

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

RECEIVED

JUN 06 1997

FCC MAIL ROOM

In the Matter of)
)
Amendment of the Amateur Service)
Rules to Provide For Greater Use of)
Spread Spectrum Communication)
Technologies)

WT Docket No. 97-12

DOCKET FILE COPY ORIGINAL

To: The Commission

REPLY COMMENTS OF CENTRAL STATES VHF SOCIETY

1. The Central States VHF Society (CSVHFS) filed Comments in this proceeding on May 5, 1997. We have since reviewed the Comments filed by Radio Amateur Satellite Corporation (AMSAT), William A. Tynan (Tynan), American Radio Relay League (ARRL), Tucson Amateur Packet Radio (TAPR), Raphael Soifer, (Soifer), Philip R. Karn, Jr. (Karn), Metricom, Robert J. Carpenter (Carpenter), The Part 15 Coalition (The Coalition), Lyle V. Johnson, Jr. (Johnson), Robert A. Buaas (Buaas) and The 220 MHz Spectrum Management Association of Southern California (220 SMA). The following Reply Comments are provided with respect to the Comments reviewed.

2. In our comments, filed May 5, 1997, CSVHFS urged that Wide Band SS operation not be allowed in frequency segments customarily use for weak signal communications. The frequency segments which we said should not be open to Wide Band SS are: 50.0 - 50.5 MHz, 144.0 - 144.5 MHz, 222.0 - 222.15 MHz, 431.5 - 432.5 MHz, 902.0 - 903.5 MHz, 1295.5 - 1296.5 MHz, 2303.5 - 2304.5 MHz, 3455 - 3456 MHz, 5759 - 5761 MHz and 10367 - 10369 MHz .

3. CSVHFS also supports the recommendations of AMSAT insofar as providing protection of frequencies utilized by the Amateur-satellite Service. We also support Soifer's comments with respect to protecting amateur earth-moon-earth (EME) communication, as that is completely consistent with our recommendations. We can also accept the proposal, made by Tynan, limiting SS to certain designated frequency segments, except for his allowing SS unrestricted operation

No. of Copies rec'd
List ABCDE

029

above 3300 MHz. **We renew our contention that widespread use of any type of Wide Band Spread Spectrum (SS) transmission in the amateur bands used for various types of weak signal work, including long haul terrestrial, satellite or EME, poses a serious threat to the continued viability of these activities.**

4. We agree with Carpenter and Tynan, and re-affirm our own recommendation, that a special class of SS (Narrow Band SS with bandwidths less than 10 kHz) be authorized with the same power limits as authorized to other amateur operation. As we recommended in our comments, this Narrow Band SS should be allowed on all amateur frequencies above 50 MHz with the exception of the segments reserved for CW operation - 50.0 to 50.1 MHz and 144.0 to 144.1 MHz..

5. TAPR and Karn propose to extend amateur SS operation to all frequencies in the 50, 144 and 222 MHz bands as well as the bands above 420 MHz as proposed by the Commission. Since they have not recognized a distinction between Wide Band SS and Narrow Band SS, as proposed in our comments, as well as those of Tynan and Carpenter, it can only be assumed that they are referring to Wide Band SS. **Therefore, we strongly oppose this proposal for the reasons discussed in our comments.**

6. In their comments, Carpenter, Tynan, TAPR, Buaas, Karn, Johnson and 220 SMA take issue with the Commission's proposals to require automatic power control (APC), as we did. We find it particularly interesting that Karn, who takes credit for the inclusion of APC in RM-8737, is now opposing it. In addition, TAPR and Karn oppose the Commission's proposed power limit of 100 W. In his comments filed under RM-8737, Karn contended that SS is a power efficient mode and that it would be expected to utilize powers of 1 Watt or less in most instances. **He is now proposing 1.5 kW!** We believe that Karn's change of heart, and the comments of so many knowledgeable people validate our contention that APC is impractical in amateur use; **and calls into question the entire proposal to impose SS on the amateur community.** Apparently,

Buaas is also arguing for higher power for SS, when he says in his comments, "(a) operation in any amateur band above 50 MHz, without restriction". He is unclear as to what he means by "without restriction". Does this mean maximum authorized amateur power? He is also unclear as to whether or not he would include the sub-bands from 50.0 to 50.1 MHz and 144.0 to 144.1 MHz, currently restricted CW operation.

7. In various informal discussions on the Internet, and elsewhere, some have claimed that an "adequate ID scheme" should allay any fears that the weak signal community might have with respect to SS interference. There are several things wrong with this contention. First, it assumes that one, or only a few, SS stations are responsible for the interference. If there are many, it may not be possible to identify any of them. The other major problem with this notion is the "short range/ever present signal" mentality displayed by those proposing it. They think only in terms of local communication. Frequently, in long haul weak signal work, the available propagation exists for only a short time, sometimes measured in minutes or even seconds. The concept of identifying an interfering SS station and notifying the operator so that that operator can take action to reduce or eliminate the interference in time for the weak signal operator to make a fleeting contact, stretches credulity. So, from the standpoint of correcting problems of interference to weak signal operators, the ID question is irrelevant. It may have relevancy with the Commission, but that is a separate issue, which CSVHFS does not feel competent to address. TAPR, Johnson and Buaas take exception to any requirement that would require identification that could be read by non-SS stations. There is much to be said for their position, and we accept it, if Wide Band SS is restricted to frequency segments outside of those used for weak signal work, as we have proposed.

8. The Docket contains no definition of SS in terms of its bandwidth limits. Presumably amateur spread spectrum emissions would be limited to the amateur bands, but even that is not stated. The amateur community is being asked to accept "**this new technology**" without any information as to what it is, or what its effect on other types of operation will be. Buaas takes particular

exception to Tynan's concerns, terming them "conjectures of doom as fact, without bothering to conduct any realistic tests". **In CSVHFS's opinion, this is an absolutely ridiculous comment, about on a par with his "tree in the forest" analogy.** It is Mr Buaas who, presumably possesses the SS equipment with which to conduct such tests. We are quite certain that Mr. Tynan does not and are not aware of any CSVHF member who has SS equipment which could be used to conduct tests. Furthermore, acquiring SS equipment is probably not one of any of our members' highest priorities. They have other pursuits which are also valuable to development of radio technology. It is Mr. Buaas's responsibility to conduct tests. **After all, isn't that the principal reason the STA, he alludes to, was granted him?** CSVHFS contends that it is the responsibility of the SS proponents, to run tests to determine its interference potential, not Tynan or any other weak signal operators. SS is the new mode trying to gain access to the amateur bands. **It is the responsibility of the new mode to demonstrate that it can coexist, not the responsibility of current inhabitants to prove that it can't.** Mr. Buaas has had ample opportunity to test for the potential of SS interference with weak signal operators in his area. One, who has approached him to do so is E.R. (Chip) Angle N6CA, a prominent, and knowledgeable weak signal operator in the Los Angeles area, not far from Mr. Buaas. Mr. Angle has stated that his offer was ignored completely. **Why does Mr. Buaas have an STA for SS operation, if it is not being used to gather valuable data which the Commission can use in framing new Rules?** The fact that SS interference to weak signal operations is likely, has been proven in simple straightforward calculations made and documented in comments submitted by Carpenter in this proceeding as well as under RM-8737. To date, SS proponents have failed to present anything that disproves these calculations. They have claimed that Carpenter's assumptions were not representative of their concept of what they think amateur SS would be, generally a model based on cellular telephones, with a heavy reliance on APC which they now disavow. But, Mr. Carpenter's assumptions are based on the proposed Rules, not some imagined situation. **The failure of SS proponents to conduct and document tests or respond sensibly to fundamental radio propagation calculations, should in themselves, make the Commission wonder if proposals contained in this Docket are well founded.**

9. Much has also been said in informal correspondence between SS proponents and those concerned about its possible impact, with regard to the amateurs working out “band plan” arrangements among themselves do that SS can be accommodated without disrupting other activities. ARRL is probably the only organization that might be capable of undertaking this thankless task, but it is unclear that even they can accomplish it. Even if a good faith effort were to be made to establish a frequency coordinating body to establish “band plans” to guide SS amateurs in their choice of band segments in which to operate, how could it function to coordinate a mode with undefined bandwidth? SS signals might be 1, 2, 10, or perhaps even 30 MHz wide. No one knows at this time. The proposed Rules do not specify a bandwidth. The 220 SMA comments elude to regional band planning. Does this mean that it might set up a California SS frequency coordinating organization in competition with ARRL? How many other “regional bodies might there be? The VHF bands are not regional. In many instances they are not even national, but international - again the “short range” mentality. This international characteristic is certainly the case with EME and satellite operation. The same applies, to a somewhat lessor extent, to other types of VHF operation, particularly on the 50 MHz band. Therefore, despite what some may claim, these bands do not lend themselves to local, or even regional, frequency coordination. In their comments, TAPR and Karn suggest that amateur SS experimenters will publish information about their activities on the Internet. For one thing, there is no assurance that they will. Certainly, no such requirement is contained in the proposed Rules. In addition, how would this prevent interference? Many amateurs, including many weak signal operators are not on the Internet. Their interests and priorities may lie elsewhere. As we have noted, many instances of propagation in which weak signal operators engage, are of short duration, so determining the source of interfering signals, from the Internet or elsewhere, and then taking appropriate action to resolve the interference; are likely to be useless in terms of allowing the completion of a rare contact. **CSVHFS submits that, if SS Rules are to be liberalized as proposed in this Docket, the only viable approach is for the Commission to specify the frequency segments in which Wide Band SS operation can take place, as proposed by Tynan; or, at least, restrict it from frequencies used by weak signal operators, as proposed by**

CSVHFS and Soifer..

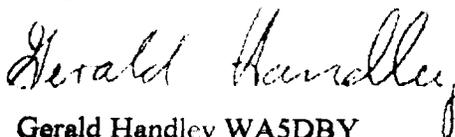
10. CSVHF is dismayed by the comments filed by Metricom and The Coalition. Metricom is an unlicensed user of the radio spectrum, namely 902 to 928 MHz and 2400 to 2450 MHz, and The Coalition represents various companies so engaged. Both urge the Commission to limit the power of amateur SS stations operating in these bands to the same level they, as Part 15 users, are permitted - 1 Watt. **We contend that such a limitation would represent a very dangerous precedent which could have long term negative consequences for the Amateur Service.** How long it would be before Metricom, or another Part 15 user, proposes to limit the power of all amateur transmissions, not merely SS, in any bands in which Part 15 operation might experience interference from amateur operations? The Coalition appears to go even farther, expressing concern that increased amateur activity in the 902 MHz and 2400 MHz bands, using equipment manufactured for the Part 15 industry, might “upset the delicate balance that has been struck between co-users of shared spectrum.” **In other words, The Coalition is saying that, Part 15 devices operate satisfactorily as long as there is little or no amateur activity on the bands they use.** The Coalition also refers to “working with the amateur radio interests ... to resolve technical and interference problems when and where they arise”. CSVHFS was under the impression that Part 15 of the Commission’s Rules makes it clear that unlicensed users are subject to whatever interference they might receive from licensed users. **Where is the requirement for amateurs (licensed users) to “resolve” interference complaints from unlicensed users?** This is a very important issue which goes far beyond this Docket and, in our opinion, must be addressed on a priority basis. **It would appear that, if these unlicensed spectrum users have a service that is as vital as they contend it is, they should compete for spectrum space like any other commercial user.**

11. Since our comments were filed, two pieces of information concerning the potential for interference from SS operation to weak signal work, have come to the attention of CSVHFS. David Anderson is a U.K. amateur located in Scotland. His callsign is GM4JJJ. Mr Anderson has

informed us that, an apparently U.K. government run spread spectrum communications system, has recently been put into operation about 20 kilometers from his location. This has resulted in about a 10 dB increase in his noise level across a broad range of frequencies around 432 MHz. This noise peaks in an easterly direction. According to Mr. Anderson, this increase in noise level is sufficient to make EME work in that direction all but impossible. He has supplied us with spectrum analyzer plots of the signal which we attach as Appendix A. Other information we have from weak signal operators in the San Francisco Bay Area is that the 902 MHz band has become essentially useless since Metricom began operation there. This is but one example of the fact that even low power SS (1 W or less) is capable of causing interfere to weak signal operation. **We submit that the experience related by Mr. Anderson as well as the information on the effect on weak signal operation by low power Part 15 type operation, should be sufficient to convince the Commission of the falsehood of any and all statements that SS operation is "essentially invisible to other modes".** For this reason, we urge that, while its development in the Amateur Service should be encouraged, SS should not be allowed to disrupt other on-going valuable operations. Our recommendations with respect of appropriate frequency restrictions for SS operation will provide it ample room to develop and prove its merit, while preserving weak signal work of various kinds. We would also accept Tynan's recommendations, modified to also protect the weak signal segments above 3300 MHz.

12. Copies of these Reply Comments have been provided to those individuals and organization whose comments are cited herein.

Respectfully submitted,



Gerald Handley WA5DBY
Board Chairman
June 4, 1997

Appendix

Spectrum analyzer plots presented by David Anderson GM4JJJ

