

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

July 2024

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

1. RF Safety Committee Activities.
2. Monitoring current events and 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 is still awaiting the release of the FCC publication, OET Bulletin 65 Supplement B, **Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, *Additional Information for Amateur Radio Stations***. The new document is still undergoing the review process by various government entities, as is the publication of the rewritten OET Bulletin 65. This presents a potential problem for exposure advice to amateurs that references these documents, as the outdated versions are still available on the FCC website.
- 1.2 Dr. Lapin has presented “Compliance with the New FCC RF Exposure Regulations” at the following Amateur Radio Club Meetings: Desert Radio Amateur Transmitting Society CA (online) and North Shore Radio Club IL (online) and taught the RF exposure section for the York Radio Club IL General Class license course.
- 1.3 Members of the Committee attended a WebEx meeting organized by Mr. Tell. Featured were a ham who dealt with a complaint about a fear of overexposure by his neighbor, that was escalated to the FCC. Richard Factor, WA2IKL, was using a 60’ tower at his home in Sedona, AZ. The city of Sedona contacted Marv Wessel, KG7NSO, of Global RF Solutions, to perform a measurement study to confirm that Richard’s station was operating within the FCC MPE limits. Measurements were made with the worst case transmissions: FM at 29 MHz with 1500 watts and with the tower cranked up to full approved height (antenna at 60’ AGL) and also with it lowered to 30’ AGL, showing that worst case exposure could be up to 94% of the MPE (although under actual operating conditions for this amateur it would be far lower). To be a good neighbor, WA2IKL agreed to never operate with more than 750 watts, which would lower the worst case exposure by 3 dB. The FCC received the detailed measurement report and has never commented.

2 Monitoring Current Events and Scientific Studies

- 2.1 Controversy continues to brew about the US National Toxicology Program (NTP) study that claimed to show RF exposure causing cancer in rats. After spending \$30 million and two years of exposing rats to cell phone-type emissions, they found that some male rats had developed a rare tumor (schwannoma) in their hearts. The results were somewhat perplexing as, in the male groups, survival of the unexposed rats was significantly below that of the exposed rats, and the male rats with the highest exposure (whole body rate of 6.0 W/kg, which is 3 times higher the safety standards for humans) survived in statistically significant greater numbers. In short, the study raised more questions than it answered. Recently, NTP announced that it would not perform previously planned follow up studies to answer questions such as: Why were schwannomas found only in male rats? Why do exposed male rats survive in greater numbers than unexposed rats? This study is being replicated in laboratories in Japan and Korea and results should be available in the next year.

- 2.2 The National Institutes of Health performed extensive neuroimaging and clinical studies on more than 80 US employees and their adult family members who experienced “anomalous health incidents” due to Havana Syndrome and found no evidence of brain damage. They concluded that if the symptoms were the result of some event that caused injury to the brain, it did not produce long-term neuroimaging changes, such as are seen after severe trauma or stroke.
- 3 Participation in the Scientific RF Safety Community
- 3.1 Dr. Lapin continues to serve as co-chair of IEEE ICES TC-95 Subcommittee SC-4: Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 3 kHz to 300 GHz.
- 3.2 Mr. Butcher continues to serve as the co-chair of IEEE ICES TC-95 Subcommittee SC-1: Techniques, Procedures, Instrumentation, and Computation.
- 3.3 Mr. Tell continues to serve as the chairman of the IEEE ICES TC-95 Subcommittee SC-2: Terminology, Units of Measurement, and Hazard Communication.
- 3.4 Dr. Bushberg and Mr. Witkowski continue to serve on the IEEE ICES TC-95 RF Safety Standards Committee.
- 3.5 Dr. Lapin, Mr. Butcher, Mr. Tell, Dr. Bushberg and Mr. Witkowski all remotely attended the two-day IEEE ICES TC-95 RF Safety Standards Committee meetings and the COMAR meeting that took place in Crete this past June.
- 3.6 Mr. Tell continues to serve as the chairman of the IEEE EMBS Committee on Man and Radiation, COMAR.
- 3.7 Dr. Bushberg continues to serve as the vice chairman of the IEEE EMBS Committee on Man and Radiation, COMAR.
- 3.8 Mr. Butcher, Dr. Lapin and Mr. Witkowski continue to serve as members of the IEEE EMBS Committee on Man and Radiation, COMAR.
- 3.9 Dr. Lapin and Mr. Tell continue to serve on the work group that is writing IEEE P2725.1 Standard for Microwave Structural, Vascular or Functional Brain Imaging Device Safety.
- 3.10 Dr. Lapin and Mr. Tell continue to serve on the work group that is revising the NATO exposure safety standard: IEEE C95.1-2345 Standard for Military Workplaces - Force Health Protection Regarding Personnel Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz.
- 3.11 Mr. Butcher continues to serve as a member of the United States National Committee of the International Electrotechnical Commission (USNC/IEC) for TC106: Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure.
- 3.12 Dr. Bushberg continues to serve as the Vice President of the Congressionally-chartered National Council on Radiation Protection, NCRP.
- 3.13 Mr. Witkowski hosted a webinar for IEEE Future Networks entitled, *Havana Syndrome -- an IEEE Perspective*, at which Dr. Bushberg presented and Dr. Lapin and Mr. Tell attended.

4 Administrative Issues

- 4.1 The Committee was saddened to learn of the passing of one of its longest serving members. Dr. Robert Gold, W0KIZ, was a medical doctor and flight surgeon in Colorado. He studied engineering at MIT in Boston as an undergraduate and obtained his M.D. Degree from Northwestern University in Chicago. As an Air Force major, he served as a doctor and as a pilot in Vietnam. After returning from the war, he completed an anesthesiology residency at the University of Colorado and worked as an anesthesiologist for 15 years. He and his wife, Marsha, moved to Israel in 1988 where he worked in telecommunications for the Israeli government and served in the Israeli police force's ballistics department. Upon returning to Denver in 1990 he worked in Industrial Medicine, served as CEO of Sky Fighters, Inc., and was a volunteer police officer in Aurora, CO. I met Dr. Gold when I joined the RFSC in 1998 and found him to be a source of knowledge in many subjects. I always enjoyed our talks. The Committee will surely miss him.
- 4.2 The Committee welcomes a new member, David Witkowski, W6DTW. Mr. Witkowski is a consultant who is involved in public exposure issues, mostly related to the siting of cellular antennas.
- 4.3 Dr. Small provided Dr. Lapin with a list of medical doctors who are also Amateur Radio operators and members of the Medical Amateur Radio Council (MARCO). The RF Safety Committee was once evenly split between medical doctors and scientists/engineers, and due to MD retirements, the balance has shifted. The Committee will be looking to add several new members from the list that Dr. Small provided.
- 4.4 Dr. Siwiak is a contributing editor for QST and Editor of QEX. He shares submitted RF Safety-related articles with the Committee.
- 4.5 Dr. Lapin is the new editor of the ARRL Handbook, and has enhanced the RF Safety section of the Safe Practices chapter, as well as making sure exposure issues are referenced in the rest of the Handbook, where applicable.
- 4.6 Dr. Lapin has participated in the ARRL Electromagnetic Compatibility Committee meetings. Complaints of interference to medical devices, that are reported to the RF Safety Committee, are shared with the EMC Committee, whose expertise includes electromagnetic interactions with all types of instrumentation.

Respectfully submitted,

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Chair, ARRL RF Safety Committee

The ARRL RF Safety Committee

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