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

July 2003

The RF Safety Committee has 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.
5. Future Plans.

1 RF Safety Committee Activities

1.1 The Committee was saddened by the passing of Jim Maxwell, W6CF, a former RFSC Liaison to the ARRL Board of Directors. Committee members shared remembrances of Jim from his many years of service to Amateur Radio and to the RF Safety Committee.

1.2 The Committee received a communication from a ham who was concerned about the safety of his new baby because of his nearby ham radio antenna. After considering the description of his station, the Committee informed him of two things from the RF Safety literature: 1) RF bioeffects scientific research, upon which RF Safety regulations are based, has found no distinction between effects on adults and children; thus the regulations apply to all ages equally, and 2) that his antenna location appears to be far enough away from his house that exposure of people in the house should be well below the safety limits. However, the Committee recommended that he perform a full environmental assessment to confirm this. He was directed to a location on the ARRL Website to help him with the details of performing the assessment.

1.3 The Committee discussed the possibility of excessive human exposure to RF from the proposed Broadband over Power Lines, BPL, systems. The conclusion was that even though the potential for interference to radios in the HF bands is great, it is highly unlikely that human exposure will be of concern.

1.4 Late in June the FCC proposed changes in the rules regarding human exposure to RF energy (FCC NPRM 03-132). Many of the changes are procedural and none directly affect the Amateur Radio Service. The list of transmitters that are excluded from performing routine evaluations has been expanded. There is clarification of the requirement to evaluate devices that are closer than 20 cm from the body, specifically laptop computers with Part 15 wireless network cards installed. Also new is consideration of multiple small transmitters in close proximity to the body.

1.5 The Committee received information from an engineer at Medtronic, a manufacturer of pacemakers and implantable defibrillators, regarding the testing done on those devices to insure their safe use in the presence of RF fields. He assured us that his company performs interference testing at ham frequencies and gave us a set of guidelines for users of their

devices who are radio amateurs. This information was added to the ARRL TIS on the website.

2 Monitoring Scientific Studies

2.1 A news report was brought to the attention of the Committee regarding a study that claimed to relate electromagnetic exposure to nerve damage in rats. The study was published in the online journal, Environmental Health Perspectives, and the Committee obtained a subscription to this service in order to monitor this and similar papers. Upon examination of this publication the Committee recognized the work of Leif Salford in Sweden. Previous studies from that laboratory have been examined by the Committee in the past with the conclusion that the results were not reliable due to weaknesses in the methodology, specifically that the method exposes rat brains to higher levels of electromagnetic energy than are reported and heating of tissue is likely. The biological indicator of albumin presence in the brain tissue is particularly sensitive to heating. The current paper is another attempt to use the same procedures, again showing similar results. In addition to a repeat of past results, the abstract of the current paper had been written with wording that would be likely to evoke fear, such as using the term, "nerve damage" in the brain. After reviewing the actual paper, there is no evidence of nerve damage and, in fact, the methodology used is incapable of ascertaining such damage.

2.2 The Committee was informed by a doctor in New York who believed that electromagnetic fields are responsible for inducing "heat shock protein 70 (hsp-70)," which is believed to protect against cellular damage after stroke. The Committee members had never heard of this effect and were suspicious of the claim that this was an "athermal effect" of RF energy, particularly since the name of the substance is "heat shock protein."

2.3 Another epidemiological study that showed no evidence of a link between electromagnetic energy and disease was published in late June. In this case, an examination of proximity to power lines and occurrence of breast cancer were shown to have no relationship.

3 Participation in the Scientific RF Safety Community.

3.1 Dr. Lapin serves as a member of the IEEE Committee on Man and Radiation (COMAR).

3.2 Mr. Hare and Dr. Guy continue to serve on the IEEE Standards Coordinating Committee 28 on Non-Ionizing Radiation, which develops the standards for human exposure to RF energy. Mr. Hare maintains a list server for communications among members of this committee, and occasionally cross-pollinates pertinent issues between the RFSC and SCC-28 list servers.

3.3 Dr. Lapin presented an RF Safety Forum at the Dayton Hamvention. The talk covered the topics of RF Safety Standards, Epidemiological vs. Laboratory Research, RF Safety Responsibilities of Radio Amateurs, How to Determine the Quality of RF Safety Studies, RF Safety Myths, and Recent Headlines and the Real Stories Behind Them.

4 Administrative Issues

4.1 Mr. Hare continues to administer the RF Safety Committee email reflector, which handles correspondence between committee members. Other ARRL staff members and some former committee members monitor traffic over the reflector and we occasionally receive helpful comments from them. We have the capability to review things that were discussed

in the past and search for keywords. In the first half of this year, 51 messages were posted on the RFSC reflector.

4.2 Dr. Lapin was re-nominated to serve as a member of the third term of the FCC Technological Advisory Council, representing ARRL and its RFSC on that body. He attended meetings at the FCC Portals Building in Washington, DC on April 17, and July 7, 2003.

5 Future Plans

5.1 The Committee continues to consider restructuring of the RF Safety text that appears in all ARRL publications.

5.2 The Committee is attempting to obtain a discounted copy of the XFDTD Bio-Pro software package, which would allow us to model various exposure situations of interest to the committee. The package runs on PC-compatible computers and comes highly recommended by Dr. Guy, who uses it in his research and consulting work.

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