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Docket 92-235

FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

POLICY & PLANNING
BRANCH ROOM 5202

9 FEB 1993

IN REPLY REFER TO:
7330-7/1700A3

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FEB 12 1993

Honorable Robert F. (Bob) Smith
House of Representatives
118 Cannon House Office Building
Washington, D.C. 20515

Dear Congressman Smith:

This is in reply to your letter of January 25, 1993, in which you inquired on behalf of several of your constituents regarding the Notice of Proposed Rule Making (Notice) in PR Docket No. 92-235, 57 FR 54034 (1992). This Notice proposes comprehensive changes to the Commission's Rules governing the private land mobile radio services operating in the frequency bands below 512 MHz.

Those rules have been in place for over 20 years. While they have been amended on numerous occasions since that time, they nonetheless embody regulatory concepts based on yesteryear's technology and, unless changed, will stifle the growth and development of private land mobile radio technology and services, which are used primarily by local governments, public safety entities, and businesses to enhance their productivity. The Commission issued the Notice, therefore, to solicit comment from all interested persons on a wide variety of proposals designed to increase channel capacity, to promote more efficient use of these channels, and to simplify the rules governing use of these channels.

The proposals in the Notice reflect to a large extent concepts and proposals submitted in the initial inquiry stages of this proceeding. None of the proposals set forth in the Notice, however, are engraved in stone. Indeed, the proposals represent our best judgment at this stage of the proceeding on steps that must be taken to improve the regulatory climate for users of the private land mobile radio spectrum below 512 MHz. To this end, some of the critical issues that must be resolved relate to channel spacing, the amount of time provided to users to convert to new technical standards, how the 300 to 500 percent increase in channel capacity should be licensed, how the rules should be written to provide users technical flexibility, and whether the current nineteen radio services should be consolidated and, if so, how. I have enclosed for your information a copy of that part of the Notice that describes the numerous proposals.

We are, of course, sensitive to the concerns of users of private land mobile radio spectrum and the impact that these proposals may have on their radio systems, including the costs of required modifications.

We will, therefore, take into careful consideration all their comments. Your constituent's concerns will be fully evaluated when we develop final rules in this proceeding. As indicated in the Notice, we remain convinced that without significant regulatory change in radio operations in the bands below 512 MHz, the quality of communications in the private land mobile radio services will continue to deteriorate to the point of endangering public safety and the national economy.

We want to thank you for your interest in this proceeding. Comments on the proposals set forth in the Notice are due February 26, 1993, and Reply Comments are due April 14, 1993. We expect final rules to be issued near the end of 1993. We urge your constituent to file formal comments on all aspects of the proposals.

Sincerely,

Beverly G. Baker

Ralph A. Haller
Chief, Private Radio Bureau

Enclosure:
Notice

cc:
Chief, PRBureau
Chief, LM&MDivison
Deputy Chief, LM&M Division
Lou Sizemore, Room 857
Docket Files, Room 222
Licensing Div., PRB, c/o Room 5202
P&P Branch Files

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Congressional

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PLEASE MAKE 2 EXTRA COPIES OF INCOMING, ATTACHMENTS, AND REPLY FOR DOCKET FILE, ROOM 222.

CONGRESSIONAL CORRESPONDENCE TRACKING SYSTEM
02/01/93

LETTER REPORT

CONTROL NO.	DATE RECEIVED	DATE OF CORRESP	DATE DUE	DATE DUE OLA(857)
9300295	02/01/93	01/25/93	02/12/93	

TITLE	MEMBERS NAME	REPLY FOR SIG OF
Senator	Robert Smith	~~BC~~

CONSTITUENT'S NAME	SUBJECT
several	info/comments on a docket

REF TO	REF TO	REF TO	REF TO
PRB/LMMD 2-2-93	BJP		

DATE	DATE	DATE	DATE
02/01/93			

REMARKS:

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ROBERT F. (BOB) SMITH
2D DISTRICT, OREGON

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PRB docket 295

Congress of the United States
House of Representatives
Washington, DC 20515

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NATIONAL PARKS AND PUBLIC LANDS

SELECT COMMITTEE ON HUNGER

January 25, 1993

Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Dear Sir:

I have been asked to communicate with you regarding the concern being expressed in the enclosed letter relating to PR Docket 92-235. In this regard I have received three completely separate inquiries. The first is from a representative of the hobby craft industry.

I am personally not familiar with radio controlled hobby craft, but I believe the concern is well placed. It seems to me that there is at least potential danger in following through with the proposal. There are apparently some well documented incidents which have already occurred even under the present guidelines. I am persuaded that if the frequency spacing is further reduced, the potential for accidents could increase, not to mention the possible economic harm to the industry. Given the current financial climate we can ill afford to be changing regulations which might result in a further reduction in legitimate commerce.

I have also received letters voicing concern on this issue from the Oregon State Police and the Burns Advance Life Support Ambulance. I am enclosing comments from both those agencies which bring up some very valid concerns, again, ranging from economics to safety.

I ask that careful consideration be given to this proposal, and, when the appropriate research is done, that safety and economics be made top priorities in the final decision.

Very truly yours,

Bob

ROBERT F. (BOB) SMITH
Member of Congress

Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

Dear Sirs:

I am a hobby retailer who sells many radios, radio-controlled models, and related products in my store. In addition, I sell train products, plastic model kits and other related hobby products.

It has recently come to my attention that the Federal Communications Commission (FCC) is considering an action that has the potential to destroy my business and that of thousands of other retailers nationwide like me. The proceeding is PR Docket 92-235.

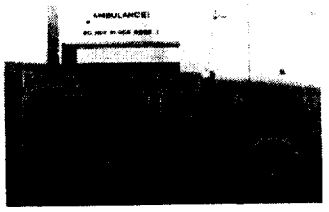
Your Notice of Proposed Rule Making (NPRM) in PR Docket 92-235 replaces Part 90 of your rules with a new Part 88. Part 90 allows for safe use of R/C aircraft and surface models by keeping 10 Khz spacing between fixed commercial users and frequencies used by R/C enthusiasts. The new Part 88 will allow mobile users on frequencies within 2.5 Khz of frequencies available to us, eliminating safe use of at least 31 of the 50 channels on 72 MHz band and 10 of the 30 frequencies on 75 MHz band now used by hobbyists. In fact, more channels will likely be affected.

If adopted the new rule will greatly reduce the usability of frequencies currently assigned for R/C model use and increase the risk of accidents and attendant liability. It will create a significant safety risk and severly damage a billion dollar industry. Loss of R/C sales will hamper my ability to stay in business to sell other hobby items as well.

I urge you to reconsider this action. Keep 10 Khz spacing between all frequencies on 75 MHz and 72 MHz frequencies available for safe use by R/C enthusiasts. Please don't eliminate this hobby that has grown tremendously over the past 30 years and has so much investment of money and enjoyment of people nationwide.

Thank you for your consideration.

Sincerely,

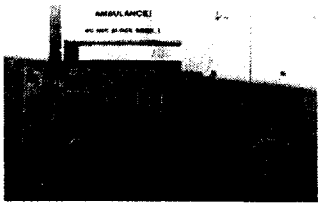


Burns Advance Life Support Ambulance

Serving Harney County since 1953

242 S. Broadway

Burns, Oregon 97720



Phone (503) 573-2320

January 19, 1993

Dear Sir:

The FCC is planning to implement a rule (docket #92-235) which will have a severe adverse impact on all public service agencies. In a nutshell, the rule will force all public service agencies to completely replace all radio equipment by 1996. The cost of a complete replacement of all radios in my own small department would be about $12,000.00 assuming that inflation will not occur. This expenditure represents one-seventh of my yearly operating budget. In short the implementation of FCC docket #92-235 will cause a needless waste of money for no particularly good reason. I ask you to please use your influence to prevent the FCC from adopting this rule until the concerns expressed in the APCO ISSUES STATEMENT (see attached) have been satisfied.

Thank you for your consideration in this matter.

Sincerely yours,

D Geisler

Don Geisler
Director of EMS

Oregon

DEPARTMENT O
STATE POLICE

GENERAL
HEADQUARTERS

TO: PUBLIC SAFETY RADIO USES IN OREGON

SUBJECT: FCC DOCKET 92-235

FCC docket 92-235 has some serious and costly effects on public safety in Oregon,as well as the rest of the nation. The reasoning behind this docket is centered around an attempt to create additional radio channels which are needed in the large metropolitan areas,such as New York and Los Angeles, where all radio spectrum is utilized.

The FCC intends to reduce the occupied bandwidth of existing users of the VHF high band and UHF band to,in effect, produce more channels.The FCC also proposes to reduce base station power output to reduce coverage and allow the reuse of frequencies at a shorter distance that can currently be accomplished.

The effect on Public Safety is dramatic. In 1996 The FCC proposes to reduce power as per the chart in table C-3 (attached). This will reduce talk out range (dispatch to mobile and mobile to mobile through repeaters) by a substantial amount (estimate 30 to 50 %). This could be dealt with by adding additional base stations and simulcast; however, after the docket is adopted all new stations must have an occupied bandwidth of four (4) KHZ. Base stations capable of operating within four (4) KHZ of occupied bandwidth are not compatible with existing radio equipment. This places Public Safety (Police, Fire, Medical, State and Local Governments) in the position of accepting reduced coverage, replacing all mobiles, portables, and base stations prior to 1-1-96; or asking for a waiver of the rules.

Comments are due by 2-26-93 and each agency should file their own set of comments. I have attached a copy of the Associated Public Safety Communications Officers "Issues Statement" for your review.

Please feel free to contact me at (503) 373-7632 if I can be of assistance.

James R. DeRosier
Telecommunications Coordinator
Oregon State Police

Emergency Medical Services
Oregon State Health Division
RECEIVED
JAN 11 1993

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Salem, OR 97310
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II. MIGRATION

A. Time frames are unrealistic and, in some cases, undefined

1. What are time frames for moving existing channel assignments to new channel assignments?

2. What are deadlines for these moves?

B. Section 88.413, Table C-1, Note 2, requires that new systems licensed after the effective date of the new rules must meet new narrowband requirements, even though equipment may not be available for these 5.0/6.25 kHz channels.

C. Section 88.245 is ambiguous. It discusses retention of frequencies after a system must meet the time requirements of 88.433 only in terms of "channel pairs."

1. No requirements on migration for simplex systems.

2. No rules on which portion of the old assignment is to be occupied by the existing licensee and which is available for new use.

D. While increases in spectrum efficiency are important, land mobile communications require a very high quality of service. This quality requirement is generally higher for public safety services and must not be compromised for the sake of spectrum efficiency.

Top engineers with leading United States public safety communications equipment manufacturers have provided the following information regarding proposed changes to existing equipment to support narrow band operation:

1. Reduced transmitter bandwidth will require a transmitter power increase of 20% to maintain equivalent range.

Reduction in transmitter bandwidth will have an adverse effect on receiver signal to noise by the ratio of 3/5 or 4.4 dB. Without corresponding improvement in receivers, performance will be degraded by a like amount. Adjacent channel protection interference ratio (ACIPR) is a function of both the transmitter and receiver, and must be calculated accordingly.

2. Received audio volume will also be reduced 40% to 60%, requiring audio gain (amplification) to be increased. Increased amplification also increases noise which may effect intelligibility. Many public safety agencies scan a number of frequencies, often from other local agencies. This is an issue of officer safety for many police agencies, especially those with overlapping jurisdiction. If all agencies being scanned do not reduce deviation simultaneously, output volume will vary greatly between channels making this feature unusable.

   Available audio recovery power available in portable and mobile units used in high noise environments (police crowd control, fire apparatus, etc) may not be sufficient to allow radios transmifting with reduced deviation to be heard by the user.

   Most current receivers do not use the concentrated or "lumped" circuit designs that allowed earlier receiver IF bandwidths to be easily reduced when channel widths were reduced in the past. Additionally, these integrated designs have been optimized for several characteristics, including selectivity, sensitivity, desensitization, and IM rejection. Changing one part of a design impacts all other characteristics. It is therefore impractical, if not impossible, to reduce the bandwidth of today's receivers.

   Reduced deviation will remove approximately 50% of tone squelch decoder margin above threshold of detection. This will lead to system failure.

3. It may be possible to reduce deviation on some older transmitters by a field adjustment. Equipment manufactured since the early 1980's utilizes different technology; some will not have sufficient adjustment capability for deviation reduction to required levels. This limitation is equipment-specific and must be determined by each manufacturer.

4. Many of today's transmitters are type accepted by the FCC for a single (or defined range of) power output(s). Attempts to reduce output power below these levels to comply with Section 88.429 will most likely result in spurious emissions.

5. There is no assurance that late model equipment using synthesized frequency control can shift to the offset frequencies required in the new table of allocations. Much, if not most, of the newer equipment will not be capable of shifting.

6. Digital encryption will not work with reduced de-

7. Reduced deviation at the initial stage of implementation will render public safety paging receivers unreliable, if not inoperative, as they are designed to operate at the full 5 kHz.

   Commercial paging frequencies are grandfathered at 5 kHz, necessitating development of a special product for public safety paging for the vital purpose of alerting emergency police, medical, and especially fire personnel.

8. New offset frequency requirements and more stringent frequency tolerances will render obsolete most current test equipment.

E. There is no apparent graceful migration path or means for old equipment to communicate with new 5.0/6.25 kHz equipment, thus necessitating complete change out of systems.

   1. There is no interoperability during changeover period (which could be several years) as different agencies change on different schedules. Project 25 spent extensive resources to research migration schemes and provide both backward/forward interoperability which is negated by this proposal.

   2. The interoperability impact will, in most cases, render mutual aid plans unusable throughout the changeover period. In states that are large both geographically and by population (California, Florida, Texas, etc.) statewide mutual aid communications will be impacted throughout the transition period as metro areas change early, followed by rural areas many years later.

F. Section 88.231, as written, precludes mobile relay operation as it presently exists in the 150-174 MHz band for the Public Safety Services.

   1. Thousands of public safety systems (city, county, regional and state) now use mobile relays. How can they continue to operate? When must they reduce bandwidth? Vacate current channels? Where can they go?

   2. Designating many new channels as "mobile only" or "low power" has the same effect; 150-174 MHz systems as we know them today will vanish or must undergo dramatic change.

   3. NEW ALLOCATIONS developed from splitting of current public safety channels in the 150-174 MHz band should be paired and assigned for exclusive public safety use.

2. Labor disputes impacting the 3rd party leave public safety with little control, whereas government employees are usually prohibited from striking.

3. Licensees have always been able to contract with a 3rd party to provide communications; with current method, public safety retains control of licenses and, thus, always has frequencies available.

F. Dual rules apply for low power channels. Section 88.909 specifies 2 watt transmitter output provided the antenna does not exceed 20 feet above ground. This could, and does, result in 20 or more watts of ERP with an HAAT of several thousand feet. Section 88.429 limits power to 5 watts ERP if located in excess of 590 feet above HAAT. The potential for interference from quote "low powered stations" can be as much as 10 dB greater than from a conventional station when located at high HAAT.

G. Although it might be contended that public safety gains additional channels by making them eligible in the General Category pool, examination of licenses will show that historically, in instances such as the 150 800 MHz General Access and the TV-shared 470-512 MHz pooled frequencies, public safety accounts for less than 1% of all licenses. Public safety can not successfully compete for channels on an even basis with non-public safety entities due to widely differing channel requirements and funding cycles.

C. The lack of statewide exclusive channels will virtually eliminate the possibility of any wide-area government systems. It will not be possible for states, especially large states like those previously listed, to secure a statewide assignment due to competition for spectrum from other users in the major metropolitan areas.

D. Assigning two channels to an entity that has met the time requirements for narrowband changeover proposed in Section 88.245 will not necessarily provide a usable system unless the entity can make wideband use of both frequencies. Adjacent channel interference could make either or both assignments unusable as individual channels.

F. **Current proposal would actually require more spectrum to provide coverage.** Coverage is required, so users will have to add more transmitter sites to cover current area, plus use additional spectrum (microwave or fixed links) to interconnect these sites. In many cases, the individual agencies will opt for additional frequencies to provide required coverage to avoid the expense of installing simulcast systems, thus requiring two or more times the initial number of channels.

G. **Firm ERP rules can apply at most on a local or regional basis and vary dramatically between regions, especially when topography is considered.**

C. Availability of highly linear amplifiers is an absolute requirement for the narrow bandwidths (5 or 6.25 kHz) being proposed. The question is: when will these be commercially available in a usable size at an affordable price within the required frequency bands?

1. Amplifier power consumption must be considered; linear amplifiers are not power efficient. While this is critical for portable equipment (due to battery service per charge), it is important for environmental and economical reasons in all equipment.

D. Use of Amplitude Modulation Technology

Many of today's sites, both commercial and public safety, are located in congested areas near or on private residence buildings. The use of high power non-constant carrier methods of modulation will result in audio frequency rectification in many of types of household and commercial entertainment equipment. Likewise, communications receivers for these same modulation schemes will be susceptible to interference from household and commercial appliances.

E. Narrowband equipment needs to support trunking & encryption.

1. Public safety encryption and trunking both require transmission of a digital signal on each voice channel. A digital modem would have to be applied for any analog modulation scheme such as ACSSB or SSB-TTIB (SSB-Transparent Tone In-Band).

2. The data rate of encryption and, thus, the quality of encryption, and the features supported on a trunking system, will be limited by the narrow channel.

F. Time frame to implement new equipment.

1. Technology that will be available in the time limits imposed by Docket 92-235 will not meet the requirements of the public safety services.

Table C-3 150-216 MHz ERP/Antenna Height	
Antenna height above average terrain (HAAT) meters (feet)	Effective radiated power (ERP) (watts)
Up to 60 (197)	300
60-75 (197-246)	190
75-90 (246-295)	120
90-120 (295-394)	75
120-180 (394-590)	30
Above 180 (590)	5

(e) 216-220 MHz. Requested transmitter power will be considered and authorized on a case-by-case basis.

(f) 220-222 MHz. The permissible ERP with respect to antenna heights will be authorized in accordance with Table C-4. These are maximum values and applicants are required to justify power levels requested. In this band, Channels 196-200 are limited to 2 watts ERP and a maximum antenna height of 6.1 m (20 ft) above ground. The maximum permissible ERP for mobile units is 50 watts. Portable units are considered as mobile units.

Table C-4 220-222 MHz ERP/Antenna Height	
Antenna height above average terrain (HAAT) meters (feet)	Effective radiated power (watts) [1]
Up to 150 (492)	500
150-225 (492-738)	250
225-300 (738-984)	125
300-450 (984-1476)	60
450-600 (1476-1968)	30
600-750 (1968-2460)	20
750-900 (2460-2952)	15
900-1050 (3444)	10
Above 1050 (3444)	5
[1] Transmitter PEP will be used to determine ERP.	

(g) 421-430 MHz. Base station authorizations in the 421-430 MHz band will be subject to effective radiated power (ERP) and effective antenna height (EAH) limitations as shown in the Table below. ERP is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction. EAH is calculated by subtracting the assumed

(5) Contiguous channels (non-standard bandwidths) may be authorized for systems requiring more than the normal single channel bandwidth provided the system meets the spectrum efficiency standard in § 88.433. If necessary, licensees may, with license mofification, trade channels among themselves in order to obtain contiguous frequencies.

(6) Unless specified elsewhere, channel spacings and bandwidths that will be authorized in the following frequency bands are given in Table C-1.

Table C-1 Standard Channel Spacing/Bandwidth

Frequency band MHz	Channel spacing (kHz) 2	Authorized bandwidth (kHz) 1	2
Below 25	---	---	---
25-50	20	20	20
72-76 Fixed	20	20	20
72-76 Mobile	5	10	4
150-174	5	12	4
216-220	---	---	---
220-222	5	4	4
420-512 [3]	6.25	10	5
806-821	25	20	20
821-824	12.5	20	20
851-866	25	20	20
866-869	12.5	20	20
896-901	12.5	13.6	13.6
929-930	25	20	20
935-940	12.5	13.6	13.6
1427-1435	---	---	---
2450-2483.5	---	---	---
Above 2500	---	---	---

[1] Stations authorized prior to (eff date of rules) must meet this bandwidth requirement by January 1, 1996 and, where applicable, must reduce bandwidth by the appropriate date listed in § 88.433(d) to conform with stations authorized pursuant to Note 2.

[2] For stations authorized after xxxx (eff date of rules).

[3] Bandwidths for radiolocation systems in the 420-450 MHz band will be reviewed and authorized on a case-by-case basis.

§ 88.417 Modulation requirements.

Each transmitter must meet the requirements provided in paragraphs (a) or (b) of this section. The requirements of this paragraph do not apply to