



**Standards Advisory and
Coordination Committee
(SACCOM)**



6 August 2001

Compilation of SACCom Representative Reports

<p>CISPR A</p> <p>Title: Radio-interference measurements and statistical techniques</p> <p>Representative: Don Heirman</p>	<p><u>Committee Activity:</u> CISPR SC A and its working groups met in England in June. The areas of activity include:</p> <ul style="list-style-type: none">a. Antenna calibration, balance and cross polarizationb. Test site validation and measurements above 1 GHzc. In-situ measurements of emission measuringd. Automated emission measurementse. Measurement uncertainty for instrumentation and test specificationsf. Fully Absorber Room (FAR) validation and measurement methodsg. Uniform test setup arrangements for radiated emissions/immunityh. Use of Stirred-mode testing for radiated emissions and immunityi. Use of TEM waveguides for radiated emission and immunity testingj. Conditions for the use of alternate test methodsk. LISN calibration for telecom port measurementsl. Calibration of absorbing clampsm. Use of capacitive voltage probesn. Use of disturbance analyzers for click measurementso. Use of monopole antennasp. Weighting of detectors to account for interference from digital communication servicesq. Use of resonant H-field antennar. Instrumentation for measuring broadband communication signalss. Use of 3-meter radiated emission testing of large productst. And others <p>The next meeting is in 2002 in New Zealand.</p>
<p>CISPR G (now called I)</p> <p>Title: Information Technology Equipment</p> <p>Representative: Don Heirman</p>	<p><u>Comments:</u> The Subcommittee and its working groups met in England in June. The most interest was that CISPR G and CISPR E were merged into a new Subcommittee I which deals not only with ITE, but radio receivers and multimedia equipment. For this meeting there was still activity by those of these two subcommittees. The work of the former Subcommittee G included:</p> <ul style="list-style-type: none">a. Definition of telecommunications ports for ITEb. Definition of multi-functional equipment and applicationc. Describe how to handle ITE with transmittersd. Development of Impedance Stabilization Networks for telecom port measurementse. Better description on level of traffic on LANs needed to represent typical usagef. Test setups for immunity testing of telephone terminal equipment

	<ul style="list-style-type: none"> g. Testing of large systems including in-situ testing h. Measurement of broadband emissions including spread spectrum, Powerline carrier communications, XDSL, etc. i. Review of the extent of cable setups in measuring emissions from LANs j. Limits above 1 GHz (up to 18 GHz or at least 2.7 GHz)
<p>CISPR E</p> <p>Title: Interference relating to Radio Receivers</p> <p>Representative: Don Heirman</p>	<p><u>Additional Comments:</u></p> <p>A WG meeting was held in April, 2001 - Stuttgart Germany to review proposals to automate the measurement of interference detected during immunity testing of digital receivers. Two systems were demonstrated. Both utilized digital cameras and digital processors that detected accurately the digital artifacts caused by interference. I have attached the un-official minutes of the meeting for your reference. The next meeting will be in June 2001 at the annual CISPR meetings in Bristol.</p>
<p>CISPR H</p> <p>Title: Limits for the protection of radio services</p> <p>Representative: Werner Schaefer</p>	<p><u>Current activities:</u></p> <ul style="list-style-type: none"> a) Developing a rationale for the setting of emission limits b) Conducting a survey of EMC product standards on emissions c) Building an archive of justification of limits that exceed the generic emissions limits <p><u>New Work Item:</u></p> <ul style="list-style-type: none"> a) None <p><u>Additional Comments:</u></p> <p>The project related to establishing a rationale for the definition of limit lines has a significant effect on the determination of limits for measurements above 1 GHz. This project tries to establish the required protection ratios for digital communications systems.</p>
<p>IEEE SCC 28</p> <p>Title: "Development of safety standards for human exposure to electromagnetic energy"</p> <p>Representatives: David Baron</p>	<p>The scope of Standards Coordinating Committee 34 is to develop product performance standards for specific products that emit electromagnetic energy at frequencies greater than 3 kHz, i.e., the frequency range for which SCC-28 exposure limits exist. These standards are to be expressed in terms of easily measured parameters, e.g., output power, current, voltage, that are derived from the basic restrictions and reference levels of <i>IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz</i>, IEEE C95.1-1991 (1999 edition). Standards, guides and recommended practices will also be developed that describe measurement protocols for determining compliance with SCC-34 and SCC-28 standards.</p> <p>At present there are three subcommittees. A brief description of the subcommittees and their activities follow:</p> <p><u>Subcommittee 1 (Small Boat Radar)</u></p> <p>Potential members from pleasure-boat radar manufacturers have been identified and have agreed to participate on SC-1 once a clear objective is established. Originally the FDA identified small boat radar as a consumer electronic product of interest but has since shifted its emphasis to other electronic products, e.g., cellular phones. The FCC has informed the chair of SC-1 that an IEEE product performance standard for recreational marine radar would address FCC RF exposure concerns and that the FCC encourages the development of such a standard. The subcommittee is now in the process of considering its options.</p> <p><u>Subcommittee 2 (Certification of Wireless Handsets)</u></p> <p>The scope of SC-2 is the development of recommended practices for determining the peak spatial-average specific absorption rate (SAR) in the human head from hand-held wireless communications devices.. Two</p>

working groups have been established: Working Group 1 (Experimental Techniques) and Working Group 2 (Computational Techniques).

Working Group 1. WG-1 is developing a recommended practice that describes the experimental protocol for determining the peak spatial-average SAR. This protocol consists of the measurement of the electric field within a shell model of the human head. Specifically, a miniature, implantable, robotically-scanned electric-field probe is used to measure the fields within a shell model of the human head filled with a liquid with electrical properties similar to that of brain tissue. The handset is located at two specified positions next to the head during the tests. The concepts, measurement techniques, instruments, calibration techniques, models for validation, uncertainties and limitations of the system are specified. Recipes for the brain-tissue simulant and a CAD model of the shell model of the human head are provided. Because of the urgency brought to bear by media attention to the cell-phone safety issue, almost all of the effort of SC-2 has been devoted to completing the experimental protocol practice, i.e., the technique used almost universally at this time by industry. The FCC is relying on this subcommittee to develop voluntary recommended practices that they can adopt rather than developing their own.

During the development process of this practice, standard canonical models and computer codes for testing the experimental dosimetry systems were developed and tested in the laboratories of a number of subcommittee members. A generic wireless handset (golden phone) is being developed jointly by Ericsson (radio case), Nokia (miniature network analyzer contained in the handset, and Motorola (CPU and fiber optic telemetry). This device will be provided to several of the SC-2 member's organizations to allow them to evaluate their instrumentation and to provide additional information on expected measurement uncertainties.

Working Group 1 meets 5-6 times per year and now has a complete draft that has been approved by the subcommittee but with comments that are now being addressed. Most comments focus on uncertainty issues and irregularities in the CAD file for the head model. It is expected that these issues will be resolved by the June meeting after which time the document can be moved to SCC-34 for ballot.

In addition, a standards harmonization working group has been established that meets with other standards developers that are developing similar protocols. Because of common membership, the IEEE practice is in harmony with similar practices being developed by CENELEC and IEC TC-106.

Information about SC-2 activities can be found on their web site: <http://grouper.ieee.org/groups/scc34/sc2/>

Working Group 2. WG-2 is developing a practice that describes the concepts, techniques, validation procedures, uncertainties and limitations of the finite-difference time-domain technique (FDTD) when used for determining the peak spatial average SAR in numerical models, including multi-tissue human anatomical models exposed to hand-held wireless terminals. Several sections of the practice have been prepared but further development has been placed on hold until the experimental practice is approved.

Subcommittee 3 (Evaluation of RF Protective Clothing)

SC-3 was established at the June 1998 SCC-34 Annual Meeting to develop protocols for characterizing RF-protective garments. The federal agencies, the garment manufacturers, their representatives and a number of academics are represented on the subcommittee. Currently several

	<p>manufacturers supply such garments and each tests according to their own in-house protocols. Both the garment manufacturers and the FCC, OSHA and NIOSH (who consider the use of protective garments as a means for controlling exposure) have encouraged the development of standardized procedures for testing the effectiveness of such garments.</p> <p>The first official meeting of SC-3 was held on January 27, 1999 in Ft. Lauderdale, FL. At this meeting, it was agreed that the subcommittee should develop a draft "Recommended Practice for Evaluating the Performance Characteristics of RF Protective Clothing." The following scope was suggested:</p> <p style="padding-left: 40px;">"This Recommended Practice applies to clothing that is worn to protect persons from excessive exposure to radio frequency electromagnetic fields. It addresses SAR, induced and contact current reduction, and surface arcing issues. While providing guidance on matters related to but not limited to flammability, durability, comfort, heat stress, and visual acuity, this recommended practice does not address applicable industrial textile requirements."</p> <p>A rough outline of a Recommended Practice has been produced but after lengthy discussions the subcommittee decided revisit the overall outline prior to submitting a PAR to the Standards Board.</p>
<p>RTCA SC-135</p> <p>Title: RTCA standard DO-160D - "Environmental Conditions and Test Procedures for Airborne Equipment"</p> <p>Representatives: Erik J Borgstrom</p>	<p><u>Current activities:</u></p> <p>a) On-going updates and revisions to DO-160</p> <p><u>New Work Item:</u></p> <p>a) New Harmonic Distortion requirement b) New tests for variable frequency power c) Revised Audio Frequency Susceptibility test method for AC & DC power inputs</p> <p><u>Standards Revisions recently voted on:</u> Change Notice 2 for RTCA DO-160D</p> <p><u>Scheduled Future Projects:</u></p> <p>a) New Radiated RF Emissions test procedure using a Reverb Chamber b) New Lightning Induced Transients requirements</p>