

SCRRA

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SEP 11 1996
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

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

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In the Matter of)	
)	
Amendment of the Commission's Rules to)	ET Docket No. 96-102/FCC 96-193
Provide for Unlicensed NII/SUPERNet)	RM-8648
Operations in the 5 GHz Frequency Range)	RM-8653

Re: Reply comments of the Southern California Repeater
and Remote Base Association

August 13, 1996

\$/ NII/SUPERNet at 5 GHz, NPRM, ET Docket No. 96-102, FCC 96-193 /\$
\$15.401 Unlicensed NII/SUPERNet Devices /\$

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SCRRBA hereby respectfully submits reply comments to selected commenters to the instant proposal. We reply to a few of the principal commenters for both sides of this matter.

The overall theme of the supporters of the instant Proposal is principally rhetoric and contains little substantive technical data. WINForum goes into considerable detail on the measurement of the power-bandwidth of the proposed operation. Their comments provide some meaningful suggestions on power measurement, but supply absolutely NO data on the interference potential of transmitters conforming to the still quite nebulous “NIISupernet” transmission format.

Apple spends a great portion of their comments on “carving” up the frequencies, and other band planning matters that are rather premature. Much of the rest of their comments provide more rhetoric lauding the wonderful benefits of the proposed service. Apple admits, in several places, that interference to Amateur Service operations needs to be controlled. Apple even goes so far as to suggest using some of the interference resolution and frequency coordination techniques learned by the Amateur Service to solve similar potential problems amongst the proposed new users! Apple goes on to say that the interference potentials of the proposed uses of the 5.6 GHz band are “overstated” by the Commission. Apple defends its comments with rhetoric and absolutely NO DATA! Apple appears to be so concerned with “long-distance” community networking that they place all interference concerns as a secondary priority.

These comments on the Instant Proposal are from the principal proponents of the new service. From these comments we are forced to conclude that these commenters have little real concern for continued Amateur operations in the 5.6GHz band. We seek the Commission’s ongoing concern for and support to Amateur operation to protect our continuing use of this spectrum.

The San Bernardino Microwave Society (SBMS) comments are on task and to the point. Their comments provide much needed detail on the Instant Proposal. We support their comments fully.

The ARRL comments are also on task and to the point. We support them with one exception. We must take exception to the conclusion reached by the League at 17:

“Should the Commission decide nonetheless to permit NII/SUPERNet devices in the upper segment as well as the lower, the League suggests that the Commission’s proposed technical operational rules and interference avoidance criteria, only if taken together (and if strictly enforced), might be sufficient to avoid widespread interference to Amateur communications.”

We cannot support this position, in particular because of the proposed § 15.409(a)

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“§ 15.409 Harmful interference.

(a) NII/SUPERNet devices will not be deemed to cause interference to licensed services provided the devices operate in accordance with the output power, out-of-band emissions limits and spectrum etiquette requirements of this subpart and provided the devices are located indoors or employ an outdoor antenna that is mounted no more than 15 meters above the ground.

(b) NII/SUPERNet devices with outdoor antennas higher than 15 meters would be required to cease operation or make some accommodation to eliminate any harmful interference caused to a licensed operation.

(c) NII/SUPERNet devices must accept any interference caused by licensed services. “

While sections (b) and (c) recognize interference to licensed operations, section (a) totally eliminates the basic interference protection concept. This section is in direct conflict with § 15.5(b)

“§ 15.5 (b) Operation of an intentional, unintentional or incidental radiator is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by the operation of an authorized radio station...”

Interference either is or it is not. There cannot be some middle ground where interference is declared not to exist. The Commissions’ rules define interference at 47 C.F.R. § 2.1. A very recent Commission decision re-states this rule with comments. FCC 96-277 at 16 (with footnote) states, in part:

“ The Commission's Rules define "interference" in the sense used in electrical engineering to describe a particular physical phenomenon that does not depend on whether a channel is shared. Interference is "[t]he effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation or loss of information which could be extracted in the absence of such unwanted energy." 47 C.F.R. § 2.1.¹ See also 47 C.F.R. § 90.7 ("harmful interference" is "any emission, radiation, or induction which specifically degrades, obstructs, or interrupts the service provided by [Part 90] stations"). Accord 47 C.F.R. §§ 15.3(m), 21.2, 73.182, 74.903(a)(2), 76.613(a), 97.3(a)(22). Licensees are required to avoid causing this phenomenon.”

¹ See also IEEE STANDARD DICTIONARY OF ELECTRICAL AND ELECTRONIC TERMS (1977 ed.) at 347: "Interference in a signal transmission path is either extraneous power which tends to interfere with the reception of the desired signals or the disturbance of signals which results." "

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We cannot see how this clear rule can be selectively applied. The presence of proposed § 15.409(a) will totally eliminate the interference protection standards long established for part 15 operations.

The SBMS similarly comments at 25 through 27 with footnotes:

“25. To date, this section [§ 15.5(b)] clearly protected the Amateur 5 cm allocation from interference caused by currently authorized part 15 devices operating within the band segment of 5.725 to 5.875 GHz². When originally created, the Commission wisely added the labeling requirement for part 15 devices which clearly established a hierarchy under which interference issues could be resolved³. This gave the users of these devices, a non-technical general public, some understanding of the responsibility associated with owning and operating these devices.”

“26. The Society is unaware of any instance where this rule section has been invoked to resolve an interference issue with any properly operating part 15 device principally due to the established part 15 rules. Radio Amateurs as a fraternity would prefer to exhaust all equitable solutions to such a problem before invoking the protections guaranteed in § 15.5(b). This protection is extremely important to Amateur radio operators because it clearly establishes priorities of communications within the Amateur allocations.”

“27. The new proposed rule section § 15.409 quoted above removes such protection from the Amateur service. If an Amateur station receives interference from one of the new NIISUPERNet devices *operating in accordance with Commission rules*, the Amateur station *must accept any and all interference generated by the new device.*”

The inescapable conclusions are that when interference is encountered from an NIISupernet device, the burden of proof of improper operation falls upon the party SUFFERING the interference, and that the required solution is to either tolerate the interference or vacate the frequency! These conclusions are applicable regardless of the service suffering the interference! This draws the further conclusion that the proposed rule section actually modifies the table of allocations to place NIISupernet devices as the PRIMARY allocation in any band segment it legally occupies!

² “We note that Amateurs must accept interference from ISM devices operating on or about 5.8 GHz. It is important for the reader to note that, from our experience, these ISM devices are few and far between, and there is no indication anywhere that a proliferation of ISM devices will occur like the potential for proliferation of the proposed NIISUPERNet devices.”

³ “47 CFR, section 15.19 requires all part 15 devices to display a label which states “operation is subject to the condition that this device does not cause harmful interference” or “...(1) This device may not cause harmful interference...”, depending on the type of device.”

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SCRRBA respectfully submits that the proposed 15.409(a) or any similar derivative is completely unacceptable and contrary to the intent of the Rules, in general, and the specified sections in particular.

The proponents of the NIISupernet speak of interference resolution ONLY between types of Supernet operations, and do not show how interference to other § 15 users or any other users is to be mitigated. The "Listen before Transmit" concept is laudable, but does not allow for the fact that the transmission the device could interfere with could well be of a completely different format and bandwidth, likely rendering such signal "invisible" to the listening device. WINForum believes even this basic form of interference protection is "unnecessary and undesirable."

We submit that there is a significant potential for intentional or un-intentional violation of the proposed power limit rules, IF the 0dBW power level is authorized in the 5.6 GHz band segment. A device that is capable of 10 dB more power in one mode than is legal in the second mode can potentially be operated at full power regardless of the band segment it is transmitting on. We submit that this factor alone should be sufficient reason to deny the higher power to NIISupernet devices. We further submit that this proposed power level will rapidly devastate the amateur use of the 5.760 GHz weak signal segment, and quickly thereafter render unusable many point to point links operating in the 5.6GHz band due to seriously increased noise floors. The "Blister Pack" distribution Apple suggests for these devices will their mean rapid and widespread distribution and use. They will literally appear everywhere. No argument can be made that this will NOT result in a serious increase in the noise floor within this band. Power density is not only a function of the power/bandwidth equations, it is also a function of the number of units in operation.

We suggest a simplification. Allow NIISupernet devices -10 dBW PEP transmit power regardless of sub-band. Allow an ERP of not more than 0 dBW PEP. Any combination of antenna gain and transmit power which conforms to these limits is allowed. Good frequency re-use engineering may suggest additional ERP limitations on antennas more than 10 Meters above ground and intended to radiate outside a building⁴

⁴ The proposed rule requiring reduced power if the antenna is outside and more than 15 Meters high can easily be violated by placing the (dish) antenna inside a room at the top of a tall building and radiating out through a window. This could easily result in full power operation at hundreds of Meters above ground with high gain antennas, allowing quite long path lengths. This writer has personal experience with (legal) part 74 microwave transmissions (at 7 and 13 GHz) utilizing 0dBW transmit powers and 25 MHz analog bandwidths transmitted between buildings many tens of miles apart. If this is successful in an analog format, it will work easily with the proposed digital bandwidths. This can hardly be considered of "minimal interference potential"

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Apple has suggested that the Commission need not wait for “exhaustive studies” before completing an analysis of interference to Amateur operations. Unfortunately, Apple does not supply any explanation of how this is to be accomplished. Apple AGAIN does not supply DATA, only rhetoric. We contend that it incumbent upon the petitioner to supply technical specifications, test formats, analysis and other hard data to make their case to the existing occupants of the spectrum desired. This data should be supplied to the Commission for analysis and public presentation. We contend that insufficient DATA has been supplied to justify ANY new occupancy of the 5.6 GHz band. The petitioner should live with the existing (quite permissive) part 15 rules, make and sell equipment for the existing 5.6 GHz allocation, and DEMONSTRATE a need for more spectrum, and how the equipment fits into the existing ongoing activities. Waving the “flag” on page after page of rhetoric accomplishes nothing to supply the “American Public” with “badly needed” wireless computer communications. Apple needs to produce, not write.

We stand by the conclusion we drew in our comments on the original petition (page 10):

“The petition has merits and flaws. We believe we have pointed out many of the flaws. The basic concept is of sufficient merit that further consideration should occur. We believe that the request for spectrum for the “NII Band” can be satisfied without destroying the Amateur usage of the 5.6 GHz band. We believe that a completely unregulated unlicensed “freeband” is NOT in the public interest. An unlicensed digital radio service may well be in the public interest, but it should not be allowed without sufficient safeguards to protect the existing spectrum users, the adjacent spectrum users and the end purchaser of the equipment. We believe this can be accomplished without undue regulation. We note that when the end user is unlicensed, such user does not take on any of the technical burden of responsible use of the spectrum. This burden is shifted to the equipment manufacturers. Commission oversight is required to insure that this burden is properly supported, and that the manufactured equipment is a responsible user of the spectrum. This oversight is usually in the form of technical regulations and may take the form of requiring type acceptance. We feel that the type acceptance process is likely to be the proper method of insuring that the regulations designed to protect the “public good” are actually being observed.”

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We submit that either no rule changes are needed, or, if occupancy of the 5.15-5.35 GHz segment by part 15 devices is practical, simply add that segment to the part 15 rules with whatever additional technical limits are needed.

Respectfully submitted,

For the SCRRBA Board and technical committee.



M. Robin Critchell
Board Member

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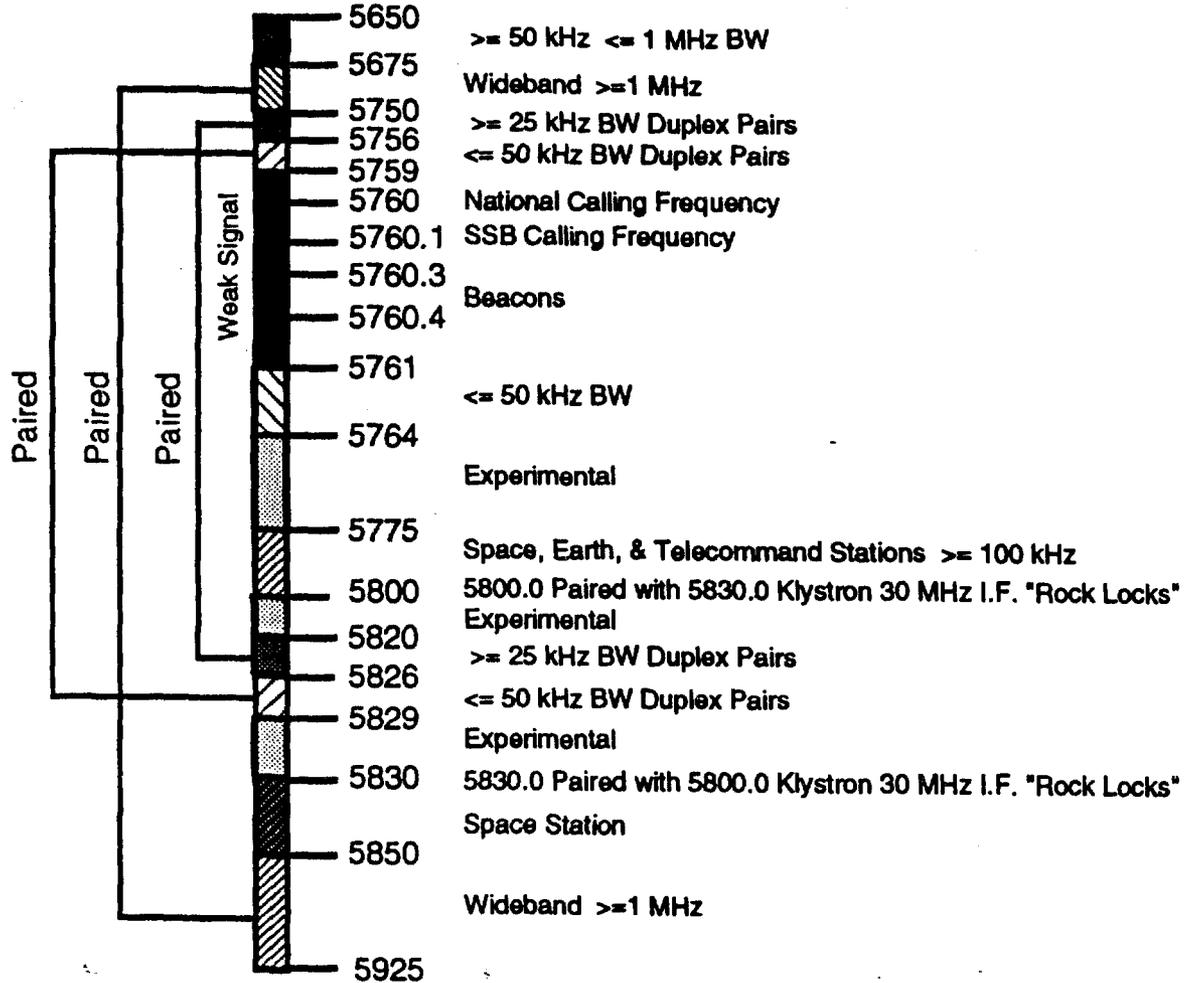
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5650-5925 MHz Band Plan
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