

## AUTHORITY REGARDING DEVICES CAUSING HARMFUL INTERFERENCE TO USE OF RADIO FREQUENCIES

JUNE 21 (Legislative Day, JUNE 19), 1968.—Ordered to be printed

Mr. PASTORE, from the Committee on Commerce,  
submitted the following

### R E P O R T

[To accompany H.R. 14910]

The Committee on Commerce, to which was referred the bill (H.R. 14910) to amend the Communications Act of 1934 by adding a new section 302 to give the Federal Communications Commission authority to prescribe regulations for the manufacture, sale, offer for sale, shipment, and import of devices which cause harmful interference to radio communications or are capable of causing harmful interference to radio reception, having considered the same, reports favorably thereon without amendment and recommends that the bill do pass.

#### PURPOSE AND SUMMARY OF LEGISLATION

The purpose of this legislation (it is identical to S. 1015 which passed the Senate in the 89th Congress), is to give the Federal Communications Commission adequate authority to deal with increasingly acute interference problems arising from the expanding usage of electrical and electronic devices which cause, or are capable of causing, harmful interference to radio reception. It is designed to empower the Commission to deal with the interference problem at its root source—the sale by some manufacturers of equipment and apparatus which do not comply with the Commission's rules.

As reported, the bill, H.R. 14910\*, would—

1. Give the Federal Communications Commission authority to prescribe rules applicable to the “manufacture, import, sale, offer for sale, shipment or use” of devices which in their operation are

\* An identical bill, S. 1977, was introduced by Senator Magnuson in the 90th Cong.

capable of emitting radiofrequency energy by radiation, conduction, or other means in sufficient degree to produce harmful interference to radio communications.

2. Prohibit the use, import, shipment, manufacture, or offering for sale of devices which fail to comply with regulations duly promulgated by the Commission under the authority given it by the bill.

3. Except from its provisions (i) carriers which merely transport interfering devices without trading in them; (ii) the manufacture of such devices intended solely for export; (iii) the manufacture, assembly, or installation of devices for its own use by a public utility engaged in providing electric service; and (iv) the use of such devices by agencies of the Government.

This final exemption is consistent with the provision in section 305 of the Communications Act that the Commission has no regulatory jurisdiction over stations owned and operated by the United States. It provides, however, that such devices shall be developed or procured by the Government under standards or specifications designed to achieve the common objective of reducing interference to radio reception, taking into account the unique needs of national defense and security. Government agencies are fully aware of the need for suppressing objectionable interference and, in many cases, standards adopted by individual agencies are more stringent than those which the Commission would impose. During your committee's consideration of S. 1015 in the 89th Congress, the Director of Telecommunications Management advised your committee by letter that it was his intent, should legislation be enacted, to issue standards to insure that Government equipment meet as a minimum any criteria or standards laid down by the Federal Communications Commission for non-Government equipment. (A copy of this letter is included in the Appendix to this report.)

#### NEED FOR LEGISLATION

The Federal Communications Commission presently has authority under section 301 of the Communications Act to prohibit the use of equipment or apparatus which causes interference to radio communications and, under section 303(f), to prescribe regulations to prevent interference between stations. Pursuant to this authority the Commission has established technical standards applicable to the use of various radiation devices. At the outset it should be emphasized, therefore, that this legislation is not primarily designed to empower the Commission to promulgate stricter technical standards with respect to radiation devices but rather to enable it to make these standards applicable to the manufacturers of such devices. And, even in those few cases where it would implement its new authority with new or additional technical standards, the Commission has assured your committee that such standards would be developed in close cooperation with industry.

Under the present statute the Federal Communications Commission has no specific rulemaking authority to require that before equipment or apparatus having an interference potential is put on the market, it meet the Commission's required technical standards which are designed to assure that the electromagnetic energy emitted by these devices does not cause harmful interference to radio reception.

This gap in the Commission's authority has undesirable results. Since the prohibition presently falls only on the use of offending equipment, the Commission, in trying to eliminate interference, is confined largely to controlling the use of equipment which interferes with radio communications. In most instances the users have purchased the equipment on the assumption that its operation would be legal. To the extent that any added cost is involved, it seems more equitable to include it as part of the manufacturing cost rather than have the user bear the expense of modifying equipment in order to use it for its intended purpose.

Thus the Commission is presently reduced to an after-the-fact approach to controlling interference. There is no basis for proceeding against an offender until the Commission has discovered the interference, either through its Field Engineering Bureau or on the complaint of some user of radio equipment.

The enforcement problem in this after-the-fact approach is tremendous. For example, the Federal Communications Commission received some 38,000 interference complaints during fiscal 1964. Many thousands of these complaints involved devices which could be easily controlled by Commission rules adopted to implement this legislation. The FCC notes that the investigation, detection, and suppression of interfering devices has been accomplished at the expense of other important enforcement duties.

One example, supplied by the Federal Aviation Agency gives some indication of what can be involved. A serious amount of interference was noted on 243 megacycles, the frequency used for emergency communications, and on 282 megacycles, the homer frequency for the Los Alamitos Naval Air Station. A task force consisting of Navy, FAA, and FCC components undertook to locate the offending devices and to take action to eliminate their effects. This team, using ground vans, automobiles, and a helicopter located 58 garage door openers emitting interfering signals. Those devices were only a small percentage of the total offenders and it took a week to locate that number. The cost of this operation to the Government was about \$100 per garage door opener closed down. This example illustrates the cumbersome, costly, and only partially effective measures that must be utilized to get at and eliminate interfering devices under current law. Enactment of H.R. 14910 will provide a much more effective and less expensive means of eliminating or controlling interference by attacking it at the manufacturing level.

Many manufacturers have cooperated generously in assuming the responsibility to minimize interference problems. However, the responsible manufacturer who cooperates in holding down excessive radiation is at a competitive disadvantage vis-a-vis the marginal manufacturer who prefers to ignore the Commission's rules.

In recent years there has been a marked increase in the number and type of devices capable of causing harmful interference to radio reception. In many instances, radiating devices lie outside the area conventionally associated with radio transmission and reception. They include such devices as high-powered electronic heaters, diathermy machines, and welders which radiate energy either purposely or incidentally to carrying out their primary functions. They also include low-power devices such as electronic garage door openers which, because of poor design or otherwise, emit radio frequency energy beyond

that needed for their functions. Even radio and television receivers may also emit some radio energy.

The cumulative effect of all this undesired radiation is most apparent in large metropolitan areas. Especially in peak periods of operation of radiating devices, such areas are blanketed by a "radiation smog" which makes it increasingly difficult for many users of radio communications to obtain interference-free reception.

This radiation problem is most serious in vital areas where radio is used for safety purposes, such as in air navigation control. In a number of instances, the Federal Aviation Agency has issued notices informing pilots that certain radio navigation devices are not usable in particular quadrants because the interference caused by industrial equipment makes these "navaids" unreliable. Problems in this area pose a genuine threat to safety of life, and as the volume of air traffic increases, this threat will become more acute.

An important example of interference to radio communications occurred in December 1965 at the time of the Gemini 7 space flight. The U.S. Government went into court and received a temporary restraining order against a manufacturing company in Corpus Christi, Tex., on the grounds that certain equipment at the plant, including the ignition system of a winch truck used for lifting steel, was interfering with the communications between a tracking station at Corpus Christi and the Gemini 7 spacecraft.

To police and fire departments and others using radio for safety purposes, interference could cause error or delays affecting the preservation of life and property.

To radio listeners and television viewers, such excessive radiation also means the reception of distorted and garbled signals, or fluttering images, or pictures of a technical quality less than that possible when interference is under effective control.

To those who use radio for industrial communications services, the cumulative effect of undesired radiation means increased disruption of communications services.

And, finally, to those users of radio whose operations must be conducted under conditions of relatively low-background interference (i.e., for the Commission's monitoring activities, the operation of military communications systems, or radio astronomy observations), high levels of undesired radiation force the abandonment of geographic areas of high interference, or require special efforts to detect radiating devices which are causing harmful interference. Both of these alternatives impose additional costs of operation on the Government itself.

#### GENERAL STATEMENT

In the 89th Congress, Senator Magnuson, chairman of the committee, introduced S. 105 at the request of the Federal Communications Commission. The Subcommittee on Communications held hearings on the bill on June 23, 1965. At those hearings the FCC, the FAA and others testified in support of the legislation.

The Associate Administrator for Programs, Federal Aviation Agency, strongly urged enactment of the bill, noting areas in which radiofrequency interference can affect aircraft navigation and communications, and the resultant unfavorable impact on air safety. Mentioned particularly were radio navigation aids, instrument landing

systems used in adverse weather conditions, and communication between air traffic controllers and pilots. It was pointed out that the FAA also operates numerous other types of air navigation facilities which are susceptible to radiofrequency interference. They include short- and long-range radar, distance-measuring, equipment, TACAN bearing and distance equipment and direction-finding equipment. The FAA in its agency comments supported the bill as did the Office of Emergency Planning. The Federal Power Commission offered no objection to the bill.

Testimony in support of the bill was also presented by the American Radio Relay League, an organization including more than 85,000 U.S. amateur radio operators. Counsel to the National Small Business Association relinquished the time granted for his appearance on behalf of the association's members engaged in the manufacture of radio controls for door operators, but submitted a letter stating that the responsible manufacturers in that industry had no objections to S. 1015.

A statement supporting the bill was filed by Robert M. McIntosh, president, Hallett Manufacturing Co., Los Angeles, Calif. designers, developers, and manufacturers of interference suppression and shielding systems for a variety of engine, electrical, and industrial equipment.

Additionally, letters supporting the bill were received from the National Marine Electronics Association (concerned with radiofrequency interference effects upon safety of lives at sea), and from Mr. G. W. Swenson, Jr., professor of electrical engineering and research at the University of Illinois, Urbana, and staff scientist at the National Radio Astronomy Observatory in Green Bank, W. Va., giving his personal views and the consensus of a group of about 20 radio astronomers and three engineers representing research institutions from all parts of the Nation, who discussed the matter in Washington on June 18, 1965.

Professor Swenson noted the radiofrequency spectrum is a natural resource of enormous economic and cultural value and that it is imperative, in view of the great demands for its use, that it be used with the greatest economy. He stated every effort must be made to eliminate contamination of the spectrum by man-made radio emanations which serve no useful purpose but which arise incidentally from other activities and devices which cause troublesome incidental radiation because of poor design, construction, or adjustment. He pointed out that there exists such a cacophony from many different sources that individual causes often cannot be isolated. He states that man-made radio noise is so prevalent that a radio communication system invariably uses many times the amount of meter power indicated by the natural requirements of the system to insure reception above the noisy background and that this is highly inefficient, uneconomical, and contributes materially to the overcrowding of the radio spectrum.

Additionally, *Electronic Industries*, a trade journal, editorially supported S. 1015 in its July 1965 issue. It said:

In 1960 *Electronic Industries* was first to call attention to the growing problems in RFI (radiofrequency interference). The 10 feature article we published on RFI in that year formed the basis for a special military training course at the Armour Research Foundation. Since then the scope of this subject has broadened considerably. RFI has grown to EMC (electromagnetic compatibility). It has become a

topic for special courses at the University of Pennsylvania as well as Massachusetts Institute of Technology. The National Symposium on Electromagnetic Compatibility, held in New York City last month, attests to the growing interest and concern in this area.

\* \* \* \* \*

Electrical/electronic devices such as heating pads, motors, razors, radios, tape recorders, and SCR's for control devices, and so forth, are creating unwanted radiation. Steps have been taken with some TV receivers under "good neighbor" policy to reduce spurious radiation. All devices should be under some effective control. \* \* \* Let's look at electromagnetic radiation as a natural resource that should be nurtured and conserved in every way possible. Senate bill, S. 1015, now before Congress would grant broad power to the FCC to regulate unwanted radiation. We believe this is a constructive step in the right direction.

During the course of its deliberations on S. 1015, the committee received a letter dated July 8, 1965, from the Electronic Industries Association, a trade group representing, among others, manufacturers of radio and television receivers. That letter indicated that while EIA was acutely aware of the need for appropriate controls of spurious radiation in order to obtain maximum efficiency from the limited radio spectrum and was sympathetic with the FCC's efforts to limit interference with services licensed to operate within the spectrum, there was no emergency situation requiring immediate action and recommended further conferences between industry and the FCC. Further conferences were held, and EIA by letter dated March 17, 1966, indicated it approved enactment of S. 1015. (Correspondence exchanged between the FCC and EIA on the matters discussed are included in the appendix to this report.)

In addition to that exchange of correspondence, the appendix to this report contains an exchange of correspondence between the FCC and representatives of the electric utility industry which also occurred subsequent to your committee's hearings on S. 1015. That correspondence made clear that the FCC did not consider the assembly of a power system from component parts by an electric power company for its own use to be manufacturing within the meaning of the legislation, and that it was not the Commission's intention to require any advance approval, permit, certification, and so forth, before an electric utility undertakes to assemble a power system from component parts or to assemble any of the component parts for its own use.

Subsequently, on May 26, 1966, your committee favorably reported S. 1015 to the Senate, and on June 2, 1966, it passed the Senate. Because of the lateness of the session, however, the House of Representatives did not act on the Senate passed bill.

At the request of the FCC in the 90th Congress, bills identical to S. 1015 were introduced in both Houses. S. 1977 by Senator Magnuson and H.R. 14910 by Congressman Staggers.

The Subcommittee on Communications and Power of the House Interstate and Foreign Commerce Committee held hearings on H.R. 14910 on February 6, 1968. The FCC and the FAA testified in support of the bill. The Bureau of the Budget, the Department of the Treasury,

and the Department of Commerce submitted agency reports in support of the legislation.

On February 27, 1968, the House Committee on Interstate and Foreign Commerce favorably reported H.R. 14910 to the House without amendments, and on March 12, 1968, it also passed the House of Representatives without amendment. H.R. 14910 as it passed the House of Representatives is exactly the same as the bill which passed the Senate in the 89th Congress (S. 1015).

The National Electrical Manufacturers Association (NEMA), by letter of December 6, 1967, expressed the belief that there was no basic conflict with the FCC's intent and reasons for establishing reasonable control over some types of radio interference devices and suggested clarifying amendments. By letter of June 19, 1968, the FCC commented on these suggestions and stated among other things, the following:

The phrase "formulated in consultation with the affected industry representatives" is objectionable for two reasons. First, it may be interpreted as sharing or diluting the Commission's sole authority to make rules under the Communications Act. Second, even if it is not so interpreted, it is unnecessary and, we believe, inappropriate as a statutory requirement. Any rules promulgated in accordance with the statutory authority which [this legislation] would grant would be in accordance with the requirements of the Administrative Procedure Act of 1946 and would be adopted only after public rulemaking proceedings in which all interested parties would have opportunity to comment and submit views. Additionally, the Commission has expressed its willingness to cooperate, as it has in the past, in such industry committees and conferences as may be helpful in achieving the aims of the legislation.

The suggested limitation to devices which cause harmful interference to "commercial, aircraft, and public safety" radio communications is felt to be too restrictive. The Commission feels that the authority given to it by section 302 should be sufficiently broad to permit it to formulate rules relating to any service where interference from these devices is a serious problem. In this regard, it is believed that the language of [this legislation], "reasonable regulations" \* \* \* "consistent with the public interest, convenience, and necessity" is a proper standard.

Your committee has also received agency reports supporting enactment of S. 1977 which is identical to H.R. 14910 from the Department of Defense through the Department of the Air Force, and the Department of Commerce. Those reports as well as other agency reports deferring to the views of the FCC as to the necessity for the legislation are included in the appendix to this report.

#### CONCLUSION

Your committee believes that passage of this bill will improve quality of radio and television reception, especially in those metropolitan areas where there is now excessive radiation. The efficiency of communications service in the industrial radio band will be enhanced. And, most important, some potentially serious threats to safe air navi-

gation and control will be alleviated. Finally, the Federal Communications Commission's efforts in detecting and eliminating harmful interference will be made more efficient. All this will benefit the public, the users of devices which radiate electromagnetic energy, the great majority of manufacturers who presently attempt to avoid harmful interference problems, and the users of radio communications in general.

#### CHANGES IN EXISTING LAW

In compliance with subsection 4 of rule XXIX of the Standing Rules of the Senate, changes in existing law made by the bill are shown as follows (new matter is printed in *italic*) :

#### COMMUNICATION ACT OF 1934, AS AMENDED

##### "DEVICES WHICH INTERFERE WITH RADIO RECEPTION

*"Sec. 302. (a) The Commission may, consistent with the public interest, convenience, and necessity, make reasonable regulations governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications. Such regulations shall be applicable to the manufacture, import, sale, offer for sale, shipment, or use of such devices.*

*"(b) No person shall manufacture, import, sell, offer for sale, ship, or use devices which fail to comply with regulations promulgated pursuant to this section.*

*"(c) The provisions of this section shall not be applicable to carriers transporting such devices without trading in them, to devices manufactured solely for export, to the manufacture, assembly, or installation of devices for its own use by a public utility engaged in providing electric service, or to devices for use by the Government of the United States or any agency thereof. Devices for use by the Government of the United States or any agency thereof shall be developed, procured or otherwise acquired, including offshore procurement, under United States Government criteria, standards, or specifications designed to achieve the common objective of reducing interference to radio reception, taking into account the unique needs of national defense and security."*

#### APPENDIX

Letter from the Office of the Director of Telecommunications Management to Hon. John O. Pastore, dated June 25, 1965 :

EXECUTIVE OFFICE OF THE PRESIDENT,  
OFFICE OF EMERGENCY PLANNING,  
OFFICE OF THE DIRECTOR OF  
TELECOMMUNICATIONS MANAGEMENT,  
*Washington, D.C., June 25, 1965.*

HON. JOHN O. PASTORE,  
*Chairman, Subcommittee on Communications, Commerce Committee,  
U.S. Senate, Washington, D.C.*

DEAR SENATOR PASTORE: I refer to S. 1015, a bill now pending in your subcommittee, which would amend the Communications Act of 1934, as amended, to give the Federal Communications Commis-

sion authority to prescribe regulations for the manufacture, import, sale, shipment, or use of devices which cause harmful interference to radio reception.

While the Commission takes the position, and I believe, properly, that the Communications Act prohibits the use of equipment or apparatus which causes interference to radio communications, it has no specific rulemaking authority under the act to require that before equipment or apparatus is put on the market it must be properly designed to prevent harmful interference. Since the prohibition falls on the use of the offending equipment, it means that the Commission, in trying to control radio interference, is confined to apprehending the users of equipment which in most instances has been purchased in good faith on the assumption that its operation would be legal. This after-the-fact approach is quite inadequate to control the "radiation smog" which makes it increasingly difficult for any user of radio communications to obtain interference-free reception.

This problem of spectrum pollution by unwanted or unnecessary radiations is of increasing concern to the Government and is one of the matters now under study by the Joint Technical Advisory Committee Subcommittee on Electromagnetic Compatibility. While the bill as written would exempt from FCC regulation devices manufactured for use by any agency of the Government, it is my intent, should the bill become law, to issue standards to insure that Government equipment meets as a minimum any criteria or standards laid down by the Commission for non-Government equipment.

I will be glad to testify in favor of the proposed legislation should that be your desire.

Sincerely,

J. D. O'CONNELL.

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Letters exchanged by the Electronics Industry Association with the Federal Communications Commission:

Letter to Senator Pastore, March 17, 1966.

Letter from FCC, March 4, 1966.

Letter to Senator Pastore, July 8, 1965.

Letter from FCC, June 9, 1965.

ELECTRONIC INDUSTRIES ASSOCIATION,  
*Washington, D.C., March 17, 1966.*

HON. JOHN O. PASTORE,

*Chairman, Communications Subcommittee, Senate Commerce Committee, Senate Office Building, Washington, D.C.*

DEAR SENATOR PASTORE: The board of directors of the Electronic Industries Association on March 10 voted to endorse S. 1015 to amend the Communications Act on recommendation of our Consumer Products Division following several conferences with members of the Federal Communications Commission staff.

The reversal in EIA's position on this legislation, about which I wrote to you on July 8, 1965, was based on a letter I received from Mr. Ralph J. Renton, Chief of Engineering of the FCC, a copy of which is attached, assuring us that the Commission will not change its current procedure with respect to imposing limitations on radiation

emissions from radio and television receivers and that no regulations which would impede production of radio and television receivers are contemplated.

As I stated in my earlier letter, EIA approved the objectives of the legislation requested by the FCC but felt that some safeguards or assurances to industry from the Commission were needed. Now that we have such assurance, we are glad to go on record as approving enactment of S. 1015.

Cordially,

JAMES D. SECREST,  
*Executive Vice President.*

MARCH 4, 1966.

6100/T 60.9

Subject: S. 1015.

Mr. JAMES D. SECREST,  
*Executive Vice President, Electronics Industries Association,  
Washington, D.C.*

DEAR MR. SECREST: On February 25, 1966, an informal meeting was held in the FCC office of the Chief Engineer, at which time engineering representatives of the radio and TV industry (via EIA Committee R-4), EIA staff, and FCC engineering and legal staff discussed the subject bill and associated rules and regulations (pt. 15).

The letter is to confirm the general understanding of the staff reached at that meeting. It should be noted that the results of discussion further substantiate the statement in Chairman Henry's letter of June 9, 1965, expressing confidence that the responsible radio and television manufacturing industry desires to control itself within the spirit and intent of the FCC rules and regulations.

Discussion covered the followed specific subjects relative to broadcast radio and TV receivers with the conclusions as noted:

1. *Certification of equipment.*—No change from the current procedure of self-certification by the manufacturer is contemplated by the Commission.

It is further understood that if the subject bill is approved the manufacturers' responsibility for complying with the Commission's rules would be limited to the performance of the equipment as manufactured. It is not anticipated that the manufacturer would be held responsible for equipment modifications once it has been delivered to the consumer.

2. *Sampling (by FCC).*—No change from current procedures is contemplated. The Commission will continue to spot check a limited number of receivers as well as receivers involved in interference complaints.

3. *Measurements.*—The difficulty of making reproducible and correlatable measurements is recognized and joint EIA-FCC efforts to improve measurement methods are underway. In view of this difficulty of measurement, in those cases where there is substantial disagreement between a manufacturer and the Commission regarding an alleged violation of rules, a reasonable attempt to adjudicate the difference will be made by the FCC engineering staff in conjunction with the EIA Consumer Products Engineering Panel.

4. *Sampling (by manufacturer)*.—No change from current procedure is contemplated, nor does the Commission contemplate imposing regulations which would hold up production of equipment.

As a general comment, approval of the subject bill would not result, automatically, in changes to existing rules and regulations. Any changes would still have to go through conventional rulemaking procedures. If the bill is approved, it is the intention of the Commission to proceed to act first in those areas causing the most serious interference problems. As long as the radio and television manufacturers continue the same degree of self-control as they have exhibited in the past, there is little reason to expect the proposed legislation to adversely affect that industry.

Very truly yours,

RALPH J. RENTON, *Chief Engineer*.

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ELECTRONIC INDUSTRIES ASSOCIATION,  
*Washington, D.C., July 8, 1965.*

Re S. 1015 to amend the Communications Act.

HON. JOHN O. PASTORE,

*Chairman, Communications Subcommittee, Senate Commerce Committee, Senate Office Building, Washington, D.C.*

DEAR SENATOR PASTORE: Members of the Electronic Industries Association are deeply concerned with the provisions of S. 1015 to amend the Communications Act and desire to submit the following comments for consideration by your subcommittee and publication in the record of your hearings. I apologize for the delay in filing our comments, but our position on the legislation was not determined finally until July 1 when our board of directors acted on recommendation of our legislative policy committee.

EIA has a long history of cooperating with the Federal Communications Commission, particularly in the area of technical standardization, and is well aware of the serious problems confronting the FCC as a result of spurious or unauthorized radiation. We have worked closely with the FCC staff in controlling radiation emissions of television receivers for a number of years.

Following the introduction of S. 1015 EIA staff members, and representatives of member companies have carefully studied its provisions and, on EIA's initiative, we held a conference with the FCC staff. We also have received a letter of explanation of the bill from Chairman E. William Henry. However, these communications have raised as many questions as they have answered, and our members believe more time is needed to work out with the FCC the basic problems of applying radiation controls before blank authorization is granted to the Commission by Congress.

Following consideration of the legislation and its implications to the electronics industry, the EIA board of directors on July 1 directed me to transmit the following conclusions and recommendations to your subcommittee:

1. EIA is acutely aware of the need for appropriate controls of spurious radiation in order to obtain maximum efficiency from the limited radio spectrum and is sympathetic with the Commis-

sion's efforts to limit interference with services licensed to operate within the spectrum.

2. Many members of EIA believe the FCC has sufficient regulatory power to control unwanted radiation through voluntary standardization practices by manufacturers, and they cite the experience of the radio-television industry as an example of effective action through Government-industry cooperation.

3. The problems of interference caused by spurious radiation, while growing in number, have been known to the FCC and the industry for many years. Thus there is no emergency or recent development which requires immediate congressional approval by Congress of S. 1015.

4. On the other hand, hasty legislative action may result in the imposition of unreasonable regulations on manufacturing which will retard rather than encourage technical developments designed to limit interference from radiation.

5. EIA respectfully suggests that the Communications Subcommittee of the Senate Commerce Committee defer action on S. 1015 and instruct the Federal Communications Commission to confer with industry regarding the problems of spurious radiation and possible methods of controlling it after which a report and recommendations can be submitted to your subcommittee next year.

We believe this delay will result in both a better understanding on the part of all industries concerned of the objectives of the FCC and in the eventual development of a program which will more effectively curb the causes of radiation interference with radio communications outlets and receivers. General agreement between the Commission and industry before legislation is enacted would best serve the public interest.

EIA stands ready to suggest industry representatives to attend a Government-industry conference on radiation at the invitation of the FCC or to serve on a study committee if the Commission prefers this procedure. We believe this procedure will avoid the pitfalls of hasty legislation without unduly delaying the solution of the problem.

Cordially,

JAMES D. SECREST,  
*Executive Vice President.*

FEDERAL COMMUNICATIONS COMMISSION,  
*Washington, D.C., June 9, 1965.*

Mr. JACK WAYMAN,  
*Director, Consumer Products Division, Electronics Industries Association, Washington, D.C.*

DEAR MR. WAYMAN. At your request members of the FCC staff met with your representatives in the Office of the Chief Engineer on June 3, 1965, to discuss the radio interference bills now pending in Congress, S. 1015 and H.R. 5864, particularly with respect to the considerations and criteria that the Commission would apply in rulemaking proceedings if it is given the authority sought in the pending bills. The purpose of this letter is to clarify the purpose of the proposed legislation. The Commission strongly believes that the proposed legislation

would serve the public interest and be to the best interest of the responsible manufacturer. Since we know from past dealings the high degree of responsibility of the manufacturers comprising your association, we would hope that they would cooperate in securing passage of this much-needed legislation.

On June 5, 1958, Senator Magnuson wrote to Chairman Doerfer relative to the problem of interference and sought the recommendations of the Commission for legislative action, citing the Commission's responsibility to Congress to transmit recommendations that are deemed to be necessary or desirable. These bills currently pending are the result of our recommendation.

Under present law, the Commission prescribes by rule the extent to which electrical equipment must limit the emission of radiofrequency energy in order to prevent interference to authorized radio services. The regulations promulgated by the Commission under the Communications Act of 1934, as amended apply only to the users of equipment. The Commission has no authority to regulate the manufacture, shipment, or sale of equipment capable of producing interference to radio reception.

The purpose of the pending bills is to extend our authority and thereby permit the Commission to apply its regulations directly to the manufacture and sale of the equipment. Thus, the fundamental difference between the existing and the requested additional authority is to permit regulation of equipment capable of causing interference to radio reception before this equipment is sold to the public. Our criteria and considerations in evaluating the interference potential of such equipment will remain as they now are.

It should be clear that it is manifestly impossible to locate and correct each individual piece of equipment producing interference, whereas it is reasonably feasible to regulate the manufacture and distribution of such equipment. Thus, it is our primary objective to require manufacturers and sellers to comply with the regulations which are now applicable only to the user.

Enforcement of regulations under present law requires the Commission to institute, against offending users, cease-and-desist proceedings wherein the Government has the burden of proving that the equipment in question is in fact being used by the respondent and is in fact causing harmful interference to authorized radio services by emitting radiofrequency energy.

As an example, to establish beyond question in a legal proceeding that a piece of equipment is the source of interference to aircraft communications, our staff is required to ride a plane to observe interference and carefully synchronize with a crew on the ground the observed interference and the operation cycle of the equipment under suspicion to establish that it is this equipment and no other that is causing harmful interference. This is not only an onerous burden to the Commission but it is a highly ineffective method of protecting legitimate radio users from the destructive effects of interference, since the protection is accomplished only after the occurrence of the interference which places life and property in jeopardy until it is found and stopped.

The Federal Aviation Agency has repeatedly complained to the Commission of the dangerous situation created by spectrum pollution, particularly that which results from industrial heaters employ-

ing radiofrequency energy, and has urged a solution which would eliminate the cumbersome procedure now required.

With respect to the manner of regulation that might be effected under the proposed bills, our staff discussed the Commission's past record of regulation in a number of areas: radiation limits for television receivers, our type acceptance program for licensed transmitters, the regulations adopted to implement the all-channel legislation. In each case the Commission has given full consideration to industry problems and has been extremely careful to avoid regulations that would be unreasonable or incompatible with the existing state of the art. As you know, our present regulations have been developed over a long period of time in full cooperation with industry representatives.

We would also stress that any rule which the Commission adopts is subject to well-defined procedures specified by law, in which all interested parties are invited to participate. These procedures call for formal notice of proposed rulemaking, provide ample time for comments and countercomments and, when necessary, provide for oral argument and hearing. During the course of proceedings it is not uncommon to engage in informal Government-industry conferences, equipment tests and observations. We would anticipate that such conferences would be held in the course of rulemaking proceedings to implement the pending legislation if it is enacted.

To summarize, the Commission's past record of reasonableness and cooperation with industry should carry assurance about its future regulations. We can reasonably assure you that the pending legislation, if approved, will be used basically to require compliance by manufacturers and sellers with regulations now applicable only to users. Certainly it is the mutual concern of the Commission and members of your organization that an early and practical solution be found to the mounting problem of spectrum pollution.

While I trust that this will clarify the questions raised in your industry by the pending legislation, the Commission will be glad to hold further meetings with association representatives to work out differences and to delineate clearly the thrust and scope of the legislation and regulations adopted under it.

This letter was adopted on the 9th of June 1965.

By direction of the Commission :

E. WILLIAM HENRY, *Chairman.*

Letters exchanged by Southern California Edison Co. with the FCC on legislation :

Letter to FCC, September 2, 1965.

Letter from FCC, August 31, 1965.

Letter from FCC, August 8, 1965.

Letter to FCC, August 11, 1965.

Letter to FCC, July 23, 1965.

SOUTHERN CALIFORNIA EDISON Co.,  
*Washington, D.C., September 2, 1965.*

Mr. BEN F. WAPLE,  
*Secretary, Federal Communications Commission,  
Washington, D.C.*

DEAR MR. WAPLE: Thank you for your letter of August 31, 1965, confirming the agreement reached at a conference on August 30 with FCC officials, Mr. Cooper and myself.

Mr. Cooper and I sincerely appreciate the courtesy and cooperation received from the FCC during consideration of this aspect of S. 1015.

Very truly yours,

ALAN M. NEDRY, *Special Counsel.*

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FEDERAL COMMUNICATIONS COMMISSION,  
Washington, D.C., August 31, 1965.

Mr. ALAN M. NEDRY,  
*Special Counsel, Southern California Edison Co.,  
Washington, D.C.*

DEAR MR. NEDRY: This will confirm the agreement reached this date at a conference with you and Mr. Cooper attended by representatives from the Commission's staff. At that meeting, certain modifications of the language contained at page 2 of my letter of August 18 were agreed to.

The language to be suggested to Mr. Zapple for possible use in a committee report will now read as follows:

"Your committee has reviewed this legislation and the reasons why such authority is sought by the Federal Communications Commission. Subsequent to the public hearings on S. 1015 held by your committee, representatives of the electric utility industry requested a conference with officials of FCC to clarify certain portions of the proposal and to elaborate upon testimony that was submitted to the subcommittee relating to the possible effect of the legislation upon electric utilities. Concern was expressed by the electric utility representatives that they were perhaps inadvertently included within S. 1015 and they sought assurances that they would not be considered as manufacturers within the meaning of the bill by virtue of assembling from component parts a power system for their own use. They repeated their contention, included in testimony to the subcommittee, that the language was too broad and would permit the FCC to impose a requirement that they obtain a permit, certification, or authorization prior to constructing such power systems.

"After an initial conference, an exchange of letters between the Commission and representatives of the electric utility industry followed. Those letters have been supplied for the record and are included in the appendix of this report. The FCC has indicated that S. 1015 is not aimed at the electric utility industry and that cooperation from that group in alleviating interference problems has been generally excellent. The Commission has indicated it would not consider the assembly of a power system from component parts by an electric power company for its own use to be manufacturing within the meaning of S. 1015. Moreover, it stated that it is not the Commission's intention to require any advance approval, permit, certification, and so forth, before an electric utility undertakes to assemble a power system from component parts or to assemble any of the component parts for its own use.

"The FCC emphasized, however, and the utility representatives agreed, that any change in language to clarify the above matters would not alter any existing authority of the FCC under section 301 of the Communications Act, or the authority granted by new section 302, to proceed against the user of equipment causing interference to radio communications.

"In view of the above, your committee recommends adoption of the following clarifying amendment:

"At page 2, line 13, after the word 'export' insert the following: 'to the manufacture, assembly, or installation of devices for its own use by a public utility engaged in providing electric service,'".

Both you and we should now supply Mr. Nicholas Zapple, communications counsel to the Subcommittee on Communications of the Senate Commerce Committee, with copies of the letters we have exchanged.

Very truly yours,

BEN F. WAPLE, *Secretary.*

FEDERAL COMMUNICATIONS COMMISSION,  
Washington, D.C., August 8, 1965.

MR. ALAN M. NEDRY,  
*Special Counsel, Southern California Edison Co.,  
Washington, D.C.*

DEAR MR. NEDRY: This refers to your letter of August 11 which indicates that we are in agreement as to the language of a possible clarifying amendment to S. 1015.

We agree that it is desirable that any committee report on S. 1015 include language explaining the intent behind the proposed amendment. It is contemplated that you, as well as we, will supply Mr. Nicholas Zapple, communications counsel to the Subcommittee on Communications of the Senate Commerce Committee, with copies of the letters we have exchanged.

We would offer the following language to be suggested to Mr. Zapple, for possible use in a committee report, in lieu of that contained in your August 11 letter. It is our belief that this somewhat more detailed explanation will, together with our exchange of letters, provide a clear and accurate legislative history of the reasons for suggesting an amendment to S. 1015.

"Your committee has reviewed this legislation and the reasons why such authority is sought by the Federal Communications Commission. Subsequent to the public hearings on S. 1015 held by your committee, representatives of the electric utility industry requested a conference with officials of FCC to clarify certain portions of the proposal. Concern was expressed by the electric utility representatives that they were perhaps inadvertently included within S. 1015 and they sought assurances that they would not be considered as manufacturers within the meaning of the bill by virtue of assembling from component parts a power system for their own use. They felt that the language was too broad and would permit the FCC to impose a requirement that they obtain a permit, certification, or authorization prior to constructing such power systems.

"After an initial conference, an exchange of letters between the Commission and representatives of the electric utility industry followed. These letters have been supplied for the record and are included in the appendix of this report. The FCC has indicated that S. 1015 is not aimed primarily at the electric utility industry and that cooperation from that group in alleviating interference problems has been generally excellent. The Commission has indicated it would not consider the assembly of a power system from component parts by an elec-

tric power company for its own use to be manufacturing within the meaning of S. 1015. Moreover, it stated that it is not the Commission's intention to require any advance approval, permit, certification, et cetera, before an electric utility undertakes to assemble a power system from component parts or to assemble any of the component parts for its own use.

"The FCC emphasized, however, and the utility representatives agreed, that any change in language to clarify the above matters would not alter any existing authority of the FCC under section 301 of the Communications Act to proceed against the user of equipment causing interference to radio communications. Moreover, it may be that under particular factual situations, the Commission under S. 1015 would, even in the case of an electric utility company have available to it the option of proceeding against the user under section 301 or new section 302. Thus, it is not intended, for example, that a utility company could use a prohibited device which others could not use or which others could not under S. 1015 manufacture and sell to them.

"In view of the above your committee recommended adoption of the following clarifying amendment:

"At page 2, line 13, after the word 'export' insert the following: 'to the manufacture, assembly, or installation of devices for its own use by a public utility engaged in providing electric service.'

"The Federal Communications Commission and representatives of Southern California Edison Co., and Pacific Gas & Electric Co., have concurred in this proposed amendment."

We await only your further letter commenting on this language. If it is satisfactory, we will then advise Mr. Zapple of the agreement reached.

Very truly yours,

BEN F. WAPLE, *Secretary.*

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SOUTHERN CALIFORNIA EDISON CO.,  
Washington, D.C., August 11, 1965.

Re your No. 6,000.

MR. BEN F. WAPLE,

*Secretary, Federal Communications Commission, Washington, D.C.*

DEAR MR. WAPLE: Thank you for your letter of July 30 expressing further views on the provisions of S. 1015 now pending before the Subcommittee on Communications, Senate Committee on Commerce.

We have reviewed your suggestions with our principals in California. In your letter it was indicated that the FCC does not desire to bring within the scope of this proposed legislation any requirements for the electric utilities to obtain "permits, authorizations, or certification in connection with the construction" of their power systems. To that end, you have suggested the following amendment to section 302(c) as set forth in S. 1015:

"At page 2, line 13, after the word 'export' insert 'to the manufacture, assembly, or installation of devices for its own use by a public utility engaged in providing electric service'."

This suggested amendment should help resolve some of the concern which was expressed by a number of electric utility companies and the Federal Power Commission. However, in order to clarify your intent behind this proposed amendment, we further suggest that it may be

helpful to develop language which could be included as a part of the report on S. 1015, should the subcommittee concur and see fit to report favorably on the bill.

We offer for review the following language:

"Your committee has reviewed this legislation and the reasons why such authority is sought by the Federal Communications Commission. Concern as to the possible sweep of this language has been expressed by representatives of the electric utility industry and the Federal Power Commission. The FCC has assured your committee that it is neither their intent nor their desire to be authorized to regulate the electric utility industry under this legislation. The jurisdiction of the FCC under section 301 of the Federal Communications Act, as amended, is not in any way affected by this legislation. The FCC does not contemplate that the electric utilities would be required, under section 302, to obtain permits, authorizations, or certification in connection with the construction of their power systems, or components of such systems. To that end, it is recommended that S. 1015 be amended to clarify the intent of the FCC. Your committee, therefore, recommends the adoption of the following amendment:

"At page 2, line 13, after the word 'export' insert the following: 'to the manufacture, assembly, or installation of devices for its own use by a public utility engaged in providing electric service,'"

Mr. Cooper and I look forward to hearing from you at your earliest convenience.

Very truly yours,

ALAN M. NEDRY, *Special Counsel.*

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SOUTHERN CALIFORNIA EDISON Co.,  
Washington, D.C., July 23, 1965.

Mr. E. W. ALLEN,  
Chief Engineer, Federal Communications Commission,  
Washington, D.C.

DEAR MR. ALLEN: I appreciate the courtesy extended by you and your colleagues during our discussion of S. 1015 today.

During this conference, your colleagues revised the language proposed by Mr. Cooper and myself to read as follows:

"At page 2, line 13, after the word 'export' insert the following: 'or to the manufacture or assembly of devices for its own use by a public utility company engaged in providing electric service.'"

This was accepted with the understanding that Mr. Cooper and I would clear the suggestions with our principals as quickly as possible.

I have now received the reaction of the counsel for PG&E and the Edison Company and they submit for your consideration the following proposed language: "or to the assembly or use of devices by a public utility engaged in providing electric service."

We would appreciate the opportunity of discussing this suggestion at your earliest convenience.

During the course of our conference on Friday, one of your colleagues expressed interest in reviewing the comments of the FPC on S. 1015. A copy of their views as filed with the Subcommittee on Com-

munications, Senate Commerce Committee, is attached for your information.

I look forward to hearing from you.

Cordially,

ALAN M. NEDRY, *Special Counsel.*

Letters to the Committee on S. 1977 from Government agencies:

Comptroller General of the United States, July 5, 1967.

Federal Maritime Commission, July 6, 1967.

Department of Justice, September 25, 1967.

Department of the Air Force, October 27, 1967.

Department of Commerce, November 16, 1967.

COMPTROLLER GENERAL OF THE UNITED STATES,  
*Washington, D.C., July 5, 1967.*

B-113531.

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
U.S. Senate.*

DEAR MR. CHAIRMAN: Your letter of June 23, 1967, requests our comments on S. 1977, a bill to amend the Communications Act of 1934, as amended, to give the Federal Communications Commission authority to prescribe regulations for the manufacture, import, sale, shipment, or use of devices which cause harmful interference to radio reception.

We have no special information concerning the desirability of the legislation and hence we have no comments with respect to its merits.

Sincerely yours,

FRANK H. WEITZEL,  
*Assistant Comptroller General of the United States.*

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FEDERAL MARITIME COMMISSION,  
OFFICE OF THE CHAIRMAN,  
*July 6, 1967.*

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: This is in reply to your request of June 23, 1967, for the views of the Federal Maritime Commission with respect to S. 1977, a bill to amend the Communications Act of 1934, as amended, to give the Federal Communications Commission authority to prescribe regulations for the manufacture, import, sale, shipment, or use of devices which cause harmful interference to radio reception.

Inasmuch as the bill does not affect the responsibilities or jurisdiction of the Commission, we express no views as to its enactment.

The Bureau of the Budget has advised that there would be no objection to the submission of this letter from the standpoint of the administration's program.

Sincerely yours,

(Signed) JOHN HARLLEE,  
*Rear Admiral, U.S. Navy (Retired), Chairman.*

OFFICE OF THE DEPUTY ATTORNEY GENERAL,  
*Washington, D.C., September 25, 1967.*

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
 U.S. Senate, Washington, D.C.*

DEAR SENATOR MAGNUSON: This is in response to your request for the views of the Department of Justice on S. 1977, a bill to amend the Communications Act of 1934, as amended, to give the Federal Communications Commission authority to prescribe regulations for the manufacture, import, sale, shipment, or use of devices which cause harmful interference to radio reception.

Section 301 of the Federal Communications Act (47 U.S.C. 301) states the intention to maintain control by the United States over interstate and foreign radio transmission. Section 301 authorizes the Commission to prohibit the use of equipment or apparatus which causes interference to radio communications, and under section 303 (f) regulations may be promulgated to prevent interference between stations. Pursuant to this authority, the Commission has established technical standards with respect to the use of various radio-emitting devices. However, the Commission presently has no authority to control the manufacture or sale of such devices.

The proposed bill would authorize the Commission to issue regulations covering devices which are capable of emitting sufficient radio-frequency energy to cause harmful interference to radio communications. The bill goes beyond the present act, which deals only with the use of interfering devices, by making the Commission's regulations applicable to the manufacture, import, sale, offer for sale, shipment, or use of devices which fail to comply with such regulations. The proposed authority would not extend to devices solely for export, devices for use by an agency of the Government of the United States, or to carriers merely transporting devices covered by the measure.

Whether this legislation should be enacted involves questions as to which the Department of Justice defers to the Federal Communications Commission.

The Bureau of the Budget has advised that there is no objection to the submission of this report from the standpoint of the administration's program.

Sincerely,

WARREN CHRISTOPHER,  
*Deputy Attorney General.*

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DEPARTMENT OF THE AIR FORCE,  
 OFFICE OF THE SECRETARY,  
*Washington, October 27, 1967.*

HON. WARREN G. MAGNUSON,  
*Chairman, Senate Committee on Commerce,  
 U.S. Senate.*

DEAR MR. CHAIRMAN: Reference is made to your request to the Secretary of Defense for the views of the Department of Defense with respect to S. 1977, 90th Congress, a bill to amend the Communications Act of 1934, as amended, to give the Federal Communications Com-

mission authority to prescribe regulations for the manufacture, import, sale, shipment, or use of devices which cause harmful interference to radio reception. The Department of the Air Force has been designated to express the views of the Department of Defense.

The purpose of the proposed legislation is as indicated in the above stated title.

Under existing provisions of the Communications Act of 1934, as amended, the authority of the Federal Communications Commission is limited to prohibiting the use of offending equipment. The Federal Communications Commission, therefore, in attempting to control interference, is confined to apprehending the users of equipment which interferes with radio communications. In most cases, these users have purchased equipment on the assumption that it could be legally operated without further modification to suppress spurious radiation. The proposed legislation would give the Federal Communications Commission the authority to control the interference potential of such equipment by requiring that it be designed by the manufacturer to limit its radiation to what the Federal Communications Commission considers to be acceptable values. The proposed legislation would reduce the present enforcement problems faced by the Federal Communications Commission and assure the public of a better quality of reception than is now possible. The legislation would further insure that such radiating equipment is developed to operate in what the Federal Communications Commission considers to be appropriate portions of the radiofrequency spectrum.

The Department of Defense would benefit from the legislation inasmuch as there have been many instances of harmful interference to essential air traffic control services caused by commercially developed equipment and devices which radiate energy in unauthorized portions of the radiofrequency spectrum. The Department of Defense would also benefit from the exclusion clause contained in section 302(c) of the legislation. The clause protects the interests of the U.S. Government and in particular all the military departments which have active programs for the research, development, and use of electronic countermeasure equipment. Such equipment is specifically designed to interfere with the use of the radiofrequency spectrum. In the case of contracts with manufacturers for equipment not intended for deliberate interference, the military departments incorporate military standards which are considered to be adequately stringent to prevent interference.

In view of the above, the Department of Defense supports enactment of S. 1977.

This report has been coordinated within the Department of Defense in accordance with procedures prescribed by the Secretary of Defense.

The Bureau of the Budget advises that, from the standpoint of the administration's program, there is no objection to the presentation of this report for the consideration of the committee.

Sincerely,

ROBERT H. CHARLES,  
*Assistant Secretary of the Air Force,*  
(Installations and Logistics).

GENERAL COUNSEL OF THE DEPARTMENT OF COMMERCE,  
*Washington, D.C., November 16, 1967.*

HON. WARREN G. MAGNUSON,  
*Chairman, Committee on Commerce,  
 U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: This is in further reply to your request for the views of this Department with respect to S. 1977, a bill to amend the Communications Act of 1934, as amended, to give the Federal Communications Commission authority to prescribe regulations for the manufacture, import, sale, shipment, or use of devices which cause harmful interference to radio reception.

This bill would authorize the Federal Communications Commission to make reasonable regulations governing the interference potential to radio communications of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means. The regulations would apply to the manufacture, import, sale, shipment, or use of the devices. The bill would exempt carriers which are not trading in the devices; devices manufactured solely for export; the manufacture, assembly, or installation of devices for its own use by a public utility engaged in providing electric service; and devices for use by a Federal agency. However, the bill would require Federal agencies procuring such devices to utilize criteria, standards, or specifications designed to reduce interference to radio reception, while taking into account national defense and security needs.

This Department recommends the enactment of S. 1977.

Numerous electronic and electrical devices, because of improper design, radiate radiofrequency energy beyond that needed for their proper functioning. This radiation may seriously interfere with radio reception. Some examples of such devices are garage door openers, electronic keys, high-powered industrial heaters, improperly designed radio and television receivers, diathermy machines, and certain kinds of household appliances.

Radiation from such devices not only interferes with television and radio programs but also results in disrupting industrial communication services. A business which depends on clear radio reception often finds interference harmful and costly. For example, the radio dispatched taxicab which does not receive clear reception of instructions may offer less efficient and convenient service to passengers. High levels of excessive radiation may force users of radios whose operations must be conducted under conditions of relatively low background interference to move from large metropolitan areas to new locations in areas of low interference. When radio is used for safety purposes, such as air traffic control, radiofrequency interference may jeopardize the lives of airline passengers.

At present, the Communications Act of 1934, particularly section 301, prohibits use of equipment which causes interference with radio communications, and empowers the Commission to prescribe regulations to prevent interference between stations. The Commission cannot proceed against an offender until the interference has been discovered. Tracing the location and the owner of the interference device after it is purchased is usually difficult even with modern detection equipment. If the offending equipment is located, the Commission must institute proceedings against the user of the devices which cause the radiofrequency interference, and then require him to eliminate the excessive radiation from a device which he may have purchased under the belief

that its use was legal. Moreover, the user must bear the cost of administrative proceedings brought against him.

The proposed new section 302 would afford an additional and more satisfactory basis for dealing with interference to radio communications by approaching the problem directly at the source and apply preventive measures before radiation equipment is sold to the user. The United States is perhaps the only major industrial country which under existing law still cannot approach the interference problem in this way. Moreover, manufacturers who now voluntarily comply with Commission regulations are placed at a competitive disadvantage by the small number of firms which manufacture their products without proper controls to limit harmful radiation. From this point of view, the bill would also be advantageous to responsible manufacturers.

The Commission has assured the industry that it would implement this legislation gradually and only after public hearings and thorough study of all the problems involved. One of such potential problems, to which we specifically invite attention, relates to the limitations on the ability of presently available instruments to measure radiofrequency interference with reasonable assurance of accuracy. Commercially available instruments for measuring radiation give widely varying results and even the measurement capability of the National Bureau of Standards in this respect is quite limited in accuracy. The National Bureau of Standards and the Institute for Telecommunication Science and Aeronomy of the Environmental Science Services Administration have under way the principal and most advanced technical programs in the United States to improve the significance, methods, and accuracy of measurement of electrical noise, to determine the sources, level and extent of man-made electrical interference, and to determine its effects on telecommunication services.

These organizations are uniquely capable and stand ready to provide the needed technical assistance to the Commission in the establishment of criteria and standards. The International Radio Consultative Committee (CCIR) of the International Telecommunication Union has adopted a relevant question, No. 227, on "Limitation of Radiation from Industrial, Scientific, and Medical Installations and other kinds of Electrical Equipment, and study Program No. 227A, on Limitation of Unwanted Radiation from Industrial Installations." These provide an international framework for studies of the technical questions underlying standards. Notwithstanding this measurement problem, which may limit somewhat the ultimate effectiveness of regulations to reduce radiation interference by electronic and electrical devices at the source, we feel that under authority of the bill the Commission, with the assistance of the National Bureau of Standards and the Institute of Telecommunication Science and Aeronomy, in cooperation with industry and affected agencies of the Government, should be able to devise regulations which will result in increased usefulness of the radio spectrum to all users: private industry, scientific research organizations, Government agencies, and the general public.

We have been advised by the Bureau of the Budget that there would be no objection to the submission of our report from the standpoint of the administration's program.

Sincerely,

JOSEPH W. BARTLETT,  
*General Counsel.*