

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

July 2020

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 Last fall the FCC proposed in a Notice of Proposed Rule Making some fundamental changes in the ways environmental assessments will be determined. Even though the basic exposure limits would remain unchanged, a major goal of this rule making was to harmonize the rules across all services. The most profound effect on the Amateur Radio service would be the removal of categorical exclusions (97.13(c)(1)), where operation below specified power levels for each band would be considered inherently safe and no further safety assessment would be necessary. Amateur Radio's categorical exclusions also included all handheld and portable transmitters. In the April 1, 2020 Federal Register, these rule changes were announced in a Second Report and Order, slated to take effect on June 1, 2020. However, in the May 29, 2020 Federal Register, implementation of the new rules was announced to have been delayed indefinitely because of a delay in the OMB approval process for the Paperwork Reduction Act. Written into the new rules is a transition period that permits two years from when the new rules become effective for any antenna that currently does not need evaluation. The Committee intends to use that transition period to develop new tools for radio amateurs to perform evaluations under the new rules.
- 1.2 The Committee discussed the impending rule changes at length, pointing out areas that would be difficult for radio amateurs to comply with. Apart from the removal of categorical exclusions, we believe that the most difficult new rule will be the requirement for SAR evaluation when an antenna is within 20 cm of a person. SAR is far more complicated to determine than MPE. There is a calculation for exempting calculation of stations' exposures based on frequency and distance, but it does not apply to nearer than  $\lambda/2\pi$ . Where the rule changes get complicated is with VHF HTs and at low frequencies; e.g. in the 160 m band  $\lambda/2\pi$  is 83 feet and in the 80 m band it is 41 feet. Another complication regards amateur repeaters that are in multiple-transmitter locations. The new rules require a full accounting of all transmitters at a location, rather than the previous exclusion that applied only to amateur radio repeaters.
- 1.3 SAR evaluation by measurement is beyond the means of most radio amateurs, and the modeling techniques for SAR are far more complex and expensive than MPE modeling. At some point in the future, manufacturers of amateur HTs will have to perform SAR measurements. However, this assumes that the antennas sold with the radios will not be changed, and amateurs often substitute antennas. This also does not address the question of SAR determinations for existing amateur handheld radios. SAR measurements for handheld radios are already performed for public safety devices and a review of those showed that similar radios from the same manufacturers may be able

to make use of the existing commercial radio measurements. The FCC transition period will be used to answer these questions.

- 1.4 The Committee also pointed out that the new rule changes would obsolete several sections of the FCC document, OET Bulletin 65 Supplement B, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. Additional Information for Amateur Radio Stations." In an *ex parte* communication with the author of the new rules at the FCC Office of Engineering and Technology, the Committee offered to help edit changes to this document in order to simplify the evaluation process for radio amateurs.
- 1.5 Around the same time, the FCC released another RF Safety-related NPRM that proposes to change the safety limits that the FCC uses. The current limits are based on a combination of the NCRP Report 86, published in 1986 and IEEE C95.1-1991. One point of confusion is that neither of these standards nor their updates include safety limits for the 136 kHz band that has been allocated to Amateur Radio. The FCC is considering use of the ICNIRP 2010 standard and IEEE C95.1-2019 standard to define future exposure limits, both of which include the lowest frequencies. The NPRM also seeks to redefine the ways that exposure is determined above 6 GHz.

## 2 Monitoring Current Events and Scientific Studies

- 2.1 The Committee discussed the recent conspiracy theory that 5G telephone emissions were the cause of the COVID-19 pandemic. Clearly there is no basis to this theory. More than 77 cellular towers in Europe have been set afire by some of the more extreme reactionaries in England and the Netherlands (even though some were not 5G towers). A few cell towers have also been attacked in New Zealand and Canada. The Department of Homeland Security in the United States has issued a warning that similar extremism may reach our country.

## 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 presented a description of the FCC RF Exposure Rule changes to the University of Arizona Amateur Radio Club K7UAZ.

## 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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