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Before the
Federal Communications Commission
Washington, D. C. 20554

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MAIL BRANCH
PR Docket 92-136

In the matter of)
)
Amendment of Part 97 of the)
Commission's Rules to Relax)
Restrictions on the Scope of)
Permissible Communications)
in the Amateur Service)

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To: The Commission

COMMENTS OF PHILIP R. KARN, JR., KA9Q

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

1. Introduction and Background

I most heartily applaud the Commission's move to relax the existing rules regarding prohibited transmissions in the Amateur Radio Service. My only concern is that the proposed changes do not go nearly far enough.

Before the *Eyebank* docket in the early 1970s, the FCC rules regarding the "business use" of amateur radio were very simple: an amateur could not sell radio communications services. Period. Indeed, this is the very essence of the word "amateur", which Webster's New World Dictionary defines as "a person who engages in some art, science, sport, etc. for the pleasure of it rather than for money; a nonprofessional; specifically an athlete who is variously forbidden by rule to profit from athletic activity." Other parties may make money off the Olympics, for example, but the athletes themselves are still (nominally) amateurs.

Despite the lack of a clear and demonstrated threat, the Commission drastically expanded the prohibitions on the Amateur Service with the *Eyebank* docket. This action occurred in a very different era. It came just before the start of the digital revolution that put powerful new computing and communications technologies into the hands of the average person, including the average radio amateur. It was a time when AT&T jealously guarded its monopoly on long distance telephone service against even the tiniest threat of "competition", including, perhaps, the Amateur Radio Service. AT&T even demanded the right to prohibit (or at least heavily restrict) the interconnection of its network with customer-provided terminal or communications equipment.

These moves eventually earned AT&T an antitrust suit that resulted in the breakup of the Bell System, the transition to open competition in long distance telecommunications, and a complete overhaul (which is still underway) of US telecommunications policy to promote even more competition, e.g., in local telephone service. The FCC now recognizes that it is not tasked with protecting AT&T's revenues.

Yet despite the radical change in overall US telecommunications policy since the early 1970s, the prohibitions of the *Eyebank* docket on the Amateur Service remain in effect. Along with the recently removed requirement that every prospective amateur pass a code test, these restrictions severely stunted the Amateur Service at a time when it should have experienced dramatic, healthy growth, particularly in its capability to provide public service communications.

There seem to be few limits on how broadly 97.113(a) can be interpreted. Indeed, "armchair lawyering" has become almost a cottage industry among hams. At times it seems that discussing the

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meaning of 97.113(a) is the only permissible use of amateur radio!¹

The current restrictions also lend themselves to selective, politically motivated enforcement, such as the infamous citation of packet station operators for carrying an anti-Gulf-War "900 number" message in early 1991. That this action was indeed politically motivated is hard to deny when one considers that no amateur was ever cited for carrying health and welfare traffic on behalf of the US military at the same time, even though this could be construed as assisting the US military with its regular business affairs. Such selective enforcement of a rule to stifle speech critical of the Government strikes at the heart of our First Amendment guarantees and can never be tolerated.

2. Discussion

Restrictions on the permissible use of Amateur Radio should be kept to the absolute minimum required to further the basis and purpose of the service. In other words, each and every prohibition must continually justify its existence. Not only is this philosophy in harmony with the (theoretical) traditions of American government, but it also maximizes the return to the public from the spectrum it has invested in the Amateur Service. I would like to analyze the proposed new regulations in this light, and suggest additional relaxations that would not threaten the character of the Amateur Service.

2.1. 97.113(a)(1)

This proposed section is sound. Indeed it is the *only* rule that is really needed to protect the Amateur Service. Although it will not completely prevent every conceivable abuse, additional restrictions are unnecessary because this simple rule ensures that any abuses that will occur will be self limiting. This is true because of a universal characteristic of human nature: no one wants to volunteer his or her time and the use of his or her property solely to make money for someone else without getting *something* in return. And to the extent that an amateur gets a non-pecuniary return for providing communication services to others (e.g., access to communication links provided by others in a cooperative network, or the sense of satisfaction that comes from providing a public service) he will be contributing to the basis and purpose of the Amateur Service, whether or not some other party happens to benefit financially from the arrangement.

Although this would be a very liberal rule, there's one common practice that it would (and should) prohibit: the payment of a required membership fee for access to "closed" amateur repeater and remote base systems. Despite the widespread nature of this practice, it is tantamount to selling amateur communication services, which is directly counter to the basic principles of the Amateur Service. This is *not* to say that the operator of a repeater should be forced to open his machine to anyone who wants to use it. It only says that he cannot establish a quid-pro-quo relationship between the payment of a fee and access to an amateur radio communication system.

2.2. 97.113(a)(2)

The prohibition on "communications in which the station licensee or control operator has a pecuniary interest, including communications on behalf of an employer" is vague and overly broad. Because many amateurs (including myself) have related professional and amateur interests, this rule could be interpreted as prohibiting much valuable "cross fertilization" that benefits both fields.

For example, much technology originally developed and tested within and for the Amateur Service is eventually commercialized. Examples include AMSAT's low-cost satellite technology, TAPR's packet radio developments, and my own TCP/IP networking software package. In my opinion, this fulfills the amateur mandate to advance the state of the radio art, especially since the additional developments made possible by the proceeds from commercialization are made freely available to amateurs. But, strictly speaking, doesn't this practice violate the letter of the "no pecuniary interest"

¹ Earlier this year I wrote and distributed satire ostensibly claiming that amateur radio operation with commercially manufactured transceivers violated 97.113(a) because it promoted the regular business affairs of the transceiver manufacturer, and operation with commercial power also violated 97.113(a) because it promoted the regular business affairs of the electric utility. Several people took me seriously.

prohibition? Given the history of the existing regulation, I would not be surprised to one day find amateurs seriously arguing that it does, regardless of any benefits to the Amateur Service.

A related problem with this rule is the fact that many amateurs like to "talk shop" over the air, not because they're paid to do so, but because they have technical jobs that they enjoy talking about. Significant "cross fertilization" often results that benefits both the amateur's employer and the Amateur Service.² Wouldn't this also be a technical violation of the rules?

Although I don't argue with the motivation behind this rule (no one wants to see the ham bands taken over by taxicab dispatchers) I am unable to propose alternate language that would ban only those "employer-benefiting" communications that clearly harm amateur radio. Unless the Commission can do so, I suggest removing this prohibition altogether and relying entirely on the first rule (no communications for hire) to limit abuses.

2.3. 97.113(a)(3)

The ban on "music" is completely unnecessary. As stated in the petitions for rule making, this rule has caused many amateurs to believe it prohibits even the incidental background music one might hear during an autopatch call or in "wakeup calls" during Space Shuttle missions.

It has also engendered debates over whether transferring MIDI³ format computer files is legal. The League's position, as stated in *The FCC Rule Book*, is that it is. But the basis for this interpretation is not at all clear. Why should digital bits representing the notes of a musical score be legal on the ham bands while digital bits representing the output of a synthesizer fed the very same MIDI score be illegal? Admittedly the MIDI score is a much more compact representation of the same information, but if efficiency were a consideration, one could justify outlawing many other amateur practices...

The fact of the matter is that there is no real need for a music prohibition. Most musical recordings that an amateur would want to deliberately transmit are protected by copyright anyway. And given the prohibition against accepting payment for amateur communication services rendered, it seems unlikely that the average amateur would be willing to pay copyright license fees out of his own pocket.

As a strong believer in the First Amendment, I am also troubled by some of the other prohibitions on this section. Prohibitions on "obscene, indecent, or profane words or language" (whatever they are) are ill-defined and vague, and in my opinion should be unconstitutional. This is not to say that I defend or encourage obscenity, only that it is futile and counterproductive for the government to attempt to legislate common courtesy and manners. Nevertheless, I know that this is a minority position in our increasingly moralistic and intolerant society, so I would argue against these restrictions from a more practical standpoint -- that they inhibit the development of automatic store-and-forward data networks. Intermediate stations in these networks are unable to automatically screen the traffic they carry, and holding the operators of these stations responsible only serves to discourage the development of these networks. If the Commission sees fit to retain these prohibitions, they should be applied only to the originator of the communications. One way this might be accomplished is to insert the word "knowingly", as in "no amateur operator shall *knowingly* transmit obscene, indecent or profane words or language..."

I am also moderately opposed to continuing the restriction on codes and ciphers. The practical application of codes and ciphers to real communications systems is presently the subject of much research, development and experimentation in the communications industry. Permitting amateurs to use them would allow us to participate in these efforts. I understand that codes and ciphers could be used to conceal evidence of improper use of amateur radio, but if the only rule is that one cannot sell amateur communications for hire, it is not clear that one would be able to determine this solely from the content of a communication anyway. Removing this prohibition would also eliminate a precedent that may soon be used to help justify draconian government restrictions on the private use of cryptography over common carrier facilities.

² One of the founders of my present employer (a radio communications R&D company) is an amateur who is fond of saying that "anything you do in ham radio you'll probably use at work within 6 months".

³ Musical Instrument Digital Interface. Such files essentially encode the score of a musical piece, as opposed to the actual sounds that a listener would hear.

I presume that another reason for this prohibition was to prevent the use of amateur radio for espionage purposes. But there are now many other communication alternatives available to spies that are far more reliable and secure and convenient than amateur radio, including the use of encryption over ordinary telephone lines.

2.4. 97.113(a)(4)

This section is also vague and overly broad and should be deleted. In particular, the phrase "on a regular basis" will mean something different to everyone who reads it. As many others will undoubtedly point out, almost any amateur communication can in theory be handled by other radio services. This is particularly true given new developments like the cellular telephone.

2.5. 97.113(b)

I am not convinced of the need for a specific prohibition on broadcasting since, again, I believe that a simple prohibition against providing amateur communications for hire would serve to limit any abuses. I would point out, however, that there is no practical way to restrict authorized broadcasts such as Space Shuttle mission audio to the exclusive use of radio amateurs, and I suspect that there are many non-amateurs who listen to them. Given that there are already enough amateurs to justify these broadcasts, these additional passive listeners in no way threaten the nature of the Amateur Service. Indeed, they probably do much to make amateur radio visible to the public, something that clearly benefits the service.

2.6. 97.113(c,d)

These two exceptions to the prohibitions would be unnecessary if only the simple "no communications for hire" rule were adopted. Since neither the teacher demonstrating amateur radio or the W1AW operator running code practice would be charging anyone for an actual communications service, irrespective of whether they are being paid a salary for their services as an operator of an amateur station, their activities would be permissible.

2.7. 97.113(e)

This rule is also unnecessary, for the same reason that the music prohibition is unnecessary. Many of the stations that might be retransmitted emit either copyrighted material (e.g., broadcast stations) or are protected from interception by the Electronic Communications Privacy Act (e.g., common carrier stations). These other restrictions, along with the ban on amateur communications and the desire to avoid spectrum waste, would serve to limit abuses of the ability to retransmit non-amateur signals.

2.8. 97.113(f)

The meaning of the phrase "automatically retransmit the radio signals" has become deeply ambiguous with the development of digital store-and-forward (packet) radio networks. For years amateurs have argued over whether a "digipeater" or packet switch is a repeater within the meaning of the Commission's rules. This is an important issue since it determines the legality of operating a digipeater outside the repeater sub bands.

I suggest that if the Commission retains this restriction at all, it should adopt a more limited definition of "repeater" as a station that automatically retransmits the radio signals of other stations *without being uniquely addressed and requested to do so by the station being repeated*. Since a digipeater or packet switch retransmits only those packets that contain its callsign or unique network address, unintentional repeating -- the original reason for restricting repeaters to sub bands -- is impossible. Conventional carrier-operated repeaters would continue to be restricted to the repeater sub bands, as would repeaters with continuous sub-audible tone squelch access, since these "PL" tones are not unique to each repeater.

Note that whether the repeater carries analog voice or digital data would be irrelevant; a digital repeater that regenerates and retransmits input bits without examining their content would be restricted to the repeater sub bands, while a voice repeater that requires a unique digital code for access would

not be similarly restricted.

3. Summary and Conclusions

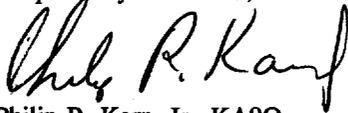
Again, I heartily applaud the Commission's proposal to relax the usage prohibitions on the Amateur Radio Service, and I encourage it to go even further than what it has proposed. Significant relaxation is required if amateurs are to further the state of the radio art and provide meaningful services to the public. Much, if not most, of the leading-edge developments in communication technology now involve networks of stations that automatically relay digital communications. Not only do these computer controlled stations significantly enhance flexibility and reliability, but they make much better use of our spectral resources. They let us use low power transmitters on higher frequency bands so we can intelligently route information only where we want it to go instead of "flooding" it everywhere in a brute-force fashion with high-powered, low frequency transmitters. If it weren't for the present regulations, we could transparently interconnect amateur and non-amateur facilities (e.g., the Internet) into a powerful and flexible hybrid that would substantially benefit *both* amateurs and non-amateurs.⁴

Yet the FCC rules, mainly those having to do with prohibited and third-party communications, keep getting in our way because there is simply no practical way to screen communications in an automatic station. Although some may object that our networks are beginning to resemble those of common carriers, the term "common carrier" is a legal concept, not a technical one. By definition, a common carrier sells its services to anyone willing to pay, and this is specifically prohibited by the existing rules and by the new proposed 97.113(a)(1). Regardless of the technology we use, amateur radio is *not* a common carrier and it is in no danger of becoming one as long as communications for hire continue to be prohibited.

That a voluntary, cooperative communication network can continue to function effectively in the absence of government-mandated restrictions on its use is demonstrated by the *USENET* and *FIDONET* computer networks. *USENET* and *FIDONET* are very similar in functionality to the amateur packet radio bulletin board networks, except that because common carrier (dialup telephone, leased line) transmission facilities are used, the draconian "acceptable use" rules of amateur radio do not apply. Even the Internet continues to thrive despite its evolution into a mix of publicly- and privately funded networks, with parts operated as commercial service offerings and others continuing as non-profit cooperative enterprises, some operated out of individuals' pockets. Yet all of these networks continue to thrive, with the more egregious abuses limited by peer pressure, self restraint and self policing, concepts quite familiar to radio amateurs. (In particular, *USENET* and *FIDONET* have strong traditions against commercial exploitation, largely because the individual operators who foot the phone bills do not wish to support the money-making activities of others unless there is some compensating benefit to the network as a whole.)

I firmly believe that the same mechanisms would continue to protect amateur radio if it were deregulated. If it is not, then the potential of amateur radio to join the mainstream of the personal communications revolution will remain largely unrealized.

Respectfully submitted,



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⁴ Indeed, this radio/wire Internet may eventually be built, but under Part 15, not Part 97, because Part 15 has no content restrictions at all. And this will have been another lost opportunity for the Amateur Service to fulfill its mandate to advance the art of communications and to serve the public.