

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

In the matter of: )  
)  
1998 Biennial Regulatory Review ) WT Docket 98-143  
Amendment of Part 97 of the )  
Commission's Amateur Radio )  
Service Rules )

Reply Comments of: January 15, 1999

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**I. INTRODUCTION**

I was first licensed as an Amateur Radio Operator as a teenager in 1967, and advanced through the post-incentive-licensing ranks of Novice, General, Advanced, and Amateur Extra licenses. I earned my Amateur Extra Class license in 1971, having passed muster before the feared FCC examiner. As some would say, I've paid my dues. I'm also the father of two teen-agers, which has shaped my thinking to a considerable extent.

Despite sentiment to the contrary, the amateur licensing structure is badly broken. One need only observe the age of attendees at a hamfest or radio club meeting. Where are the energetic, creative young people? This wasn't the case a couple of decades ago. We find ourselves in a situation similar to a car manufacturer who recently found the average age of its customers to be increasing -- by one year per year. We desperately need to find a way to attract, and more importantly to challenge, young people. While many see the status quo as acceptable, I consider it terrifying.

I have reviewed numerous filings and letters to the Commission, and in general I support the ARRL's position. I particularly agree that no one should lose existing privileges in this process; Amateur Radio has still not completely healed from the Incentive Licensing process over three decades ago. I do, however, wish to express my concerns regarding the Morse requirements and the future use of the sub-bands allocated to higher-level amateur licensees.

**II. THE MORSE REQUIREMENT**

Most of my personal operating time is in the CW mode. While some of the arguments (e.g., superiority in a weak-signal environment) are valid to a considerable extent, any realistic assessment of the future sees this mode in decline. Ten years hence I expect to see fewer hams using this mode, though I plan to be one of them. Most CW operators use CW simply because they enjoy it, but the simple fact is that in the future, a smaller proportion of us will enjoy it. In these days of high speed digital communications (e.g., the

Internet) that trend will continue.

I see little risk that the CW sub-bands will be overrun by inept operators. While it is true that computers can send and receive Morse, those so inclined will surely find the more advanced digital modes (RTTY, AMTOR, PacTOR, etc.) far more attractive. Over time, I expect these modes and their successors to expand as CW operation slowly diminishes.

The common arguments for retaining the current Morse requirement are these:

- 1) it weeds out bad operators, and
- 2) it is a valuable asset in emergency situations.

The simple fact is that it weeds out just about everybody, including many who would make a significant contribution to amateur radio both in terms of technical and operational expertise. That Morse is an advantage in difficult emergency situations is arguably true. If I were stranded on a desert island, my choice would be my low-power CW radio, a battery, and a handful of wire (note that high-speed proficiency would not be particularly relevant). In the not-too-distant future, other digital modes will perform as well or better.

A major concern is the lack of young people entering the ranks of amateur radio, particularly those advancing beyond the Technician Class license. The Morse requirement is clearly a major factor. From my observations as a Volunteer Examiner, many are obviously technically capable and motivated but simply don't see the Morse requirement as relevant, and in today's world -- and tomorrow's -- it probably isn't. Many amateurs see reduction or elimination of the Morse requirement as dumbing-down the amateur service. It's simply the evolution of technology, and it is imperative that we begin now to place far more emphasis on the new digital technologies appearing all around us. When presented with a challenge that makes sense to them, the younger generation will surprise all of us, and will work as hard as we ever did.

### **III. DIGITAL TECHNOLOGIES**

It's clear that Morse will see less and less use in the future. Interestingly, most of those who want to eliminate the requirement intend to use the more advanced modes, like single-sideband (SSB) and FM. SSB and FM are both several decades old. Land Mobile, Cellular, and PCS services are rapidly moving to spectrum-efficient digital technologies. Commercial FM repeaters are being replaced by TDMA technology that provides several times the capacity of FM. Even shortwave broadcast, currently using ancient AM technology, is moving toward a digital implementation. It will certainly be a shame if hams are the last to adopt such technologies. Amateur radio as a training ground will become increasingly irrelevant as these technologies become the standard.

Advanced digital technologies should become the focus of the higher-class licenses. In case of an emergency, the ability to move large blocks of information quickly, and to interface cleanly with existing infrastructure such as the Internet, will be required. The current bandwidth limits for digital communications on the HF bands

provide very limited throughput -- certainly far too low for digital voice. Digital Signal Processors will continue to become faster and less expensive. The Commission should permit higher-class licensees to experiment with higher speed digital communication protocols in specific portions of the HF bands.

Spectrum congestion in our major cities would be relieved considerably should digital technology be applied to amateur VHF and UHF repeaters. As is apparent from the plummeting cost of digital cellular technology, the required equipment need not be out of reach. Though not the subject of this proceeding, the Commission should in the near future consider means to encourage evolution to digital communications in the VHF/UHF bands. Aside from the spectrum benefits, it's essential that amateurs become familiar with the wireless communication technologies that their neighbors are using every day.

#### **IV. CONCLUSIONS**

I suggest that the Commission adopt the ARRL proposal for restructuring with these changes:

1. Eliminate the higher speed Morse requirement for the Advanced and Extra Class licenses. Requiring more than a 5 wpm Morse exam is already irrelevant. While there is benefit to exposing new amateurs to this mode, from that point on he/she will either embrace it (in which case further testing is unnecessary) or not (in which case it becomes merely an obstacle to advancement in other areas). I don't think that the amateur community is ready for complete elimination of the Morse requirement. However, if the higher-speed Morse requirements are dropped, and the predictions of doom-and-gloom prove groundless, that subject can be dealt with objectively in the future.

2. Reallocate a portion (10 - 25 kHz) of the refarmed Novice subbands to Extra Class licensees, and permit digital communications up to 3 kHz bandwidth. It's ironic that today nearly all subbands reserved for Extra Class licensees are used for our most basic mode of communication.

3. Focus on increasing knowledge of digital communication technologies in examinations for advancement through the amateur ranks. Over the next decade, our wireless communications world will change dramatically. Amateurs will need an increasing understanding of digital technologies (both for data and voice communications) if we are to maintain the degree of we have held within the community.

4. While I am inclined to support the proposal by Wormser et.al. to require those automatically upgraded from Novice and Technician Plus to General Class to pass the additional written elements prior to license renewal, it is not clear that is workable. On the positive side, it would reintroduce these individuals to the advancement process and increase the likelihood that they will progress further. On the other hand, reverting their licenses to their existing class in the event they fail to pass the required elements seems to serve no useful purpose, particularly since it is clearly appropriate to reform the existing HF Novice/Technician Plus HF subbands. It also

adds another level of unfairness: some would have a month to pass the exams, others up to ten years.

It is imperative to ascertain that our core values of competence and courtesy are carried on, even as we embrace the technologies that move relentlessly forward.

Respectfully submitted,

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