to the top tip of the antenna used in the vertical orientation or horizontal orientation when performing NSA.”

But the requirement was implicit also in earlier editions. For example, C63.4-1992 specifies that the “*test volume is defined as that volume traced out by the largest equipment or system to be tested as it is rotated about its center*”. The test volume includes the height of the EUT.

is to reduce the size of the C63.4 standard and to align it more closely with international standards.

The first step in this process has been completed in March 2019 with the publication of ANSI C63.25.1, titled *American National Standard Validation Methods for Radiated Emission Test Sites, 1 GHz to 18 GHz*. This standard introduces a new test validation method called Time Domain Site Validation, which is not yet available in the international standards arena.

Importantly, however, the standard allows both Site Voltage Standing Wave Ratio (S_{VSWR}) and Time Domain Site Validation to be used for site acceptance, as both techniques use the same acceptance criterion even though they apply to measurements made with different procedures. The Time Domain procedure improves the repeatability of the S_{VSWR} results and reduces the sensitivity of the test results caused by small test setup changes due to statistical post processing incorporated in the time domain method. The Time Domain method also provides additional information on the test site including, for example, the location of areas in a test site where additional or better quality absorbers should be placed.

The ASC C63 Committee, working through the United States National Committee, intends to take the new Time Domain procedure to the international standards arena, to get it adopted into the appropriate international standard, CISPR 16-1-4:2019 - *Specification for radio disturbance and immunity measuring apparatus and methods –Part 1-4: Radio disturbance and immunity measuring apparatus – Antennas and test sites for radiated disturbance measurements*.²

The second step in the process is contained in the project called C63.25.2 – *American National Standard Validation Methods for Radiated Emission Test Sites, 30 MHz to 1 GHz*. This standard will contain the site validation criteria currently contained in C63.4-2014 and C63.4a -2017. It is expected that the first revision of C63.25.2 will be published in late 2019 or early 2020.

C63.4 will be on the “cutting edge” of international standards dealing with site validation criteria because of the procedures set forth in C63.4a for EUTs taller than 2 meters in height. Working

² This process is within C63 Subcommittee 3 on international harmonization. SC3 would send changes to the US National Committee of the IEC and its Technical Advisory Group for CISPR Subcommittee A which deals with site validation. SC3 would ask for one of the TAG members to present this to the CISPR SC A working group maintaining CISPR 16-1-4 as only TAG members can do that and not C63.

through the United States National Committee, ASC C63 is planning to submit C63.4a to IEC/CISPR, to get the details of this standard into the next version of CISPR 16-1-4: 2019. During the interim, ASC C63 firmly believes that test laboratories should be allowed to use either C63.4, with its reference to the C63.25.2 standard, or CISPR 16-1-4:2019 to validate test sites in the 30 MHz to 1000 MHz range.

IV. Industry concerns about antenna calibration are overstated.

Certain industry commenters appear to believe that the new antenna calibration requirements in C63.4a are too stringent, too costly, and should not be adopted by the Commission. One commenter raises concerns about the difficulties of the NSA antenna calibration process and the possible impacts this could have on site accreditation. ASC C63, however, believes that these concerns are overstated.

For example, site validation for a 3 meter antenna height is essentially a site-to-site comparison method using Annex I of C63.5 (GSCF measurement method). A pair of antennas are measured first on the calibration site and the site-under-test is then measured in the same geometry. The difference is the site attenuation deviation. A site-under-test, which requires validation for a 3-meter antenna height, will require antenna calibrations for that height on a calibration site. The antenna calibration and the subsequent site validation processes are the same as those for lower heights. Thus, there are no additional technical difficulties with the measurements and should present no concerns as to site accreditation.

Conclusion

ASC C63 strongly believes that its standards activities stand on their technical merits. We urge the Commission to accept C63.4a for the reasons stated above and as set forth in our November 2018 petition. We also urge the Commission to accept ISO/IEC 17025:2017, which has the support of the ASC C63 leadership and the Chair of the subcommittee involved with this standard. ASC C63 wishes to thank the Commission for the opportunity to express the views of ASC C63 on the scope and application of its standards.

Respectfully submitted,

**American National Standards Institute
Accredited Standards Committee C63®**

/s/ Mr. Daniel Hoolihan

Chairman,

American National Standards Institute Accredited
Standards Committee C63®

June 24, 2019

Terry G. Mahn

Fish & Richardson P.C.

1000 Maine Avenue, 10th Floor

Washington, D.C. 20024

Counsel to ANSI ASC C63®