



## Second Century

# The New Protection Game: What it Could Mean for You

*“ARRL has a reputation for protecting every kilohertz of amateur spectrum from reallocation and from harmful interference. We mean to keep doing that. These days, the issue isn’t so much the threat of loss of our spectrum, but rather the addition of incompatible, forced-sharing partners. Kind of like arranged marriages.”*

On December 1, the FCC’s Office of Engineering and Technology called for comment on some very far-reaching spectrum policy recommendations. For years, the Commission has been wrestling, sometimes unsuccessfully from our perspective, with interference issues arising from multiple sources.

The first is interference caused by Part 15 devices (unlicensed emitters), which do not comply with field strength limits and whose interference we are currently not required to accept. The best example is grow lights.

The second is co-channel and adjacent channel interference from licensed sources.

A third, and possibly most troublesome for amateurs, is “spectrum overlay,” the resulting interference caused by allegedly compatible licensed services occupying the same spectrum. Closest to home: the PAVE PAWS program allows us to use certain 440 MHz spectrum where we don’t interfere with that vital Air Force program.

To address and hopefully minimize these interference issues, the FCC is considering a sea change in emphasis. The policies under consideration shift the primary focus from transmitters and RF emitters to include the ability of receivers to reject interference. It also suggests the upgrade of legacy modes (pay special attention if you operate analog SSB) to avoid interference and permit greater sharing opportunities. In plain language: to allow more *sharing* of spectrum — including amateur spectrum — with other services.

From here on in, this gets complicated, so bear with me because it’s important for all of us to understand fully, and respond appropriately to, this FCC interrogatory.

Behind all the broad spectrum policy actions now on the table is the work of the FCC’s Technical Advisory Council (TAC), a private sector group. (ARRL’s delegate to the TAC is Greg Lapin, N9GL.) The council recommendations are supported by three white papers developed over the past several years, and the TAC believes that a fair and efficient allocation of spectrum in congested RF environments requires striking a balance between the rights and responsibilities of transmitters and those of receivers. From a procedural standpoint, the comments called for in the

December 1 notice, along with the TAC recommendations, will help the FCC formulate a policy statement informing spectrum management guidance and principles.

What principles? Well, to begin with, according to the TAC, (1) receivers must be designed properly to reject out-of-band signals in present *and future* use; (2) receiving systems must be designed to manage as much interference as possible; (3) interference regulations, which establish entitlements to protection, should be premised on “acceptable levels of risk” of interference, and (4) interference and interference protection thresholds should be established. Reading between the lines, I see some disquieting assumptions.

It’s obvious both transmitter and receiver characteristics determine the impact of interference; but by introducing the notion that receiver performance as a co-factor when it hasn’t been featured in the past, the burden of resolving interference begins to shift toward the victim. Moreover, the TAC suggests that the FCC may set interference thresholds below which no protection from interference is available. Or in other words, there is some acceptable level of interference to be tolerated, which modern receiver technology can overcome. What’s an appropriate threshold? What’s an acceptable level of interference or noise? This action could pose a significant threat to our service because it is possible that, for non-commercial, non-safety of life services, the FCC could set the threshold very high, allowing high levels of interference based on some perceived value metric. Amateurs could need to measure the field strength of noise to be able to prove harm, even if a reasonable interference threshold is established. And of course, there is no assumption that FCC enforcement resources would be available evenly among radio services to enforce whatever threshold is established.

The difficulty here is that Amateur Radio, essentially an experimental radio service, doesn’t have standardized operating parameters, making interference limits difficult to determine. The Notice argues that operators and services seeking protection from interference must disclose to the Commission the operating characteristics of the system before expecting protection. This is difficult conceptually for Amateur Radio. Amateur Radio uses many operating modes, including experimental modes.

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The danger is that the FCC could utilize this principle to (1) demand very specific operating parameters and hypothetical reference circuits to define and limit those amateur uses that are entitled to interference protection, or (2) determine that a given radio technique or emission type does not include sufficient interference rejection techniques in receivers to mitigate interference, and so deny interference protection arbitrarily.

If you've read this far, I thank you for your patience.

While there appears no cause for outright alarm, at this point, vigilance is the best posture. In the League's circles, the FCC Notice was sufficiently concerning that the ARRL Electromagnetic Compatibility Committee, chaired by Board member Kermit Carlson, W9XA, is gathering for an unscheduled meeting in Newington even as I write this piece in mid-December. Working together with ARRL Lab Manager, Ed

Hare, W1RFI, and his staff; Regulatory Information Manager Dan Henderson, N1ND, and General Counsel Chris Imlay, W3KD, the team will spend the weekend beginning the process of formulating a persuasive set of comments for the Board to review in January.

In the meantime, I ask all of you to remain informed on this process. To repeat: it's important for all of us to understand fully, and respond appropriately to, these FCC spectrum policy proposals. Please read ARRL's comments and let your ARRL Board representative know your thoughts.

A handwritten signature in black ink that reads "Tom Callahan W4RF". The signature is written in a cursive style with a long, sweeping underline.