

**REPORT OF THE RF SAFETY COMMITTEE
TO THE
ARRL BOARD OF DIRECTORS**

January 2020

The RF Safety Committee participated in the following areas over the past six months:

1. RF Safety Committee Activities.
2. Monitoring recent scientific studies regarding RF Safety.
3. Participation in the scientific RF Safety community.
4. Administrative issues.

1 RF Safety Committee Activities

- 1.1 The committee was asked to comment on a potential exposure situation that was submitted to QST by a ham from the Netherlands. He is performing a demonstration of satellite communication for a group of boy scouts and questions what their potential exposure could be. He is transmitting a **20W** PEP signal using a highly focused dish antenna with gain up to 30 dB, which can generate some very high power densities. Members of the committee performed calculations, both with an ideal dish and then what would happen if the homemade dish had some misalignment. The results were communicated to the ham, who was very appreciative of the highly detailed help that he received. We noted that even though his transmitted power is far below the **250W** exemption for performing an RF Exposure Assessment in the FCC rules, the highly focused nature of his antenna makes it necessary to perform that assessment.
- 1.2 The committee received a question from a ham that will be getting a pacemaker who wondered if he could still operate his amateur radio. Although this is more of an EMC question than RF Safety, we generally reply to such questions by directing the ham to the pacemaker manufacturer. Larger manufacturers, such as Medtronic, provide detailed information on allowable exposures for their pacemakers. We advised this ham to contact his doctor for more information and he received a statement from St. Jude Medical regarding effects of radios on implantable cardiac rhythm devices.
- 1.3 The committee discussed a movement in California to stop the building of 5G cellular cells because of a claim that it will exacerbate hyperelectrosensitivity. HES is the claim that certain people show signs of allergy when exposed to electromagnetic energy. HES has been discounted by the World Health Organization and in most scientific studies people claiming to suffer from HES are not able to distinguish real from sham exposures.
- 1.4 The committee reviewed the RF Safety questions in the proposed Amateur Extra Question Pool, which is to be released in June 2020. We discovered an error in the wording of one of the questions and confusing wording in two other questions. We also took exception with one of the questions that, if it was answered incorrectly, could cause an amateur to believe that radios produce ionizing radiation. The committee believes that even if hams get a test question wrong, they should not walk away believing an erroneous concept.

1.5 The committee reviewed the recent FCC Report and Order, which updated the exposure regulations for all services. The exposure limits (MPEs) are unchanged and the major effect that the new regulations will have on radio amateurs is that the categorical exemptions will no longer be valid. Radio amateurs will be required to perform RF exposure assessments for all stations, no matter how much power is being transmitted. Since exposure assessments are very easy to perform, this will not be a major impediment to amateur radio operation. The discussion in section 1.1 of this report also illustrates how the previous exemptions were not always valid.

2 Monitoring Scientific Studies

2.1 The Committee discussed the proposed changes in the ICES (IEEE) and ICNIRP (European) RF Exposure Safety Standards. The exposure averaging times will be based on the type of exposure (whole body vs. local) instead of the current population type (occupational vs. general public). Also, the definition of who falls under the two population types will be changing. The FCC currently treats hams and their families as being in the occupational population, which have higher MPE limits, even though exposure to hams is not technically occupational. It should also be noted that changes to these standards do not mean that the FCC rules will change accordingly, since to date the FCC rules follow a combination of the 1991 version of the IEEE C95.1 standard and the 1986 NCRP Report 86 standard and do not appear to be prone to updates based on more recent releases of these standards.

3 Participation in the Scientific RF Safety Community

3.1 Mr. Tell continues to serve as the chairman of the ICES (IEEE) TC-95 Subcommittee SC-2 RF Safety Standards Committee.

3.2 Mr. Hare continues to serve on the ICES (IEEE) SCC-28 RF Safety Standards Committee.

3.3 Mr. Tell continues to serve as the chairman of the IEEE Committee on Man and Radiation, COMAR.

3.4 Dr. Lapin continues to serve as a member of the IEEE Committee on Man and Radiation, COMAR.

3.5 Dr. Lapin has testified in zoning hearings to explain the exposure of the population to cellular telephone base stations and what science has shown about the potential for danger to human health.

4 Administrative Issues

4.1 Dr. Siwiak is a contributing editor for QST and Editor of QEX, and he shares any submitted RF Safety-related articles with the Committee.

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Chair, ARRL RF Safety Committee

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