

C63: The electromagnetic compatibility committee

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DANIEL D. HOOLIHAN
TÜV Product Service, Inc.
New Brighton, MN

C63 is a United States committee devoted to coordinating, and where needed, developing standards in the technical area of electromagnetic compatibility (EMC). The Committee is accredited by the American National Standards Institute (ANSI). This means C63 meets strict criteria for a balanced membership to ensure that all interested parties have an opportunity to share in the development of appropriate and timely EMC standards. C63 develops standards when there is a requirement having wide application across many industries or when there is not an obvious candidate organization to develop the needed documents. The Secretariat for C63 is the Institute of Electrical and Electronics Engineers (IEEE). It provides standards circulation and approval services and interaction with ANSI.

C63 was first organized in the 1930s to develop a specification for a radio-interference meter. Throughout its lifetime, C63 has maintained a strong cooperative relationship with the United States Federal Communications Commission (FCC) and other government agencies. Some C63 standards have been incorporated into FCC legal requirements by reference. The most well-known example of this is C63.4—

“American National Standard for Methods of Measurement of Radio-Noise Emissions for Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.”

The C63.4 standard is used by manufacturers and testing laboratories to check compliance of electronic products (before marketing) with FCC rules and regulations. C63 standards presently available are shown in Table 1. Also, many technical developments resulting from the development of C63 standards-writing activities have been carried to the international standards organization for inclusion into appropriate worldwide EMC standards.

The present chairman of C63 is Professor Ralph Showers, an Emeritus Professor of Electrical Engineering at the Moore School of the University of Pennsylvania. The vice-chairman is Ed Bronaugh, a well-known EMC consultant and past president of the IEEE EMC Society.

SUBCOMMITTEES OF C63

At this time, C63 has seven subcommittees which are working in different sectors of electromagnetic compatibility. In general, each subcommittee has working groups comprised of people actively working on a given project which may lead to the modification of an existing standard or the development of a new standard. A description of the subcommittees and their technical areas of responsibility follows.

**Subcommittee 1 –
TECHNIQUES AND DEVELOPMENTS**

This group is primarily responsible for investigating measurement techniques for EMC standards. The primary focus of the Subcommittee has been the C63.4 standard which is referenced by the United States Federal Communication Commission (FCC) for Part 15, Radio Frequency Devices. Other standards supported by SC1 include C63.5 and C63.6.

**Subcommittee 2 –
TERMS AND DEFINITIONS**

Subcommittee 2 is responsible for assuming that all new words, terms, and phrases used in C63 standards are reflected in C63.14, the C63 dictionary. The latest version of this standard was approved for publication in 1998.

**Subcommittee 3 –
INTERNATIONAL STANDARDIZATION**

The International Standardization subgroup concentrates on generating responses to proposed international EMC standards or revisions to international EMC standards. Active inputs are generated for the International Committee on Radio Frequency Interference (CISPR), especially CISPR Subcommittee B on Industrial, Scientific and Medical Equipment, CISPR Subcommittee G on Information Technology Equipment (ITE), and CISPR Subcommittee A on Measurement Equipment. In addition, International ElectroTechnical Committee (IEC) 77 is supported by SC-3.

**Subcommittee 4 – inactive
HIGH VOLTAGE APPARATUS AND POWER
LINES**

**Subcommittee 6 –
LABORATORY ACCREDITATION AND
CONFORMITY ASSESSMENT**

Subcommittee 6 has been actively responding to the increased worldwide emphasis on EMC laboratory accreditation. The subcommittee has been generating written checklists of detailed questions for laboratory accreditors and their auditors which may be used to verify and confirm the technical capabilities of EMC labs.

**Subcommittee 7 –
UNLICENSED PERSONAL COMMUNICATION
SERVICE**

Subcommittee 7 has recently published a standard (C63.17) on "Methods of Measurement of the ElectroMagnetic and Operational Compatibility of Unlicensed Personnel Communications Services." The Subcommittee is presently researching additional technical topics for a new standard in the EMC and Wireless Communication Device area.

**Subcommittee 8 –
MEDICAL DEVICE TEST METHODS**

Subcommittee 8 was formed in 1995 out of a working group that had originated in Subcommittee 1. The activity level and interest in medical devices prompted the formation of a separate subcommittee to address the technical measurement of electrical medical devices and their EMC characteristics. There are three active working groups in Subcommittee 8 of C63:

- Working Group on a Guide for On-Site Testing
- Working Group on Immunity of Patient-Connected Devices
- Working Group on Interference between Wireless Phones and Hearing Aids

CURRENT C63 STANDARDS

C63.2 - 1987	Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz Specifications
C63.4 - 1992	American National Standard for Methods of Measurement of Radio-Noise Emissions for Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
C63.5 - 1988	Calibration of Antennas Used for Radiated Emission Measurements in Electromagnetic Interference (EMI) Control
C63.6 - 1988	Guide for the Computation of Errors in Open-Area Test Site Measurements
C63.7 - 1992	Guide for the Construction of Errors in Open-Area Test Sites for Performing Radiated Emission Measurements
C63.12 - 1992	Recommended Practice for Electromagnetic Compatibility Limits
C63.13 - 1987	Guide on the Application and Evaluation of EMI Power Line Filters for Commercial Use
C63.14 - 1992	Dictionary for Technologies of Electromagnetic Compatibility (EMC), Electromagnetic Pulse (EMP), and Electrostatic Discharge (ESD) (Dictionary of EMC/EMP/ESD Terms and Definitions)
C63.16 - 1993	Guide for Electrostatic Discharge Test Methodologies and Criteria for Electronic Equipment
C63.17 - 1998	Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices
C63.18 - 1997	Recommended Practice for an On-Site, Ad Hoc Test Method for Estimating Radiated Electromagnetic Immunity of Medical Devices to Specific Radio-Frequency Transmitters

C63.18, a "Guide for On-Site Testing," was published in late 1997 under Subcommittee 8.

C63 PROCEDURES

C63 operates under the Model Procedures for an ANSI Accredited Standards Committee (ASC). Thus, the full title of C63 is "ANSI ASC C63."

C63 uses the ANSI Project Initiation Notification System (PINS) to develop standards in the United States. PINS is a part of ANSI procedures requiring notification of ANSI by accredited standards developers of the initiation and scope of new activities expected to result in candidate American National Standards. PINS is also used for the initiation of new activities related to revision, reaffirmation, or withdrawal of current American National Standards. This information is a key element in planning and coordinating American National Standards. Directly and materially affected parties wishing to receive more information should contact the standards developer directly within 60 days of the date of publication in the biweekly ANSI Standards Actions.

MEMBERSHIP

Membership in C63 is restricted in order to maintain a balance between manufacturers, users, and general interest groups. Members of C63 may be corporations, organizations (preferably national in scope), government agencies, test labs, and individuals. Letters of interest in C63 membership may be directed to the C63 Secretariat:

IEEE

Att: Patricia Gerdon, Standards Department

P.O. Box 1331

Piscataway, NJ 08855-1331

Phone: (732) 562-3811

Fax: (732) 562-1571

e-mail: p.gerdon@ieee.org

Subcommittee membership is more open and invitations for membership in a subcommittee are encouraged and may be directed to the appropriate subcommittee chairman:

Subcommittees 1 and 5 – Don Heirman

Don Heirman Consultants

143 Jumping Brook Road

Lincroft, NJ 07738

Subcommittee 2 – Norm Violette

Violette Engineering Corp.

120 East Broad Street

Falls Church, VA 22046

Subcommittee 3 – Art Wall

FCC Laboratory

7435 Oakland Mills Road

Columbia, MD 21046

Subcommittees 6 and 8 – Daniel Hoolihan

TÜV Product Service, Inc.

1775 Old Highway 8 NW Suite 104
New Brighton, MN 55112

Subcommittee 7 – Art Light

ITT Industries Systems Division

2560 Huntington Avenue

Alexandria, VA 22303

Working group membership, under the various subcommittees of C63, is encouraged for technical experts desiring to work on individual projects. Membership in C63 is not a prerequisite to work on a subcommittee or a working group of C63. For more information on the respective working groups under each subcommittee, please contact the responsible Subcommittee Chairperson.

SUMMARY

C63 is an ANSI-accredited standards developing committee in the technical area of EMC. The full C63 committee has seven subcommittees which coordinate and direct efforts of a number of working groups comprised of technical experts. These subcommittees and their working groups develop test methods and standards for use by United States industry.

DAN HOOLIHAN is presently the Vice-President of the Minnesota Operations of TÜV Product Service, Inc. He is the cofounder and past Chief Operating Officer of AMADOR Corporation. Prior to that, he was a manager/engineer with Control Data Corporation. Dan is the current President of the Board of Directors of the EMC Society of the IEEE. In C63, he is Chairman of Subcommittee 6 on Laboratory Accreditation and Conformity Assessment and Chairman of Subcommittee 8 on Medical Device Test Methods. A member of the Association for the Advancement of Medical Instrumentation (AAMI), and The Institute of Environmental Scientists, Dan holds an MBA from the University of Minnesota, an M.S. in physics from Louisiana State University, and a B.A. in physics from St. John's University. (651) 638-0250. dhoolihan@twps.com.



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EMC Standards
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