RADIO FREQUENCY

INTERFERENCE TASK GROUP

DIVISION OF VARIAN
301 Industrial Way
San Carlos, California

THE AMERICAN RADIO RELAY LEAGUE, INC.

ADMINISTRATIVE HEADQUARTERS NEWINGTON, CONNECTICUT, U. S. A. 06111

HARRY J. DANNALS
W2TUK, PRESIDENT

VICTOR C. CLARK
W4KFC, FIRST VICE PRES.

NOEL B. EATON
VE3CJ, VICE PRES.

CARL L. SMITH
WØBWJ, VICE PRES.

DAVID H. HOUGHTON
TREASURER

JOHN HUNTOON
W1RW, SEC. & GEN. MGR.

QST
OFFICIAL JOURNAL

RADIO FREQUENCY INTERFERENCE TASK GROUP

Dear Radio Amateur,

This letter and its enclosures are supplied in response to your request for information on radio-frequency interference (RFI). Assembled by the American Radio Relay League (ARRL) RFI Task Group, the material is intended to assist you in providing your neighbors with factual information on RFI, and to suggest steps you and your neighbors can take to resolve RFI problems.

In 1973 the Federal Communications Commission (FCC) received 42,000 RFI complaints. Of these, 38,000 involved interference to home-entertainment equipment. And perhaps most important, 34,000 of these 38,000 complaints would never have come to the FCC's attention if the manufacturers had corrected design deficiencies in their home-entertainment products at the time of manufacture! Miriam Ottenberg's article in the Washington Star-News (Enclosure 1) provides a good overview of the RFI problem, and will make interesting reading for both you and your neighbors.

The FCC's experience with RFI, of course, goes back many years, and as seen in Enclosure 2, they have found over the years that 90% of all television interference (TVI) problems can be cured only at the television receiver. Certainly, if your own television receiver experiences no interference while you are on the air, it is most likely that interference to a more distant television receiver is not the fault of your transmitter. Further, when it comes to audio equipment (phonographs, Hi-Fi's, electronic organs, intercoms, etc.), the only cure for RFI is by treatment of the audio device experiencing the interference (Enclosure 3). After all, there's nothing a radio operator can do to his transmitter which will stop a neighbor's phonograph from acting like a short-wave receiver.

It is clear, therefore, that almost all RFI problems experienced with home-entertainment equipment result from basic design deficiencies. The few small components or filters which would prevent RFI are often left out by the manufacturers in their

attempts to reduce costs, and hence, to reduce the prices on equipment. Manufacturers have asserted that "since only 1% of those who purchase their products will experience RFI, it is not necessary to design equipment so that it will be less susceptible to interference."

That only 1% of the population experiences RFI, however, is clearly an underestimation. The tremendous growth in radio communications over the past decade has brought increasing numbers of transmitters in close proximity to home-entertainment equipment. An example of this growth is the more than one million transmitters now operating on frequencies assigned to the Citizen's Radio Service. Most of these stations are in homes, and thus, are close to television receivers, radios and audio equipment used for home entertainment. As an example of the high density of radio transmitters to be found in urban and suburban areas today, take a look at the enclosed map of Arlington, Va. (Enclosure 4). With situations like this prevailing in many parts of the country, it is apparent that the interference potential to unprotected electronic equipment is considerable, and it is growing every day.

Given the present situation, what can we as radio amateurs do to help the consumer resolve RFI problems he is experiencing? The approach we suggest is one of encouraging the consumer to contact the manufacturers of his equipment, to request that they provide those components and services necessary to eliminate RFI which is a source of annoyance to both of you. This is not to say, however, that we should not assist in resolving RFI problems. On the contrary, we, by virtue of our technical competence, have an obligation to help the consumer. He should be made aware that we will make every effort to cooperate in resolving the problems which exist (for example, by running tests, assisting in writing letters to the various manufacturers involved, etc.), but that ultimately, it is the manufacturers' responsibility to correct those deficiencies which led to the interference being experienced.

Many responsible manufacturers already supply filters for reducing television interference when such cases are brought to their attention (Enclosure 5). A simple letter to the manufacture involved, stating the relevant facts on the interference problem, is all that is usually required to obtain the necessary high-pass filter. If a given manufacture is not listed in Enclosure 5, it is still possible that he will supply a filter; as such, send a letter either directly to him or to the Electronic Industries Association (EIA):

Electronic Industries Association
2001 Eye St., N.W.
Washington, D.C. 20006

In the case of interference to stereo receivers, AM-FM radios, phonographs, Hi-Fi's, electronic organs, and other home-entertainment equipment, it is suggested that a letter be sent to the manufacture or to the EIA. An example of such a letter is shown in Enclosure 6.

Regardless of the problem experienced, please fill out the enclosed form (Enclosure 7) so that the ARRL can accumulate statistics on RFI which will be of considerable use in our contacts with the FCC, EIA, and manufacturers of equipment used for home entertainment.

It may be of interest to know that the interference problem has come to the attention of the Congress of the United States. Further, the Congress is becoming increasingly aware of the manufacturers' responsibility to provide equipment which is not susceptible to RFI.

It has been the intention of this letter, and its enclosures, to provide you with factual information on RFI, and to suggest steps which can be taken to resolve RFI problems. It must be remembered, however, that to be effective, the suggestions supplied must be carried out in an atmosphere of cooperation between all parties concerned...the consumer, the radio amateur, and the manufacturer. Clear presentations of RFI problems, together with respectful requests for help, will be much more effective in obtaining a manufacturer's assistance than will letters demanding help. We, as radio amateurs are uniquely qualified to assist the public in understanding and correcting RFI problems, and we should, of course, continue to put forth our best efforts to resolve amicably those problems which occur in our own neighborhoods.

The ARRL RFI Task Group would appreciate hearing from you, and having your ideas and suggestions regarding the matter of RFI. Those who wish to help in the resolution of the RFI problem will be placed on a special list for future mailings by the Task Group.

Vy 73,

The ARRL RFI Task Group
W4UMF, W1ICP, W4KFC

Enclosures (7)

Washington Star-News

Strange Sounds, Bad Pictures, FCC Headache

By Miriam Ottenberg
Star-News Staff Writer

Fairfax County neighbors of an amateur radio operator threw fish at his door, scrawled obscenities on his wall and snubbed his wife because they blamed him for the strange sounds coming out of their television sets.

The cause of that neighborhood squabble is reflected in more than 42,000 complaints to the Federal Communications Commission last year from people whose television sets, hi-fis, phonographs, stereos, electronic organs, tape recorders, intercoms and radios have delivered unwanted voices or distorted pictures.

IN THE LAST three years, according to the FCC, the number of complaints has doubled as the number of licensed citizen band operators has grown to 810,000 using three to five million transmitters as a growing number of unlicensed operators have flooded the airwaves and as more homes have acquired second TV sets and a wide range of other electronic entertainment devices.

Across the nation, about two-thirds of the complaints deal with interference to TV, but to the Washington area, more complaints center on interference to audio systems such as amplifiers, electric guitars and organs and, especially, hi-fis.

"On several occasions," reported Harold R. Richman, engineer in charge of enforcement in FCC's Washington are a district office, "pastors have reported that mobile units calling their bases have come over the amplifier right in the midst of the sermon.

"IT'S VERY embarrassing. The man doesn't know he's in church and what he says can be heard over what the minister is saying."

Although complainants regularly blame the ham operators or CBers for the interference that tears up their pictures and obliterates their sound, the FCC says that in nine out of 10 cases, the fault is in the receiver and not the sender.

"Those ham operators and the three to five million citizen band radios would not cause interference to television and other home entertainment devices if companies had considered interference problems when they manufactured the sets," said James. C. McKinney, chief of FCC's enforcement division.

"I don't know of any sets being built with filtering devices adequate to screen out unwanted signals. Our present rules don't require manufacturers to do anything along these lines," he said.

"WE TELL them that the man next door is doing nothing wrong," McKinney said. "We gave him a license to transmit and he's doing it properly. We advise them to have a high-pass filter installed on their set to filter out the unwanted signals. But they argue that they don't see why they have to spend money to fix their set when it was all right until their neighbor started transmitting.

"We're left in the middle of an argument we can't win."

As the problems and the protests have mounted, ham operators — weary of being unfairly accused — have urged legislation to require TV sets to be built with adequate filters to reject unwanted signals. Thousands of supporting letters from across the country reached Rep. Charles M. Teague, R-Calif., after he introduced legislation to require that radio and television receivers meet FCC standards for filtering out interference.

AMONG enthusiastic supporters of the measure was the Prince Georges County Council, which had been told about interference problems during its hearings on antenna heights.

In a resolution sent to Teague and Maryland Congressmen, the council urged passage of the Teague measure to benefit TV owners by eliminating the possibility of interference and aiding the general public "by allowing the full benefits of amateur radio to be realized in an atmosphere free of contention over alleged interference."

"It's just a coil device that could be installed easily in the sets," commented Council Chairman Francis B. Francois. "I think if people knew the truth, they'd demand that manufacturers design their sets to eliminate interference. Amateur operators are being unfairly blamed. The real cause is improper manufacture of the sets."

Teague died in January before his bill reached the hearing stage. Now, Rep. Torbert H. Macdonald, D-Mass., chairman of the House Commerce subcommittee on power and communications, has told the Star-News that there is considerable opinion that the FCC can require the manufacturers to put the necessary filters into television sets without additional legislation.

HE SAID he would explore the problem with the new FCC chairman Richard E. Wiley, and "if he says he needs legislation, I have no objection to putting it in although it's simpler and speedier if it can be done without Congress ordering it."

Asked the opinion of the industry, a spokesman for the Electronic Industries Assn. at first said that the association recommended that manufacturers not add interference rejection devices to television sets where less than one percent of customers have problems.

The association said it recommended that manufacturers make filters and information available on a local, individual basis.

Later, after learning that the interference problem is rising rapidly, Eugene J. Koschella, assistant vice president of the association's consumer electronic group, said the association has asked the FCC to send representatives to its service committee meeting this week to recommend possible solutions to the more frequent problems.

"Apparently the wide growth in over-the-air broadcasting, CB, ham, two-way radio, increased power AM and FM stations, etc., warrant a fresh look into our positions," Koschella acknowledged.

ALTHOUGH Koschella said major manufacturers provide free filters for complaining TV owners, those seeking built-in filters argue that even free filters require a $15 service call for a technician to install them.

And in some cases, manufacturers have warned that if a TV owner installs the filter himself, he'll lose his warranty.

Dr. Theodore J. Cohen, a senior research scientist and project manager for an electronics group and a licensed amateur radio operator since he was 12, has spearheaded the campaign for legislation to guard against unwanted signals.

He has proposed legislation that goes beyond the Teague bill to give the FCC authority to regulate all audio and radio-frequency receiving devices so their susceptibility to interference is reduced.

Without that legislation, the FCC has no authority to deal with interference problems plaguing such home entertainment devices as stereos, electronic organs, hi-fis and tape recorders.

Currently, the FCC is trying to cope with interference problems by telling complainants, that their own receivers are the source of their problems and supplying information they can give their TV or audio serviceman to get rid of interference.

"WE SEEK ways to resolve these problems without sending out technicians we don't have," McKinney explained.

He pointed out that the FCC's enforcement force today numbers 460 people — five less than in 1948 — before television grew to its present 119 million sets and before the citizen band was created.

"I'm not making a plea for more men but for an end to what is probably our biggest problem — interference to home entertainment devices, unnecessary interference," he said.

FEDERAL COMMUNICATIONS COMMISSION
FIELD ENGINEERING BUREAU

STATEMENT TO TELEVISION RECEIVER OWNER

The Federal Communications Commission has received your complaint concerning interception of unwanted radio signals from another radio station and you have requested investigation of the condition. The FCC does not have staff and facilities to investigate all cases involving interception of unwanted radio signals which affect television reception. Television receivers are not designed by the manufacturers to work in all cases in the presence of strong signals from other radio stations. Under these circumstances additional treatment to your television receiver will probably be required to correct the condition. Commission experience shows that 90 percent of the cases of this nature require treatment of the receivers rather than treating the transmitting equipment at the transmitting station. Interception of unwanted signals which disrupt television reception can be very annoying. In order to restore good reception as quickly as possible, it is important to recognize that the solution of the problem will, in most cases, depend on corrective treatment to your television receiver.

Your television serviceman should be able to resolve your problem with a signal rejection filter or other technical treatment to your receiver. We urge that the matter be settled locally without assistance of the FCC. It is suggested that you furnish your serviceman with the attached sheet.

Enclosure (2)

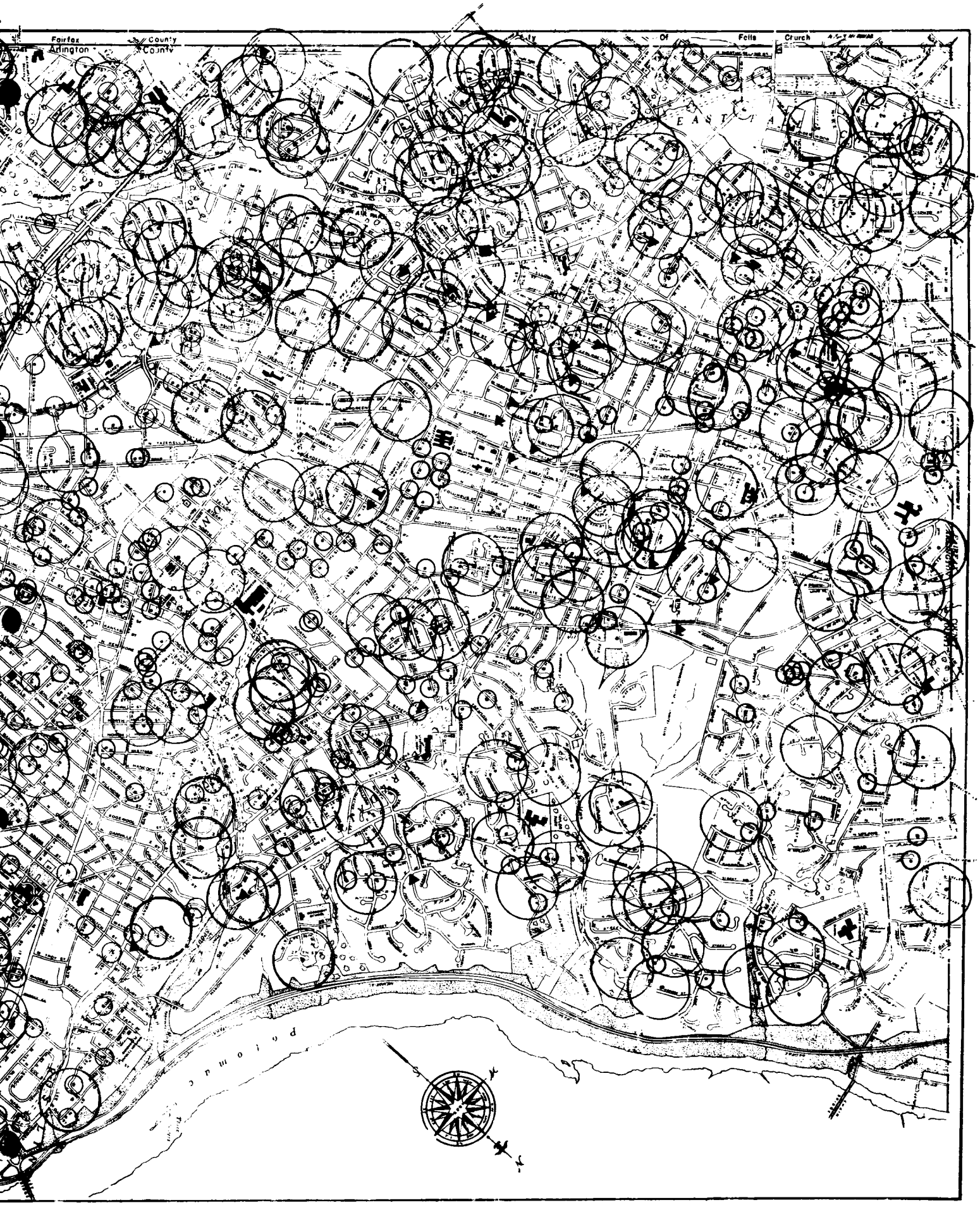
NOTE TO SERVICEMAN

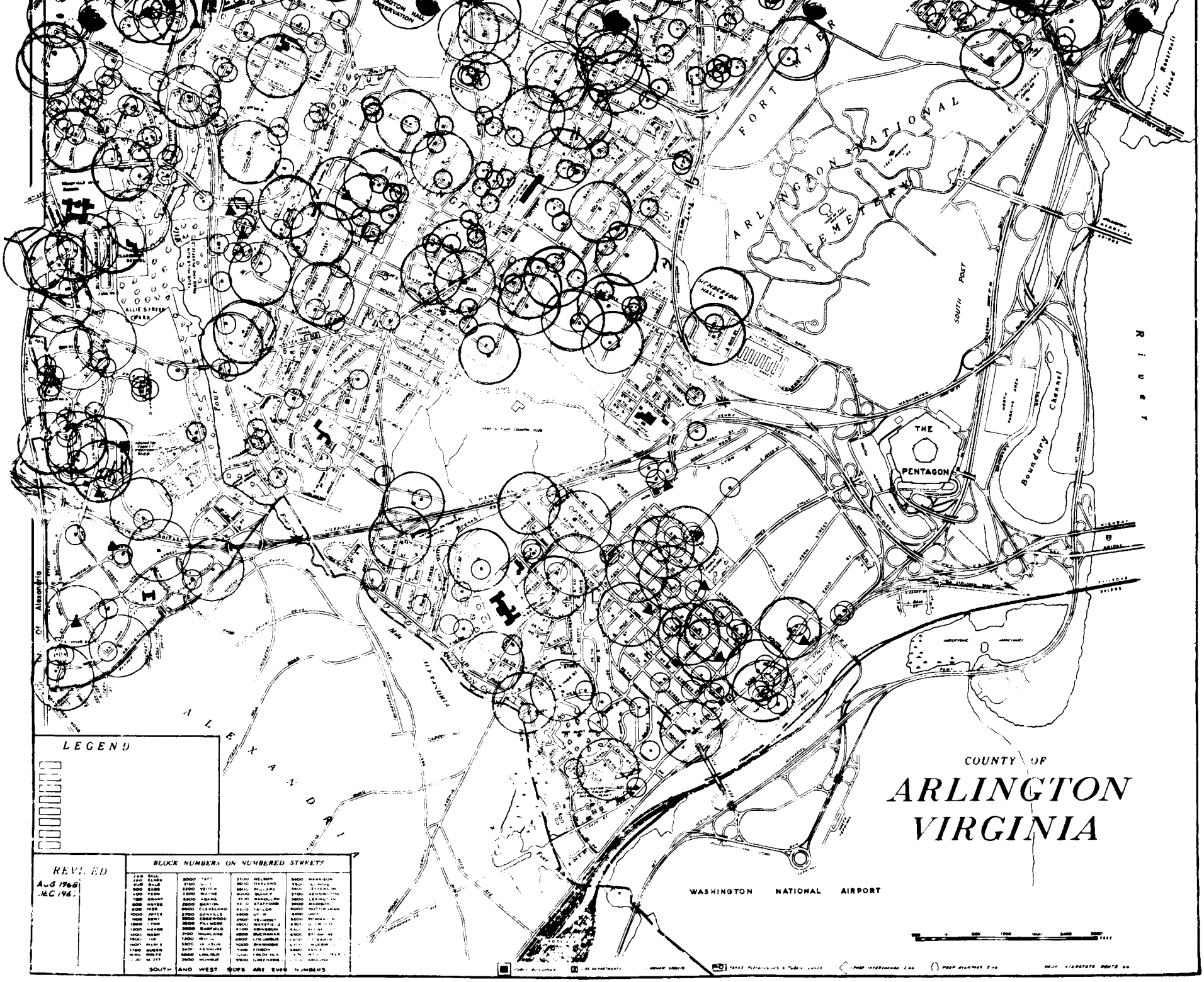
The data received from the complainant indicates that the interference problem which is being experienced is coming from a nearby station below 54Mc/s or an FM broadcast station in the 88 to 108 Mc band. If the station is below 54 Mc/s or you are unable to identify the station, try a good quality high pass filter across the antenna terminals of the television set. If the interference is from an FM broadcast station, try an FM band reject filter. High pass filters and FM band reject filters, with good rejection characteristics, are listed below.

High Pass Filters		Remarks
Make	Model	
R.L. Drake	TV-300-HP	
Finco	3013	

FM Band Reject Filters		Remarks
Make	Model	
JFD	TR-FM	General use, 10 db loss on Channel 6
Drake	300 FMT	" " " " " " " "
Finco	3006	" " " " " " " "
Drake	300 FMS	Especially useful for interference from stations in the low end of FM band where reception of Channel 6 is desired.

In about 50 percent of the cases, a filter on the antenna terminals of the TV receiver will not fully remove the interference. There are a number of other possibilities: (1) the filter is not effective at the antenna terminals, place it at the tuner input terminals; (2) the filter may have insufficient rejection ability to reject the interfering signals sufficiently; two filters in series may be needed; (3) cross modulation may be occurring in an antenna signal booster amplifier generating a signal that can't be removed by the filter at the receiver; place the filter in front of the booster or remove the booster; (4) the antenna and/or lead in cable may have corroded joints causing cross modulation and thus generating signals that can't be removed by the filter; repair the antenna system or install new components as needed; (5) the receiver may be subject to audio rectification in the input of the first audio stage; a bypass condenser of .005 uf from the grid of the first audio stage to ground will usually solve this problem. (Treatment applies to tube type receivers only; consult the manufacturer concerning solid state receivers.)


Fairfax
County
Arlington
County
Of
Falls
Church
EAST
Potomac


LEGEND
REVISED
AUG 1966
DEC 1967
BLOCK NUMBERS ON NUMBERED STREETS
SOUTH AND WEST SIDES ARE EVEN NUMBERS
COUNTY OF
ARLINGTON
VIRGINIA
WASHINGTON NATIONAL AIRPORT
THE PENTAGON
FORT MYER
ARLINGTON NATIONAL CEMETERY
SOUTH POST
Boundary Channel
Potomac River
ALEXANDRIA
City of Alexandria

Comments on Map of Arlington, Virginia

The attached map of Arlington, Virginia, A Washington, D.C., suburb, helps to convey a better appreciation of the burgeoning RFI problem. Prepared from FCC licensing records approximately a year ago, the map shows amateur stations as 200-foot circles, and Citizen's Radio Service stations as 50-foot circles. That RFI can be experienced well outside these zones is well known to amateurs, and the areas represented by the circles are for comparison purposes only. The triangles depict fixed stations in the Land Mobile Service, although not all of them are indicated. Not shown are military radio installations, microwave relay stations, commercial repeaters, broadcast stations, experimental stations, or mobile radio stations, which number in the hundreds in this area.

It is readily apparent that no electronic device in this sample area is immune to the likelihood of strong near-field radiation from a radio transmitter of some kind. Yet Arlington, Virginia, is but an example of a situation which is becoming increasingly serious in every part of our country, and indeed, the world.

The great and growing density of radio transmitting stations appears either to have been thus far underestimated or largely disregarded by the manufacturers of RF-vulnerable electronic equipment. Even today the argument is offered that only a small percentage of such equipment will ever be subject to strong RF fields, and this presumption offered as justification for short-cut equipment designs.

FE Bulletin No. 25
March 1972

FEDERAL COMMUNICATIONS COMMISSION
FIELD ENGINEERING BUREAU
Washington, D. C. 20554

AUDIO DEVICES - INTERCEPTION OF RADIO SIGNALS

This bulletin is intended to assist you with the problem of interception of radio signals by a record player, Hi-Fi or stereo amplifier, tape recorder, public address system, telephone or the audio section of a television or radio receiver where the condition is observed on all channels or all across the dial. In the following discussion these units are referred to as "audio devices."

Audio devices are designed to amplify audio signals such as music or speech and are not intentionally designed or intended to function as receivers of radio signals. The Commission cannot give any protection to audio devices which respond to signals from a nearby radio transmitting station. The problem is not caused by the improper operation or by technical deficiencies of the radio transmitter. Strong radio signal energy gains entry into the audio circuitry, "overloads" the amplifier, is "rectified" and amplified, and appears at the loudspeaker as undesired sound. The only "cure" is by treatment of the audio device. You should therefore, contact a qualified technician, the dealer, or the manufacturer of your audio device (or telephone company for telephone problems) for assistance.

You may very reasonably ask, "Why do I have to do something to my audio device? It works fine except when the radio station is transmitting. Why is it my problem and not the responsibility of the operator of the radio station?" The answer lies in policies concerning the economics of the design and sale of these devices, in a highly competitive market. The device has two objectives: 1) to reproduce a desired audio signal and 2) to reject unwanted signals which may degrade the overall performance of the device, at a reasonable cost.

The state of the electronics art is such that it is possible to manufacture "custom built" audio devices; that is, to install in them complete shielding and special circuits to reject nearly all types of undesired signals. The cost of special designs and circuitry would necessitate an increase in the price of the device.

Perhaps less than one percent of the total number of audio devices in use today will be located near the strong field of a radio transmitting facility whereby the device will respond to radio signals which it is not designed or intended to receive. If it does, it requires the addition of filtering or shielding, or both.

Manufacturers believe it is unfair and unnecessary to burden the mass consumer market with the additional costs of special circuits and designs inasmuch as the number of devices affected is relatively small. Many manufacturers, dealers, and servicemen have devised procedures and processes to improve the radio signal rejection capability of audio devices.

The conditions at a particular location are not necessarily stable. Two situations may arise:

1) The user may live in an area where the average audio device has no difficulty in rejecting unwanted signals present. The situation in the area may be changed by the installation of a new station nearby, or by the appreciable strengthening of existing signals by the increase in power of a given station. Under these conditions, the situation has changed from that of a location in the ninety-nine percent category where no special treatment of the unit is required to that of the less than one percent category where special treatment becomes necessary.

2) The user may reside in an area that is in the ninety-nine percent category having no strong unwanted signals and later move into an area where strong radio signals are prevalent. The situation has then changed from that of being located in the ninety-nine percent category where special treatment of the unit is not necessary, to the less than one percent category where special treatment is needed.

Information concerning the foregoing is not necessarily widely distributed or fully recognized by all manufacturers, dealers, and servicemen. The statement of a salesman or dealer that he sells a good quality device, or that there is nothing wrong with the unit, is not enough and avoids the issue. Persons in possession of an audio device not capable of rejecting radio signals must fully recognize the situation involved. An audio device may perform the task for which it was designed with excellence and still require special treatment to improve its capability to reject strong radio signals in some localities.

<u>You are urged to bring this information to the attention of your serviceman, dealer, or manufacturer of your equipment</u>.

High-Pass Filters Available

Manufacturer	Where to Write	What Filter Supplied	Notes
Motorola	Consumer Products Div. Consumer Relations Dept. 9401 West Grand Ave. Franklin Park, IL 60131		
Heath	Benton Harbor, MI 49022	1. Drake TV-300-HP, or 2. reimbursement for locally-procured filter, upon receipt of invoice	
Olympic International	89-89 Union Turnpike Glendale, NY 11227	Drake TV-300-HP	
Westinghouse Electric Corp.	Portable Products Div. P. O. Box 333 Edison, NH 08817		Westinghouse no longer makes TV sets
RCA Sales Corp.	600 North Sherman Drive Indianapolis, IN 46201	Drake	
TMA Company	1020 Noel Avenue Wheeling, IL 60090		Muntz TV TMA TV Howard Stereo
Magnavox	7 Regional Service Centers East Rutherford, NJ; Atlanta, GA; Westlake, OH; Skokie, IL; Dallas, TX; Torrance, CA; So. San Francisco, CA	Drake	
Emerson	Emerson Television Sales Corp. Jersey City, NJ 07302		

Enclosure 5

Manufacturer	Where to Write	What Filter Supplied	Notes
Philco	Consumer Service P. O. Box 3635 Philadelphia, PA 19125		
Zenith	Service Department Zenith Sales Co. 5801 W. Dickens Chicago, ILL 60639	Zenith Part No. S58500(TV) S58510(FM)	
Sylvania	Customer Service Sylvania Entertainment Products Group 700 Ellicott St. Batavia, NY 14020	Drake 300	
Sears	Department 698/731A Staff Offices Sears, Roebuck 925 S. Homan Ave. Chicago, IL 60607		

Note! -- Whenever writing to a TV set manufacturer about a TVI problem, supply complete details, including the model and serial number of the TV set involved, the name and address of the TV set owner, the name and address and call letters of the amateur involved, and particulars on the interference problem (channels affected, frequency of amateur transmitter, sound or picture affected, distance between TV set and transmitter).

ARRL, March 1971

1234 Someplace St.
Some City, USA 98765
23 June 1977

Stereo Manufacturers, Inc.
7654 Speaker Street
Anywhere, USA 34567

ATTN: Technical Service Department

Dear Sir:

I recently purchased a Stereo Manufacturers Model A234 stereo (Serial Number Y67-76) with J-55 speakers. I am pleased with the general performance of the unit except that it is highly susceptible to radio-frequency interference. The signal from a neighboring short-wave radio station causes strong interference regardless of the source selected (phono, FM, AM). The signal masks the radio's entire dial range, and varying the volume control has no effect whatsoever on the intensity of the interference.

The owner of the short-wave station has been cooperative, but he says that the problem is inherent in the basic design of the stereo's circuitry. As such, there is nothing the radio operator can do, it would appear, to correct the situation.

I understand from reading a bulletin published by the FCC (FE Bulletin No. 25) that many manufacturers have procedures to improve the radio signal rejection capability of their products, and that the consumer is urged to bring interference problems to the attention of the manufacturer. As such, I ask for your assistance in eliminating this most aggravating problem.

Sincerely yours,

John Q. Public

cc: Federal Communications Commission
1919 M St., N.W.
Washington, D.C. 20554

Electronic Industries Association
2001 Eye St., N.W.
Washington, D.C. 20006

American Radio Relay League
225 Main St.
Newington, Conn. 06111
(ATTN: RFI Task Group)

Enclosure 6

Report of Radio Frequency Interference (RFI)
(Please Print or Type)

The purpose of this form is to assist the American Radio Relay League (ARRL) in collecting information on radio-frequency interference (RFI). Such information, and the statistics to be derived therefrom, will be of considerable help to the League in its contacts with the Federal Communications Commission, and with various representatives of the electronic's industry... contacts which we hope will lead to the elimination of RFI as a source of annoyance to both the consumer and the radio operator.

Type device_____(Television, Radio, Hi-Fi, Tape Recorder, Phonograph, Electronic Organ, Intercom, Other (Specify)).

Manufacture_____

Model No._____ Serial No._____

Description of Interference (picture, Sound, Channels affected, Effect of varying volume control, etc.):

Other devices in the same location experiencing interference:

Other devices in the same location which are <u>not</u> experiencing interference:

Distance to radio station's antenna_____

Description of radio station:

Transmitter_____watts Antenna_____

Frequencies of operation for which interference is observed:

Consumer's name and address:_____

_____

_____

Add any remarks you may have on the reverse side of this form.
Mail form to: ARRL RFI Task Group, ARRL, 225 Main St., Newington, Conn. 06111

Enclosure 7

Comments on
Radio-Frequency Interference (RFI)

Many interference problems could be eliminated with adequate shielding and better engineering of the product, but this is not being done. (Thus), passage of (legislation) would assure the consumer of being able to purchase electronic devices that would meel certain standards which would make it free of many present-day interference problems.

Ray Clark, K5ZMS/5

All the PR in the world won't do us a bit of good until the RFI problems are borught under control. Today if you tell someone you're a ham, the comment is, "Oh, you're one of the guys that tear up TV." If the image of amateur radio is to be improved, then the first priority is to get the RFI problems under control. The consumer is entitled to properly designed entertainment apparatus and the use of this apparatus free of interference problems... likewise, the ham or other operator of communications equipment is entitled to the use of this equipment free of interference complaints.

Dan Rasmussen, WA9UBI

An alternative to outright legislation compelling manufacturers to certify performance tests of interference rejection of their product, would be to compel manufacturers to place a disclaimer on their product which has not been tested such as:

"This device is not guaranteed to reject interference when used in the vicinity of strong radio sources."

Katashi Nose, KH6IJ

We hear a lot about what more the Government should be doing to protect the consumer. Usually these proposals involve the creation of new or expanded bureaucracies, at great cost to the taxpayers. The potential of the electronics of radio, it seems to me, has barely been tapped, and I believe that radio amateurs have a tremendous capacity to open up new frontiers, and in the process, to improve the quality of components being merchandised, not only to your group, but also to the general public.

Congressman J. Kenneth Robinson

What is needed is Congressional or FCC action to require all manufacturers of TV sets, stereos, and a-m receivers to build interference suppression into their designs. Some lead bypassing and narrow filters at the input would go a long way toward solving the present problem.

Jim Fisk, W1DTY

Electronic proliferation in the forms of cable TV and non-RF electronic devices that are interference-prone make it imperative that legislation be extended to devices other than the usual "home entertainment" devices. I am enclosing a copy of an Electronic News article (on rf interference to pacemakers) which may be of interest.

Edward Erickson, W2CVW