

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

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FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of)
)
Amendment of Part 97 of the) RM-8737
Commissions Rules Governing)
the Amateur Radio Service to)
Facilitate Spread Spectrum)
Communications)

To: The Commission

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REPLY COMMENTS OF
TUCSON AMATEUR PACKET RADIO CORPORATION

The Tucson Amateur Packet Radio Corporation ("TAPR") submits the following reply comments regarding the Petition for Rulemaking (the "Petition") filed by the American Radio Relay League ("ARRL"), which proposed certain changes in the rules governing spread spectrum operation in the Amateur Radio Service ("ARS").

I. PERMITTING MORE WIDESPREAD SPREAD SPECTRUM OPERATION IN THE ARS WOULD SERVE THE PUBLIC INTEREST.

A number of the comments recognized the benefits that could be provided by more widespread use of spread spectrum technologies in the ARS.¹ In addition to those that would accrue to ARS operators, as described in the Petition, increased use of spread spectrum in the ARS would contribute to the overall development of spread spectrum communications² and, as a result, would provide benefits indirectly to commercial users as well.

Expanded use of spread spectrum in the ARS also would further the Commission's objective of promoting efficient spectrum use. At the FCC's March 5, 1996 *en banc* hearing on spectrum policy, Paul Barends, the "father"

¹ See, e.g., Comments of Robert A. Buaas ("Buaas Comments"); Comments of the Manager of the National Communications System ("NCS Comments"); Comments of John Mock; Comments of Henry B. Ruh; see also ARRL Petition.

² See NCS Comments at p. 3.

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of one of the technologies that forms the basis of the Internet, made the following statement:

“What do we see today if we tune a spectrum analyzer or a radio receiver across most of the scarce spectrum bands? Mostly nothing. Dead air. This strongly suggests that most of our limited spectrum space is not being fully utilized and is going to waste. Specifically, with digital technology, spectrum bands can be more efficiently packed without interfering with existing services.”

By increasing the ability of ARS operators to use spread spectrum technologies, the Commission would enhance their ability to use digital technologies to enhance spectrum efficiency, as recommended in the above passage. In turn, the Commission also would make it possible for the ARS better to accommodate the many new users seeking to use ARS bands, which are already congested due to the widespread use of non-digital equipment.

Although spread spectrum is not a panacea, it offers the promise of increased spectrum efficiency, reduced interference, and improved communication performance without adversely affecting other spectrum users. As a result, the Commission’s rules governing spread spectrum operation should be modified to enable these technologies to flourish within the amateur service community.

II. EXPANDED SPREAD SPECTRUM OPERATIONS WILL NOT ADVERSELY AFFECT OTHER ARS OPERATIONS.

Several repeater coordinating organizations, who are responsible for the coordination of repeater operations in their regional areas of activity, filed comments opposing to the Petition. These entities generally alleged that adoption of ARRL’s proposals would cause widespread interference to, and disruption of, existing operations.

The fears and concerns expressed in these comments defy the proven ability of properly designed and implemented spread spectrum systems to operate in harmony with other spectrum users, are based upon “worst-case” scenarios, and reflect a desire to maintain the status quo even at the cost of stifling new technologies and services. As a result, they should not be permitted to prevent the development of spread spectrum in the ARS.

First, as discussed by Robert Buaas, claims that spread spectrum operation will raise the noise floor ignore the fact that few real systems operate near the noise floor, and those that do would profit from applying spread spectrum technology.³

Second, in the ten years since the Commission first allowed limited spread spectrum operation in the ARS, a great deal of work has been done to address concerns that more flexible spread spectrum operation would adversely affect other types of ARS operations. In particular, the 1991 Buaas spread spectrum STA has made it possible for experimenters to engage in widespread use of spread spectrum technologies in the amateur band allocations below 450 MHz. Notably, operation under the existing spread spectrum rules and experimentation under the spread spectrum STA have not generated substantiated claims of objectionable interference.⁴

Finally, the successful operation of Part 15 spread spectrum systems provide substantial evidence of the ability of these devices to co-exist with other users. Today, millions of spread spectrum devices operating under Section 15.247 of the Commission's rules are being used to support end-user solutions in areas such as cordless phones, location monitoring devices, and local and metropolitan-area networking. These devices have been deployed across the United States without any local coordination and without any licensing by the Commission. Yet despite this flexibility and extensive use, spread spectrum Part 15 devices have almost universally operated without causing objectionable interference to other Part 15 devices or to others operating in shared spectrum.⁵ This success story provides ample proof that when spread spectrum devices are properly designed, manufactured, and deployed, they can coexist successfully with many diverse applications and, in addition, can facilitate frequency reuse.

In light of this history of successful, non-interfering operation, the Commission should not permit unsubstantiated claims of potential

³ Buaas Comments at p. 2.

⁴ Buaas Comments at p. 3.

⁵ See Comments of the Part 15 Coalition, PR Docket No. 93-61 (1995).

interference to thwart the introduction and use of new spread spectrum technologies in the ARS.⁶

III. SECTION 97.119(B)(5) OF THE RULES SHOULD BE DELETED, AS SUGGESTED BY NCS.

TAPR supports the suggestion made by the Manager of the National Communications System ("NCS") to delete Part 97.119 (b)(5), which deals with the requirement for CW identification. TAPR agrees that no currently available commercial equipment implements such a function, and that deletion of this requirement will act to speed the rapid adoption of this equipment into use in the ARS.

CONCLUSION

TAPR congratulates the ARRL for its forward-looking proposal to liberalize the spread spectrum rules in the ARS. ARRL's proposal, if adopted, could provide a variety of benefits to both members of the amateur service community and to the wider public.

Proposals to modify the status quo often generate opposition by those who are adequately served by it. Like the turmoil that occurred in the ARS during the transition from AM to SSB, the growing use of spread spectrum in the service will not be without incidents of disagreement and misunderstanding. For this reason, TAPR intends to use its resources during the rulemaking process to educate the ARS community on the theory, application, and practice of spread spectrum technology.

Yet while fear and opposition are understandable, they should not be permitted to stifle new developments. In light of spread spectrum's strong track record and proven benefits, unsubstantiated claims of potential interference should be discounted and the Commission should act promptly

⁶ TAPR believes that a program of continuing education to the ARS community on the merits and benefits of spread spectrum technology coupled with a wider use and deployment of equipment by amateurs in various applications will go a long way towards resolving the concerns of many of the commenters who have filed in opposition. TAPR intends to use its resources to perform this function and service for the amateur radio community in much the same fashion that it helped start the packet radio revolution in the ARS during the mid-1980's.

to issue a Notice of Proposed Rulemaking proposing to implement the changes sought by ARRL, modified as discussed in TAPR's earlier comments.

Respectfully submitted,

**THE TUCSON AMATEUR PACKET RADIO
CORPORATION**

By: Dewayne Hendricks / gk
Dewayne Hendricks
Tucson Amateur Packet Radio Corporation
8987-309 E Tanque Verde Rd #337
Tucson, Arizona 85749-9399
(817) 383-0000

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Reply Comments of Tucson Amateur Packet Radio Corporation was sent by first-class mail, postage prepaid, this 12th day of March, 1996, to each of the following:

American Radio Relay League, Inc.
Christopher D. Imlay
BOOTH FRERET & IMLAY, P.C.
1233 20th Street, N.W., Suite 204
Washington, D.C. 20036

Henry B. Ruh
KB9FO, Publisher
Amateur Television Quarterly
3 N. Court Street
Crown Point, Indiana 46307

William C. Wells
WA8HSU, Chairman
The Indiana Repeater Council
P.O. Box 1092
Logansport, Indiana 46947-1092

Robert A. Buaas
K6KGS
20271 Bancroft Circle
Huntington Beach, California 92646

John Mock
1506 Palm Avenue
Richmond, Virginia 94805

David L. Shiplett
AC4MU, President
SouthEastern Repeater Association, Inc.
P.O. Box 215
Tobaccoville, North Carolina 27050

Whit Brown
WB0CJX, Frequency Coordination Chairman
Mid-America Coordination Council, Inc.
14418 W. Ellsworth Place
Golden, Colorado 80401-5324

Carl Wayne Smith
Chief Regulatory Counsel
Telecommunications, DOD
Code RGC
Defense Information Systems Agency
701 S. Courthouse Road
Arlington, Virginia 22204

Nels Harvey
WA9JOB, Chairman
Wisconsin Association of Repeaters
2104 W. County Line Road
Mequon, Wisconsin 53092-5616

George R. Isely
WD9GIG, President
Mid-America Coordination Council, Inc.
736 Fellows Street
St. Charles, Illinois 60174-3835

M. Robin Critchell
SCRRBA Board and Technical Committee
Southern California Repeater
and Remote Base Association
P.O. Box 5967
Pasadena, California 91117

David E. Laag
President
San Bernardino Microwave Society
247 Rebel Road
Ridgecrest, California 93555


Dawn Hottinger