

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

July 2013

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 spent most of the past few months considering a potential major change to the FCC RF Safety regulations. The deliberations were complicated and I will try to capture the major points here:
 - 1.1.1 The 201 page document, FCC 13-39A1, contains a combination of an NPRM and NOI that could significantly revise the FCC Rules about Environmental Regulations regarding human exposure to RF energy.
 - 1.1.2 The document was developed in response to a report from the Government Account Office that suggested the FCC Environmental Safety Regulations were out of date and should be updated. The report was prompted by concerns from several influential Congressmen who had accepted the hype from some anti-RF people.
 - 1.1.3 The proposed changes to the regulations that would affect amateur radio seemed to be summarized in paragraph 138. In this text the exemptions from performing a routine assessment for transmitters below certain power levels, as currently listed in Part 97.13c, would be removed.
 - 1.1.4 On first glance most of the RFSC thought that we should craft a response opposing some of the suggestions in the NPRM section of the document.
 - 1.1.5 After reviewing the entire document it became evident that deficiencies in the current exemptions, particularly that distance from the antenna is not considered in taking an exemption, had been dealt with in a way that generically allows “exemptions” at any frequency by calculating a bit more than was required before. Even with the exemptions that exist in the current rules, the FCC states in many places: “...regardless of categorical exemption, the FCC’s rules require compliance with the MPE limits.” In essence, they have always held that to be sure of safe exposure an assessment should performed even when an exemption exists.

- 1.1.6 The proposed rules allow several different ways to get an exemption: First, calculation based on Maximum Permissible Exposure. If MPE fails, calculation based on Specific Absorption Rate can be used to get an exemption. If SAR fails, calculation based on a Knowledge Base of pre-calculated exposure can be used to get the exemption. The proposed method provides multiple ways to get an exemption from performing the environmental assessment, even though more calculations will be required than are in the current rules.
- 1.2 There are several reasons that the RFSC concluded that the NPRM should be supported:
 - 1.2.1 Amateurs are trained and tested for the types of calculations that will be necessary under the new rules. This, along with readily available tools from ARRL publications and on the Internet should not be difficult for any licensed radio amateur to use.
 - 1.2.2 Most environmental assessments of amateur radio stations take only minutes to perform. It is not too much to expect from licensed radio amateurs to do the few calculations that are required.
 - 1.2.3 Having performed the calculations, a radio amateur is in a much stronger position to defend the safety of his or her station if challenged by a concerned neighbor.
- 1.3 The RFSC did have some concerns about the new regulations:
 - 1.3.1 While radio amateurs are capable of performing the calculations necessary to perform an assessment based on Maximum Permissible Exposure, the equipment needed to perform Specific Absorption Rate measurement is not readily or cheaply accessible.
 - 1.3.2 SAR is required for sources with antennas that are used within a minimum distance (usually 20 cm) of a person. In amateur radio this is usually limited to handi-talkies. These are exempted from environmental analysis in the current regulations. The new regulations would require either SAR measurements or a table lookup from a knowledge base to determine if further analysis is warranted.
 - 1.3.3 Similar to the cellular telephone industry, the data for the knowledge base would likely be measured by the radio manufacturers. Third parties, such as the ARRL laboratory or even the FCC laboratory, could also contribute to the knowledge base.
 - 1.3.4 Amateur radio handi-talkie operation uses push-to-talk transmission rather than cellular telephone operation, which continuously transmits. Licensed radio amateurs, by being classified in the Occupational Exposure Group, would be expected to modify their operating habits if necessary to maintain average exposure levels below the regulatory limits. In other words, some amateurs may have to talk less and listen more.
- 1.4 The NOI portion of the FCC document question the limits used in the current regulations. Those Maximum Permissible Exposure levels were derived from the 1986 NCRP Report #86 and the 1991 ANSI/IEEE C95.1 standard.

- 1.4.1 Since that time, NCRP has decided to maintain the same limits as they originally proposed. The IEEE C95.1 standard was revised in 2005, resulting in different MPE and SAR limits, some lower and some higher, though levels were not substantially changed. Also, a widely accepted international standard has since been published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).
- 1.4.2 The NOI asks if the regulatory exposure limits should be changed to reflect the latest standards, or left unchanged since the amount of variation is not great. It also asks if the FCC should regularly monitor and modify regulatory exposure limits as new research is published. Making such changes can have implications to organizations other than the FCC by requiring modifications to publications, training materials, test questions, and exposure monitors to name a few.
- 1.4.3 The FCC states in the NOI that their current “exposure limits ... are fundamentally similar to more recent standards activity” and we agree that no changes are warranted.
- 1.5 In summary, the RFSC believes that it is in the best interest of Amateur Radio to support the changes being proposed in FCC 13-39A1.
- 2 Monitoring Scientific Studies
 - 2.1 No scientific articles were brought to our attention.
- 3 Participation in the Scientific RF Safety Community
 - 3.1 Mr. Hare continues to serve on the ICES (IEEE) SCC-28 RF Safety Standards Committee. He generally shares the voting ballots for changes to the standards with the Committee prior to voting on them.
 - 3.2 Dr. Lapin continues to testify about RF safety at zoning board hearings when cellular tower placement is being considered.
 - 3.3 Dr. Lapin continues to serve as a member of the IEEE Committee on Man and Radiation, COMAR.
- 4 Administrative Issues
 - 4.1 Members of the Committee continue to review articles submitted to QST, looking for potential RF safety issues that should be dealt with prior to publication.

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