Federal Communications Commission

28th annual report
Fiscal year ended June 30, 1962

With summary and notation of subsequent important developments

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COMMISSIONERS

Members of the Federal Communications Commission

(As of June 30, 1962)

NEWTON N. MINOW, *Chairman*
(Term expires June 30, 1968)

ROSEL H. HYDE
(Term expires June 30, 1966)

ROBERT T. BARTLEY
(Term expires June 30, 1965)

ROBERT E. LEE
(Term expires June 30, 1967)

T. A. M. CRAVEN
(Term expires June 30, 1963)

FREDERICK W. FORD
(Term expires June 30, 1964)

JOHN S. CROSS [1]
(Term expires June 30, 1962)

[1] Succeeded by E. William Henry, Oct. 2, 1962.

A list of present and past Commissioners appears on page IV.

LETTER OF TRANSMITTAL

FEDERAL COMMUNICATIONS COMMISSION,
Washington 25, D.C.

To the Congress of the United States:

Pursuant to section 4(k) of the Communications Act of 1934, as amended, there is herewith submitted the 28th annual report of the Federal Communications Commission.

Though basically a report for the fiscal year ended June 30, 1962, there have been so many important subsequent developments that later material is included to give the Congress more current information.

Of particular note are special chapters dealing with this Commission's relation to satellite space communication and to the national defense; a detailed review of its intensified enforcement activities with respect to broadcasters; its efforts to expand UHF television service; problems posed by the continued mushrooming growth of the non-broadcast radio services; and steps taken to deal with new issues raised in its regulation of telephone and telegraph common carriers.

Respectfully,

NEWTON N. MINOW, *Chairman.*

PAST AND PRESENT COMMISSIONERS

Commissioners	*Politics*	*State*	*Terms of service*
*Eugene O. Sykes	Dem.	Miss.	July 11, 1934–Apr. 5, 1939
Chairman			July 11, 1934–Mar. 8, 1935
*Thad H. Brown	Rep.	Ohio	July 11, 1934–June 30, 1940
Paul A. Walker	Dem.	Okla.	July 11, 1934–June 30, 1953
Acting Chairman			Nov. 3, 1947–Dec. 28, 1947
Chairman			Feb. 28, 1952–Apr. 17, 1953
Norman S. Case	Rep.	R.I.	July 11, 1934–June 30, 1945
Irvin Stewart	Dem.	Tex.	July 11, 1934–June 30, 1937
*George Henry Payne	Rep.	N.Y.	July 11, 1934–June 30, 1943
*Hampson Gary	Dem.	Tex.	July 11, 1934–Jan. 1, 1935
*Anning S. Prall	Dem.	N.Y.	Jan. 17, 1935–July 23, 1937
Chairman			Mar. 9, 1935–July 23, 1937
T. A. M. Craven	Dem.	D.C.	Aug. 25, 1937–June 30, 1944
*Frank R. McNinch	Dem.	N.C.	Oct. 1, 1937–Aug. 31, 1939
Chairman			Oct. 1, 1937–Aug. 31, 1939
*Frederick I. Thompson	Dem.	Ala.	Apr. 13, 1939–June 30, 1941
James Lawrence Fly	Dem.	Tex.	Sept. 1, 1939–Nov. 13, 1944
Chairman			Sept. 1, 1939–Nov. 13, 1944
*Ray C. Wakefield	Rep.	Calif.	Mar. 22, 1941–June 30, 1947
Clifford J. Durr	Dem.	Ala.	Nov. 1, 1941–June 30, 1948
Ewell K. Jett	Ind.	Md.	Feb. 15, 1944–Dec. 31, 1947
Interim Chairman			Nov. 16, 1944–Dec. 20, 1944
Paul A. Porter	Dem.	Ky.	Dec. 21, 1944–Feb. 25, 1946
Chairman			Dec. 21, 1944–Feb. 25, 1946
Charles R. Denny	Dem.	D.C.	Mar. 30, 1945–Oct. 31, 1947
Acting Chairman			Feb. 26, 1946–Dec. 3, 1946
Chairman			Dec. 4, 1946–Oct. 31, 1947
*William H. Wills	Rep.	Vt.	July 23, 1945–Mar. 6, 1946
Rosel H. Hyde	Rep.	Idaho	Apr. 17, 1946–
Chairman			Apr. 18, 1953–Apr. 18, 1954
Acting Chairman			Apr. 19, 1954–Oct. 3, 1954
Edward M. Webster	Ind.	D.C.	Apr. 10, 1947–June 30, 1956
Robert F. Jones	Rep.	Ohio	Sept. 5, 1947–Sept. 19, 1952
*Wayne Coy	Dem.	Ind.	Dec. 29, 1947–Feb. 21, 1952
Chairman			Dec. 29, 1947–Feb. 21, 1952
George E. Sterling	Rep.	Maine	Jan. 2, 1948–Sept. 30, 1954
*Frieda B. Hennock	Dem.	N.Y.	July 6, 1948–June 30, 1955
Robert T. Bartley	Dem.	Tex.	Mar. 6, 1952–
Eugene H. Merrill	Dem.	Utah	Oct. 14, 1952–Apr. 14, 1953
John C. Doerfer	Rep.	Wis.	Apr. 15, 1953–Mar. 10, 1960
Chairman			July 1, 1957–Mar. 10, 1960
Robert E. Lee	Rep.	Ill.	Oct. 6, 1953–
George C. McConnaughey	Rep.	Ohio	Oct. 4, 1954–June 30, 1957
Chairman			Oct. 4, 1954–June 30, 1957
Richard A. Mack	Dem.	Fla.	July 7, 1955–Mar. 3, 1958
T. A. M. Craven	Dem.	Va.	July 2, 1956–
Frederick W. Ford	Rep.	W. Va.	Aug. 29, 1957–
Chairman			Mar. 15, 1960–Mar. 2, 1961
John S. Cross	Dem.	Ark.	May 23, 1958–Sept. 30, 1962
Charles H. King	Rep.	Mich.	July 19, 1960–Mar. 2, 1961
Newton N. Minow	Dem.	Ill.	Mar. 2, 1961–
Chairman			Mar. 2, 1961–
E. William Henry	Dem.	Tenn.	Oct. 2, 1962–

*Deceased

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Report Summary

SPACE COMMUNICATION

History was made when "Telstar," the first experimental active communications satellite, was rocketed into orbit on July 10, 1962—a major step in the research and development program to adopt our knowledge of space science for peaceful use in the field of communication for the benefit of mankind. The satellite station and its associated earth terminals in this country are operated under the terms of FCC authorizations in the Experimental Radio Services.

Telecommunication's most dramatic achievement in recent years quickly scored successes, with the cooperation of the United Kingdom and France, in the transoceanic transmission of pioneer live telecasts, as well as telephone, telegraph, and data. The United Kingdom and France have constructed ground stations and are working closely with the United States in experimentation.

"Telstar," a globe-girdling electronic switchboard, was designed and constructed by the American Telephone & Telegraph Co., and launched by the National Aeronautics and Space Administration. It is the first of a series of experimental active communication satellites, to be orbited and tested in the near future by the United States in cooperation with other nations. These tests are designed to provide a basis for the establishment of a global space communication system which will greatly augment conventional cable and radio facilities, and ultimately make new services possible.

Interest in space communications has been indicated by a number of nations. Ground stations, in addition to those already built, are being constructed in Brazil, Germany, Italy, and Japan. These stations are near completion and will participate in future experimentation.

The way for U.S. participation in a commercial international space communication system was paved on August 31, 1962, when President Kennedy signed the Communications Satellite Act of 1962. This provides for a federally regulated private corporation to plan, establish, and operate a space communication system in cooperation with foreign nations and entities. The corporation is to own the U.S. interest in the satellite portion of the system, and either it or communication common carriers may be authorized by the FCC to establish and operate ground stations in the United States. Voting stock in

the corporation is to be offered to the public with one-half being reserved for purchase by U.S. communication common carriers.

The President will coordinate relations between the several Federal agencies concerned and will supervise the corporation's relationships with foreign governments and entities. He will also appoint 3 of the 15 members of the corporation board. The National Aeronautics and Space Administration will advise the FCC and the corporation on technical characteristics of the system and will provide launching facilities and other services to the corporation on a reimbursable basis. Like conventional common-carrier operations, satellite communication rates and services will be regulated by the FCC under the Communications Act, as well as under the Communications Satellite Act, which places the corporation under more extensive Government regulation than other carriers because of its unique nature.

NATIONAL DEFENSE

The Department of Defense determined that there is no longer need to curb the transmissions of most types of radio stations to prevent their navigational use by enemy planes and guided missiles, but that strengthening the Emergency Broadcast System is vital for emergency communication by the President and other officials. The CONELRAD (*CON*trol of *EL*ectromagnetic *RAD*iation) program, supervised by the FCC, was altered accordingly. The Emergency Broadcast System is being augmented to provide entry points in every State to enable the Chief Executive, wherever he might be, to communicate speedily with the Nation.

Meanwhile, this emergency AM broadcast system is rendering an incidental peacetime service by warning of weather and flood threats, and an expanding system of State Defense Networks (FM) provides emergency communication when normal facilities are disrupted.

In its defense activities the Commission is assisted by national, State, and local industry advisory groups. Members of a National Defense Executive Reserve unit are being trained for assignment with FCC bureaus and offices in event of war.

BROADCAST

Compliance

The year was marked by intensified Commission action to make broadcasters live up to their promises and obligations. In this effort it was aided, in particular, by legislation of 1960 which enables it to impose forfeitures for repeated violations not warranting revocation proceedings and to grant short-term licenses to stations needing closer supervision. Of further help were other laws of that year which, for the first time, made broadcast of "payola" and "fixed" contests illegal.

At the same time, the Commission held broadcasters more accountable to the programing policy it enunciated in 1960, as well as to its long-established technical and other operational requirements.

During and since the fiscal year, 6 broadcast station licenses were revoked or denied renewal; 29 other stations were in revocation or renewal proceedings; forfeitures were levied on 19 stations; and 24 stations are now on short-term licenses. For the first time, programing was the major consideration in two of the license-renewal denials.

Programing

The courts affirmed a Commission action which had denied an application for a new FM broadcast station because the applicant made no effort to ascertain the programing needs of the community it intended to serve, as required by the FCC programing policy.

The Commission concluded the taking of testimony in an inquiry, started in 1959, of TV network programing practices. Separate from that proceeding was an inquiry into local live programing by Chicago TV stations, and another one scheduled for Omaha.

During the year, the Commission warned broadcasters about "teaser" spot advertising and "double billing" for advertising, broadcast of horseracing information helpful to illegal gambling, broadcast of foreign material without announcing that it is sponsored or paid for by foreign governments, and broadcast of a certain health program series without proper sponsorship identification or affording opportunity for opposing views on controversial issues it raised.

Over 12,000 complaint letters were received during the year, which was a substantial increase over 1961. About 35 percent were about programing, mostly objections to excessive crime and violence. There was also a rise in complaints about broadcast editorializing and treatment of public issues under the Commission's 1949 editorializing policy, and equal-time rights of political candidates under section 315 of the Communications Act.

In two particular cases—programs concerning "The Battle of Newburgh" (N.Y.) and "Biography of a Bookie Joint" (Boston, Mass.)—the Commission, in effect, upheld the right of broadcasters to program documentaries on controversial issues as long as they give reasonable opportunity for opposing viewpoints.

General Broadcast Matters

The Commission adopted a new rule which provides, with certain exceptions, that applications for the sale of broadcast stations within 3 years of their acquisition by the sellers will be subject to hearing. During the year, one New York City AM station sold for $10.9 million (the highest price yet paid for a single station) and $10.6 million was paid for a half interest in a Pittsburgh TV station.

The Commission proposed to tighten its multiple-ownership rules by placing stricter limitations on the overlap coverage of multiple AM, FM, or TV stations under the same ownership.

It held that a new CBS network compensation plan for affiliates violates a rule which prohibits agreements that hinder affiliate TV stations from broadcasting programs of other networks. It also proposed rules to require all network affiliation contracts to be made public.

Television

A recent development expected to do more to extend TV service than anything else in that industry's 21 years of operation is a new law requiring, in effect, that future TV sets be made to receive UHF as well as VHF channels. This will come about on April 30, 1964, after manufacturers have had an opportunity to retool and otherwise get ready.

The all-channel TV receiver legislation had top priority on the Commission's program. It is intended to overcome the stagnation in UHF development due, in large measure, to the present dearth of sets to receive the 70 UHF channels, which are the only avenues for TV expansion because of saturation of the 12 VHF channels. At the same time, it is a prod to improvements in UHF equipment and operation.

Of 2,220 TV channel assignments at the close of the fiscal year, 1,537 were open for UHF operation. Only 104 UHF stations were on the air, in contrast to 508 VHF stations. About 100 more UHF stations were formerly in operation but quit because they could not compete economically with VHF stations.

Commercial TV.—Due chiefly to the UHF problem, commercial TV station authorizations increased only four for the year (in contrast to a loss of three in 1961). However, 548 commercial stations were on the air—464 VHF and 84 UHF.

To hasten service on newly assigned TV channels in competition, the Commission permitted joint operation by groups of competitors pending the outcome of hearings. Such interim operation was authorized for Syracuse and Rochester, N.Y., and Grand Rapids, Mich.

TV translators and boosters.—These stations pick up signals of outside TV stations and rebroadcast them to smaller communities and isolated areas unable to support regular stations. Their collective number increased from 1,700 to 2,500 during the year.

Educational TV.—An impetus to noncommercial educational operation is provided by a new law which enables the Secretary of Health, Education and Welfare to make $32 million in matching grants to public and private educational groups to construct such stations.

Channels reserved by the FCC for noncommercial educational operation increased to 309. At the fiscal year end, 64 educational TV stations were on the air—44 VHF and 20 UHF. They include eight educational stations operating on unreserved channels.

The Commission proposed a new class of service to promote educational TV by using certain other channels for sending different subjects simultaneously from a central transmitter to scattered local schools where the signals could be converted for regular set reception.

New York City was provided with its first VHF educational station, and UHF channel reservations were made for extension of State educational TV systems in Florida, Georgia, and Kentucky. Purdue University continued to test airborne UHF transmission to schools and colleges within 200 miles of Montpelier, Ind. Good reception was reported from the two planes which alternate in flying a 10-mile circle 23,000 feet over central Indiana.

Subscription TV.—The first test of subscription TV over the air was started by WHCT(TV), channel 18, Hartford, Conn., on June 29, 1962, after a court upheld the Commission's grant. Another application—KTVR(TV), channel 2, Denver, Colo.—was granted on October 3, 1962. Both were opposed by motion-picture theater interests.

CATV systems.—Because community antenna TV (CATV) systems have spread to compete with regular TV stations, the Commission continues to ask Congress for legislation to give it some authority over CATV systems which hinder regular TV operation and development. In one case it denied an application for additional microwave facilities to serve two CATV systems because it jeopardized the ability of the single TV station in a community to continue operation.

Tall TV towers.—The world's tallest manmade structure is now the 1,749-foot antenna at Columbus, Ga., used jointly by WRBL–TV and WTVM (TV). However, an application is pending for one at Little Rock, Ark., to rise 1,794 feet, and a 2,000-foot shaft is planned for Sioux City, Iowa. TV towers exceeding 1,000 feet in height now in operation total 116.

Frequency Modulation

FM station authorizations reached a new high of over 1,400. The increasing interest in FM is due to inability to squeeze into the congested AM band, opportunity to obtain additional revenue in FM by furnishing supplemental background music and other for-pay services, plus the fact that FM is the only broadcast service yet permitted to furnish stereophonic programs.

All States have FM stations except North and South Dakota. Industry estimates that 14 to 15 million homes now listen to FM.

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In view of the upsurge in FM, and technical and other developments since its birth in 1941, the Commission has completely revised the covering rules and regulations concerning classes of stations, zones, power, mileage separations, etc. At the same time, it looks toward adopting a table of frequency assignments for commercial use by communities somewhat similar to the one for TV.

Commercial FM.—For the first time, the number of commercial FM stations on the air rose above 1,000, and 147 applications for new stations were on file. Over 325 stations held authorizations to engage in multiplexed subsidiary services. Thirteen months after blanket authority was given FM stations to engage in "stereo" broadcasts, 122 were so programing.

Educational FM.—Of 209 authorized noncommercial educational FM stations, 201 were operating. Most of these stations start with low power (usually 10 watts) and increase it when feasible.

AM Broadcast

The Commission ordered a partial "freeze" on new AM stations and major changes in existing ones pending a reexamination of its rules for assignment of frequencies in view of interference and other problems created by the crowding of the AM broadcast band.

AM authorizations were approaching 3,900 and 593 applications for new stations were pending. Stations on the air exceeded 3,700.

Clear channels.—The Commission moved to dispose of the long-standing clear-channel proceeding by designating 13 of them for unlimited-time operation by secondary stations—one to each channel—and withholding action on the 12 other clears pending consideration of use of power in excess of the present 50-kw maximum. Bills were introduced in Congress to prohibit such duplication and favoring or opposing superpower. A House resolution held that the Commission may authorize clear-channel stations to operate with power in excess of the present 50-kw limit and suggested a 1-year moratorium on additional assignments of primary clear-channel stations. On November 21, 1962, the Commission reaffirmed its clear-channel decision and announced that, unless Congress took adverse action before July 2, 1963, it would start making related grants.

Daytime broadcast.—As a result of Commission denial of proposals to extend the operating hours of daytime-only AM stations, bills were introduced in Congress to increase such hours. The House adopted a bill which would allow AM stations to operate their daytime facilities from 6 a.m. until sunset and, additonally, and under certain conditions, between 4 and 6 a.m. The Commission testified that this would seriously disrupt operation of other AM stations in the sunrise and sunset periods. However, the Commission indicated it would explore

possible means of permitting additional hours and, on November 28, 1962, proposed limited pre-sunrise operation with 500 watts power by certain daytime-only stations.

SAFETY AND SPECIAL RADIO SERVICES

The Commission is hard pressed to keep up with the unabated expansion, and its attendant regulatory problems, of more than 40 categories of radio users who now, collectively, exceed 930,000 in number and operate nearly 3¼ million fixed, portable, and mobile transmitters.

The fastest growing single group is the citizens service, which added nearly 100,000 licensees during the year to bring its total to more than 300,000. It employs over 973,000 transmitters for short-range personal and occupational communication of types not accommodated in other radio services. Because many of these individuals are newcomers to radio operation and are unfamiliar with technical and operating requirements, they are responsible for many interference and other policing problems. About 80 percent of them hold class D authorizations, where the minimum age limit is 18. Children as young as 12 years of age are eligible for class C authorizations for use of radio to control model airplanes, etc.

While the Commission's enforcement program for the safety and special services as a whole strives to educate licensees to the reason for rules and the necessity for their adherence, a new law enables it to impose small forfeitures for willful and repeated violations.

Amateur radio stations increased by nearly 15,000 for the year, bringing their total in excess of 237,000.

The marine services, which use radio for ship-to-ship and ship-shore communication, gained over 17,000 stations to make a total of 127,600, with employment of nearly 147,400 transmitters.

Radio provides similar services for aviation, which now has nearly 107,000 aircraft and ground stations, or over 14,000 more than last year. They operate nearly 170,000 transmitters.

The industrial radio services added 15,300 new stations to aid manufacture and other business. This brought their total over 93,000, representing the use of 892,500 transmitters. Proposed "channel splitting" would provide needed additional frequencies for some of these services.

The more than 38,600 stations in the public safety services, a gain of 2,000 for the year, utilize nearly 440,500 transmitters for police, fire and forestry protection, highway maintenance and local government communication. Radio can now be employed to control traffic lights by emergency vehicles in transit. Proposed rules would permit radio signal alarms to alert officials to fires and intruders on public property.

Separation of fire communication from police frequencies, underway for several years, was scheduled to be completed by November 1, 1963.

Land transportation services netted 1,200 stations for the year, bringing its total to nearly 13,300. Because these services are largely mobile, the number of associated transmitters exceeds 369,000. Taxicabs account for 170,000 transmitters. One bus system in a large eastern city has 275 radio-equipped vehicles. All land mobile radio systems have been on notice for several years that they must convert to narrow-band operation by November 1, 1963.

COMMON CARRIER

Telephone

The Bell System continued its high rate of growth, operating 84 percent of the nearly 78 million telephones in use, extending its domestic microwave and coaxial cable facilities (including a new transcontinental cable system), adding ocean telephone cables, augmenting its direct dialing and other electronic automation operations, and offering new services to customers.

Three of the latter are subjects of Commission investigation. They are TELPAK (private line multitype service), WATS (wide area telephone service), and WADS (wide area data service). They affect business and other bulk users.

The Commission approved certain modifications in the separation procedures for apportioning the costs of the Bell System between interstate and intrastate services. This transferred about $45 million annual revenue requirements from intrastate to interstate operations. In consequence, by the end of the fiscal year, 31 States had reduced Bell intrastate rates by $36 million annually.

As a result of FCC initiation, the current average level of prices charged by Western Electric Co. (manufacturing and supply unit of the Bell System) to Bell affiliates were reduced as of July 1, 1961, in the amount of $26 million, followed by a further reduction of $32 million effective May 1, 1962. In consequence of these and earlier reductions, such prices now average about 18 percent less than in 1947.

Telegraph

Continuing decline in message telegraph volume and number of telegraph offices caused the Commission to initiate an investigation into the future of the Western Union system. The major contributing factors are telephone and airmail competition and diversion of message traffic to private wire services of both Western Union and the Bell System, with the latter taking the major share.

However, Western Union's gross landline revenues increased during the year, and it is proceeding with the largest modernization and expansion program in its history. The latter includes construction

of a new transcontinental microwave relay system, dial-operated Telex (teleprinter exchange) service and a new pushbutton "broadband" record and voice service.

Western Union has placed in operation two automatic emergency message transmission systems, one for the Joint Chiefs of Staff and the other for the Air Force, which can flash top-priority instructions and orders to their respective commands around the world. It is also installing nationwide data communication and bomb-detecting systems for the Air Force.

Among Western Union's new message services is a 1-year experimental test of flat rates for anyone in the continental United States to telegraph their personal opinions on matters of public interest to the President, or Vice President, or Members of Congress at Washington.

International

In addition to space communication (mentioned previously), international common-carrier interest was particularly focused on undersea telephone cables, some channels of which are leased by telegraph companies to supplement their oversea radio and cable services.

A telephone cable to Bermuda was opened during the year, one to Japan is expected to be completed in 1964, and an application was granted to extend the planned United States-Jamaica cable to Panama and Colombia. Additional telephone cables are planned for the Atlantic, Pacific, and Caribbean areas.

The Commercial Cable Co. abandoned its transatlantic telegraph cables and, instead, is using leased telephone-cable channels to handle its telegraph traffic.

Divestment by Western Union of its transatlantic telegraph cables, as long required by law, appears to be in its final stage.

Telephone service, by cable or radio, is now available from this country to about 160 foreign points, and telegraph service is possible through some 70 foreign points to 180 other points of the world.

FIELD ENGINEERING AND MONITORING

Field engineering and monitoring vistas ranged from the ocean's surface to the vastness of outer space. The FCC helped to develop a transmitting antenna to assist direction-finding operations in locating returned seaborne space capsules. An example was when the Commission's monitoring network furnished a "fix" (location) on Colonel Glenn's floating capsule.

A precision frequency standard having an accuracy undreamed of a decade ago was purchased for use in monitoring orbiting communications satellites. To meet the ever-increasing complexity of the ex-

ploding field of electronics, the FCC field force designed and constructed an improved, radically different mode of radio direction finder—the wide-aperture type.

An accelerated interference control program included everything from radiating TV receivers, against which action was taken in one case to clear up reception on an AM receiver of a shut-in, to the location and closing down of a number of industrial machines whose incidental radiofrequency radiations caused interference to electronic navigational devices aboard aircraft. The daily work of FCC engineers operating out of district offices, assisted by its 18 monitoring stations, resulted in more than 33,000 interference cases being handled during the year.

More people can now enjoy improved AM and FM listening due to a stepped-up inspection of radio station technical performance. And some TV viewers enjoy better pictures because of technical assistance rendered TV stations by the Commission's TV mobile units. Such field activities have a dollars-and-cents value to many set owners.

Safety of ships at sea is a chief responsibility of the field establishment to which, in fact, it can trace its beginning. Work in this area consists primarily of inspections by means of which enforcement of the Commission's rules and international treaties is accomplished. Extensive programs also furnish guidance and assistance to marine organizations and thus aid the overall enforcement effort. Such activities are particularly important today in consideration of the phenomenal increase in the number of radio-equipped small boats; also to insure effective functioning of radio equipment and proper operating procedure which can mean the difference between life and death in the case of marine mishaps.

Meanwhile, the Commission's monitoring network patrols the radio highways to insure orderly traffic, detect violators and unauthorized intruders, determine sources of interference, furnish bearings on ships and planes in distress, and perform special contractual services for other Federal agencies.

This combination of service and enforcement in the field contributes to more orderly and economic utilization of the radio spectrum.

RESEARCH

Much useful information is being obtained from the Commission's New York City project to determine the technical capabilities of UHF–TV to serve a large metropolitan area with high buildings. Signals from a special transmitter atop the Empire State Building have been received on checking sets at over 2,500 locations within a 25-mile radius, and mobile equipment is used to compare its signal strength with that of local VHF stations. Early indications are that

within this range there is little difference in UHF and VHF reception, or in circular or horizontal polarization. The test will be completed about the middle of next year.

Other VHF and UHF propagation study continues, and a study of FM interference ratios was begun. A recording program was initiated to determine the effect of high nuclear explosions upon radio communication using ionospheric propagation.

In the interference field, some automobile manufacturers voluntarily took action to suppress interference from ignition systems in their 1962 model cars, and some makers of AM and TV receivers designed new sets to keep within emission radiation limits. The Commission cooperated with officials of the New York World's Fair, which opens in 1964, by suggesting interference safeguards for the anticipated large number of electronic displays.

In testing certain equipment for type approval before it is manufactured, the Commission's laboratory at Laurel, Md., noted an increase of interest in electronic ovens which cook food from the inside out instead of the traditional way. Type acceptance (on certification) was given to particular broadcast equipment.

Applications for radio experimentation increased to over 1,700. Most of them were for research and development work in connection with Government contracts. The need for specific frequencies for these operations grows more urgent because of difficulties in finding working space on the frequencies used by regular radio services.

FREQUENCY ALLOCATIONS

Besides participating in preparing U.S. views on frequency requirements for space communication, the Commission helped to draft views on frequency needs for radio astronomy. It was also active in developing improved procedures for coordinating U.S. frequency assignments internationally as well as domestically.

In addition, it worked to resolve an increasing number of international interference cases involving domestic stations. It transmitted some 4,700 reports of infractions of the international radio regulations by foreign stations to the governments concerned and reviewed about 200 reports from abroad concerning domestic stations.

During the year it participated in 35 international conferences and was preparing for 31 more.

In the matter of domestic frequency allocations, the Commission has not only substantially amended its domestic allocations to conform with the 1959 Geneva regulations, but has also taken steps to resolve some domestic allocations problems, such as relieving the shortage of frequencies available to many of the land mobile radio services.

COMMISSION

A 1961 law permitted the Commission to reorganize to the extent of establishing a review board to handle certain adjudicatory functions and delegate additional authority to the staff in order to give the Commissioners more time for general policy and other planning, and changed some other procedures. The amendment permits the Commission to grant or deny petitions for review without stating reasons, makes oral argument discretionary, allows Commissioners to consult with certain staff members on legal and technical considerations involved in adjudicatory proceedings (previously prohibited), and requires all contacts in adjudicatory matters to be of record.

An organization and management survey of the Commission, conducted by a private concern for the Bureau of the Budget, made various recommendations. Some of these have been adopted by the Commission; others are under consideration.

The Commission operated with an appropriation of slightly more than $12.5 million. In compliance with Government policy, it proposed fees for its licensing and certain other services. The year ended with 1,512 employees on its rolls, about one-fourth of whom were engaged in field engineering. There was no change in the Commission membership during the fiscal period.

Pending legislative proposals by the Commission would give it some degree of regulation over CATV (community antenna TV systems), and require the marking of abandoned radio towers as a further protection to air navigation.

During the year the Commission was a party to 61 Federal court cases. Appeals courts upheld it in 17 cases and reversed it in 4 others; dismissed 13 more on jurisdictional grounds or remanded them without decision; and denied 1 petition for mandamus. Three petitions for certiorari by other parties were denied by the Supreme Court and one petition for stay was withdrawn. At the yearend 20 cases were pending in the appeals courts and 2 petitions for certiorari in the Supreme Court.

3.7 MILLION RADIO AUTHORIZATIONS

The Commission closed the year with more than 3.7 million radio authorizations on its books. The great bulk of these were radio operators' permits—over 2.5 million commercial and over 230,000 amateurs. Radio station figures (in round numbers) were: citizens, 305,000; amateur, 237,000; marine, 127,000; aviation, 107,000; industrial, 93,000; public safety, 38,000; land transportation, 13,000; broadcast, 15,000; common carrier, 5,600; and miscellaneous, 15,000. These station figures cover the use of many times that number of fixed, portable, and mobile transmitters.

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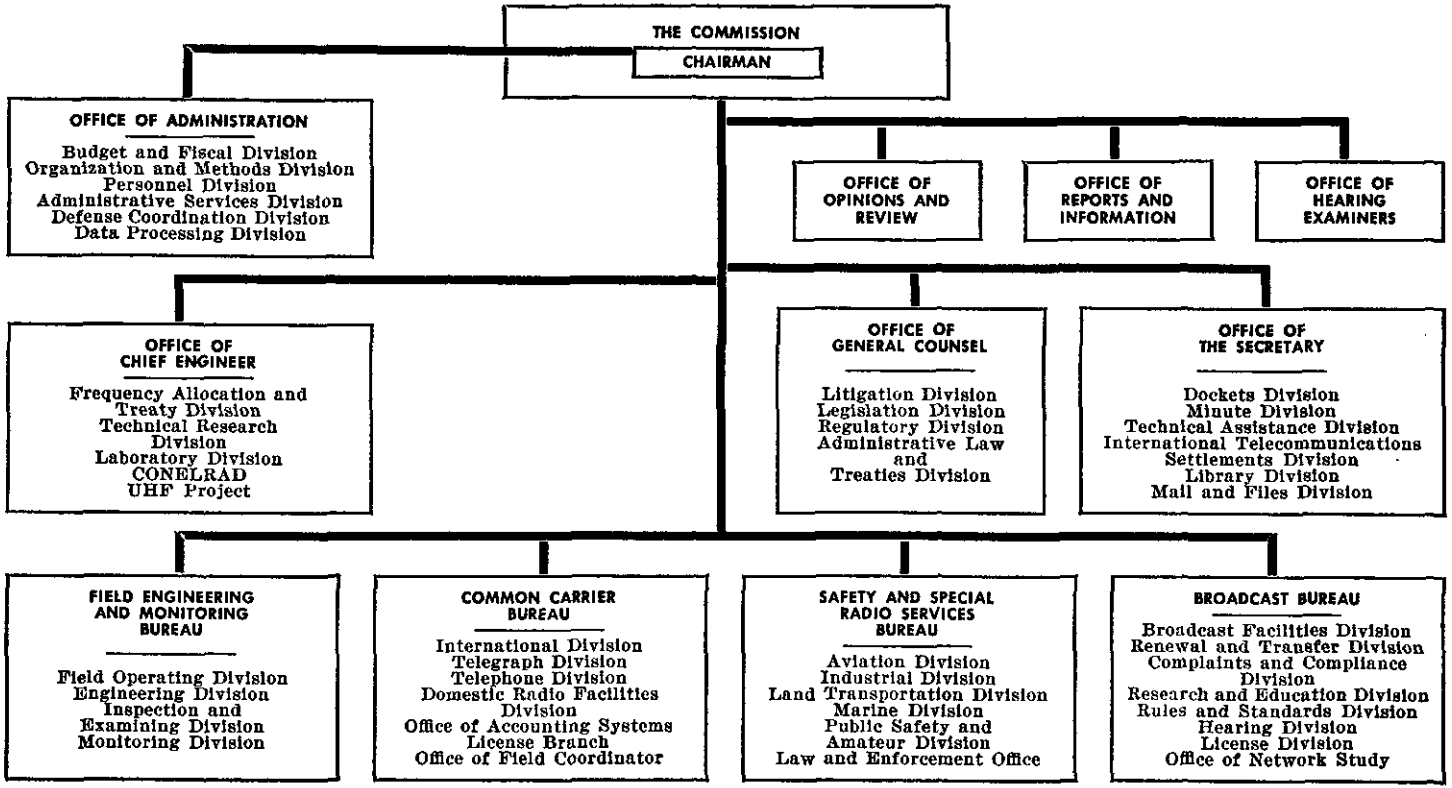
FEDERAL COMMUNICATIONS COMMISSION

Organization Chart as of June 30, 1962



Commission

COMMUNICATIONS ACT

The Federal Communications Commission, in brief, regulates all non-Government radio operation, including broadcast and nonbroadcast services; also, common-carrier telephone and telegraph services between the States, and between this country and foreign points.

This regulation was unified in the Commission by the Communications Act of 1934. Under that authority, the Commission's major activities include allocating bands of frequencies to the different radio services; assigning frequencies and call signals to individual radio stations; licensing radio stations and operators of radio transmitters; regulating common carriers engaged in interstate and international communication; promoting safety of life and property through the use of radio on the land, on the water, and in the air; encouraging more effective and wider application of radio to the inclusion of space communication; and tying in wire and radio facilities to the national defense program.

FCC REORGANIZATION LAW

The most important legislation affecting Commission organization and procedure since 1952 became law on August 31, 1961, when the President signed S. 2034 into Public Law 87–192. It amended the Communications Act to permit delegating certain adjudicatory functions to panels of Commissioners or individual Commissioners and to a board of employees. It conforms largely to the President's reorganization plan for the FCC.

The law's changes, in brief, enable the employee board to act on adjudicatory cases and to review initial decisions not reserved for action by the Commissioners collectively, individually, or as panels; permit the Commission to grant or deny petitions for review without stating reasons; make oral argument discretionary; allow the Commissioners to consult with the General Counsel and Chief Engineer on legal and technical considerations involved in adjudicatory proceedings (as in other Federal agencies), and examiners to consult with one another on points of law; and prohibit off-the-record approaches in adjudicatory matters.

The major objectives of the reorganization law is to give the Commissioners more time for general policy and planning and, in particular, to speed up the Commission's adjudicatory process.

On June 6, 1962, the Commission established a review board and revised related procedures, effective the following August 1, to carry out provisions of the 1961 amendments.

ORGANIZATION AND MANAGEMENT SURVEY

An organization and management survey of the Commission for the Bureau of the Budget was made by Booz-Allen & Hamilton, management consultants. Released on April 24, 1962, the 600-page report recognized that the FCC is "doing reasonably well under many handicaps," including lack of money for manpower and equipment, and made various recommendations to improve its functioning.

The report proposed, among other things, to make the Chairman "chief executive officer in fact"; create a new position of "Executive Director" under the Chairman to coordinate and implement the Commission's program; carry out the new law's provision for an adjudicatory review board and delegate more staff authority; make various organizational changes including establishment of a new "Office of Special Services" to absorb several present units; set up special units to deal with space communication matters; have the Commission undertake more economic and social studies related to the industries it regulates; push and augment the use of electronic data systems, and adopt fees for its services. "The report," says its summary, "makes it clear that a principal underlying cause of FCC administrative deficiency is the lack of an adequate level of appropriation support in both manpower and equipment terms."

"Because radio and wire communications are so universally employed in the course of daily affairs," commented the report, "the influence of the Federal Communications Commission is felt in every community and in the business and personal lives of a great part of each community. Its regulatory activities attempt to insure the broadest, most useful, and most equitable employment of wire and radio consistent with the public interest. The magnitude and complexity of the regulatory task confronting the FCC has reached staggering proportions as the technology of communication and the scope of use have advanced beyond all the expectations of those who framed the 1934 Act."

The Commission is adopting and putting into effect those recommendations of the report which, in its judgment, will aid its administrative processes.

COMMISSIONERS

There was no change in the membership of the Commission during the fiscal year. The term of Commissioner John S. Cross expired on

June 30, 1962. Under a 1960 amendment to the Communications Act, a Commissioner continues to serve until a successor is appointed, qualifies, and takes office.

On August 30, 1962, the President named E. William Henry to be a Commissioner. Confirmed by the Senate on September 28, Commissioner Henry took office October 2.

PERSONNEL

The Commission ended the fiscal year with 1,512 employees on its rolls. Included were 98 employed for the summer months only, 58 performing work for other agencies on a reimbursable basis, and 5 engaged in the special UHF–TV study in New York City. The actual average employment for the entire year for staff engaged in "regular" Commission activities was 1,339.5. This represents an increase of 41.2 over 1961. The average employment for the various organization units was as follows:

	Washington	Field	Total
Commissioners' Offices	49.0	0	49.0
Office of Opinions and Review	33.7	0	33.7
Office of Hearing Examiners	32.5	0	32.5
Office of Reports and Information	4.8	0	4.8
Office of Administration	102.6	1.0	103.6
Office of Secretary	61.6	0	61.6
Office of General Counsel	41.8	0	41.8
Office of Chief Engineer	64.7	13.7	78.4
Common Carrier Bureau	106.7	26.5	133.2
Safety and Special Radio Services	147.4	17.3	164.7
Broadcast Bureau	250.6	0	250.6
Field Engineering and Monitoring	59.8	325.8	385.6
Total	955.2	384.3	1,339.5

EMPLOYEE AWARDS PROGRAM

Length-of-service emblems were presented to 171 Commission employees at the annual awards ceremony. Six of the seven Commissioners had records of Federal service ranging from 21 to 38 years. Sixty-four employees were awarded a total of $11,475 in recognition of superior job performance. Payments totaling $295 were made for 16 employee suggestions to improve work procedures, and 11 letters of appreciation were issued for other employee suggestions adopted.

APPROPRIATIONS AND EXPENDITURES

The Commission's appropriation for fiscal 1962 was $12,525,000. This was a reduction of $560,000 below 1961 which contained $2 million for a special UHF–TV study in New York City.

Personnel compensation plus personnel benefits accounted for 88 percent of the 1962 budget. A breakdown follows:

Personnel compensation	$10,279,908
Personnel benefits	762,688
Travel	226,951
Transportation of things	39,000
Rents, communication, and utility services	340,711
Printing and reproduction	113,298
Other services	166,179
Supplies and materials	196,041
Equipment	343,593
Land and structures	46,389
Total amount obligated	12,514,758

The source of these funds and the authority for expenditures thereunder is Public Law 141, 87th Congress. Expenditure details and their justification are set forth at length in the FCC budget presentation to Congress.

FEES FOR LICENSING AND OTHER SERVICES

In compliance with Government policy to charge for certain Federal services, the Commission on February 14, 1962, invited comments on proposed fees for its licensing and certain other regulatory services. The contemplated charges range from $5 to $250, depending upon the nature of the application, and would recoup about $6,700,000 annual for the Government. All payments would go to the Treasurer of the United States. With few exceptions, the 900 comments received when the filing time closed on June 16, 1962, were in opposition.

This is the second time the Commission has instituted action looking toward establishing fees. Both were pursuant to request of the Bureau of the Budget to implement policy set forth in the Independent Appropriations Act of 1952 that the recipients of special benefits from Federal agencies should pay a reasonable charge. The previous Commission fee proceeding was suspended in 1954 to comply with a Senate committee resolution.

ELECTRONIC DATA PROCESSING SYSTEM

A 2-year detailed systems study of all areas of the Commission's operations resulted in a decision to install an electronic computer to perform many business and technical functions. The system is designed to (1) improve service to the public by reducing applications processing time; (2) insure uniform application of rules and regula-

tions, thereby eliminating inconsistencies in individual interpretations; (3) perform engineering and technical computations; (4) provide field offices and monitoring stations with timely information pertaining to all communications facilities; and (5) furnish a means to rapidly and accurately retrieve licensee data for more effective regulation of the communications industry.

During fiscal year 1963 the blueprint of the data processing system will be implemented. This will entail the development and testing of computer programs, writing of procedural manuals and training of personnel in the new system, and the development of schedules for an orderly conversion to the computer system. It is anticipated that the computer will be installed and operating on the first phases of the Commission's program by June of 1963.

HEARING EXAMINERS

The Commission has 17 hearing examiners, one of whom serves as Chief Hearing Examiner. Their basic function is to preside at formal hearings and to issue initial decisions predicated upon the evidence presented into the records of these proceedings.

During fiscal 1962, the hearing examiners, in connection with adjudicatory proceedings assigned to them, issued 1,066 orders on interlocutory matters, conducted hearing conferences in 165 proceedings, held formal hearings in 152 proceedings, closed records in 136 proceedings, and issued 136 initial decisions.

Under authority delegated to him by the Commission, the Chief Hearing Examiner issued 448 orders and memorandum opinions and orders in interlocutory and other matters pertaining to adjudicatory proceedings.

DOCKETS

Broadcasting still accounts for the majority of docket cases. The following docket statistics for fiscal 1962 refer to individual applications in hearing status:

	Total pending July 1, 1961	Designated for hearing	Disposed of without hearing			Disposed of following hearing			Total pending June 30, 1962	Initial decisions Issued	Applications covered by initial decisions
			Granted	Dismissed	Removed [1]	Granted	Denied	Dismissed			
Broadcast dockets:											
AM broadcast:											
New stations	183	175	11	61	13	63	21	7	182	56	104
Major changes	181	55	2	9	10	156	3	2	54	41	80
Subtotal	364	230	13	70	23	219	24	9	236	97	184
Assignments and transfers	1	4		2		1			2	1	
Renewals	13	11	1	1	1	3	1		17	4	9
Licenses	2	3					1		4		1
All others	2	2			1	1			2	1	
Total AM broadcast dockets	382	250	14	73	25	224	26	9	261	103	194
FM broadcast:											
New stations	28	11	4	4	2	7	1		21	6	9
Major changes	6	2		1	1	1			5	1	1
Subtotal	34	13	4	5	3	8	1		26	7	10
Assignments and transfers	1	5					5			1	
Renewals	3								3		
Licenses											
All others		6	1				5				
Total FM broadcast dockets	37	24	5	5	3	8	11		29	8	10
TV broadcast:											
New stations	50	[2] 47	1	10		10	10	3	63	6	9
Major changes	15	[2] 4	1		2	2	2	1	11	2	
Subtotal	65	51	2	10	2	12	12	4	74	8	9
Assignments and transfers	1	1				1			1		
Renewals	2	1					1		2	1	1
Licenses		1							1		
All others	2	1						1	2		
Total TV broadcast dockets	70	55	2	10	2	13	13	5	80	9	10

UHF–VHF boosters-repeaters:											
New stations	3	9		1			3		8	1	3
Major changes											
Subtotal	3	9		1			3		8	1	3
Assignments and transfers											
Renewals											
Licenses											
All others											
Total dockets	3	9		1			3		8	1	3
Other broadcast services	16	6	4	1					17		
Total broadcast dockets	508	344	25	90	30	245	53	14	395	121	217
Other than broadcast dockets:											
Safety and special radio services [1]	33	72	20	33			5	1	46	5	5
Common carrier services	34	47	5	3		2	3		68	5	15
Joint and general matters	49	14	14	2		3	1	4	39	2	5
Total other than broadcast dockets	116	133	39	38		5	9	5	153	12	25
Petitions, cease-and-desist orders, rules, etc.	41	61	25	6		2	1		68	4	3
Total dockets	665	538	89	134	30	252	63	19	616	137	245

[1] Removed from hearing status and returned to processing lines.

[2] Remanded June 1962—8 new stations and 1 major change.

[3] *Statistcs in this service cover revocation of license as well as applications.*

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AUTHORIZATIONS

Commission radio authorizations of all kinds totaled more than 3.7 million at the close of fiscal 1962. This was an increase of 458,000 for the year. Comparative figures follow:

Class	June 30, 1961	June 30, 1962	Increase
Broadcast services	13,845	15,610	1,765
Safety and special services	770,505	936,380	165,875
Common carrier services	4,959	5,600	641
Experimental services	757	757	0
Commercial radio operators	2,282,148	2,558,353	276,205
Amateur radio operators	216,720	230,459	13,739
Total	3,288,934	3,747,159	458,225

Because some authorizations are for the use of more than one transmitter, these radio authorizations collectively represent several million fixed, mobile, and portable transmitters.

APPLICATIONS

More than 740,000 applications of all kinds were received by the Commission during fiscal 1962. This was 34,000 more than the year previous. Application figures for the 2 years are:

Class	1961	1962	Increase or (decrease)
Broadcast services	15,500	15,560	60
Safety and special services	392,622	430,596	37,974
Common carrier services	8,270	[1] 7,504	[1] (766)
Experimental services	1,456	1,396	(60)
Commercial radio operators	291,366	288,411	(2,955)
Total	709,214	743,467	34,253

[1] See footnote to table on page 133.

Applications for amateur radio operators are not listed here because they are included in the total for the safety and special services.

CORRESPONDENCE

More than 3.5 million pieces of mail were received or dispatched by the Commission's Washington office (exclusive of the Field Engineering and Monitoring Bureau headquarters) during the year. This was an increase of about 1.5 million over the 1961 figure. Of the 1962 total, over 2.1 million were incoming and nearly 1.4 million outgoing.

PUBLICATIONS

Texts of the Commission's major decisions are available in a weekly pamphlet sold by the Government Printing Office on a subscription basis and, later, in bound-volume compilations. Printed copies of

the Commission's rules and regulations by categories may be purchased from the same source, the buyer receiving from that Office all subsequent changes to the rules purchased until a new edition is printed. That Office also sells copies of the Communications Act, as amended; the Commission's annual and special reports, statistics of communications common carriers, etc. The Commission does not make distribution of its printed publications sold by the Government Printing Office, but will supply a list on request.

In addition, all Commission hearing orders and rulemaking (both as proposed and finalized) are given official promulgation in the Federal Register, which may be subscribed to or single copies purchased through the Government Printing Office.

RELEASES

The Commission replaced its mimeographing system with an all-multilith reproduction process in September 1961. During the fiscal year, reproduction work for release and internal administrative purposes required about 74,200 plates (or master copies), over 20 million sheets of paper, and nearly 27 million prints (about 7 million more than the previous year).

Commission releases are of two general types. One consists of public notices of actions, receipt of certain kinds of applications, petitions for rulemaking, hearing calendars, etc. The other comprises formal documents such as decisions, orders, etc. No public mailing lists are maintained for either type of issue. Documents are served formally on the parties concerned.

FOREIGN TECHNICAL ASSISTANCE

The Commission continued its cooperation with the Agency for International Development, the Department of State, and the United Nations in planning programs of study and observation of domestic communication systems by foreign telecommunications experts. Contributors to this program included telephone companies, broadcast and other radio service groups, transportation and utility companies, equipment manufacturers and suppliers, and other Federal agencies. There have been more than 400 participants since the Commission undertook this activity in 1951.

On-the-job training for periods up to 4 months in monitoring and direction finding is provided some foreign technicians at the Commission's Laurel, Md., monitoring station. During fiscal 1962, 10 individuals from 4 countries—the Philippines, Turkey, Surinam, and Indonesia—participated.

Law and Enforcement

LEGISLATION

Major Legislative Activity

In the second session of the 87th Congress, the major part of the Commission's legislative activity centered on four items:

1. All-channel TV receivers;
2. A system of Federal matching grants to construct educational TV;
3. Grant of authority to the Commission to impose monetary forfeitures for certain violations of its nonbroadcast rules and regulations; and
4. Legislation to provide for the establishment, ownership, operation, and regulation of a commercial satellite communication system.

The first three of these items were subsequently enacted into law and are discussed here. The fourth item—concerning the space communication system—became law subsequently. Because of its nature and importance, this subject is dealt with in a separate chapter.

All-channel TV receivers.—The Commission proposed legislation to give it authority to prescribe minimum performance capabilities for TV receivers to enable them to receive all TV channels. At the Commission's request, Senator John O. Pastore introduced S. 2109 to implement this proposal. Identical legislation (H.R. 8031) was introduced in the House by Chairman Oren Harris of the Committee on Interstate and Foreign Commerce.

As signed by President Kennedy on July 10, 1962, the all-channel receiver legislation (Public Law 87–529) adds two new sections to the Communications Act—sections 303(s) and 330. Section 303(s) gives the Commission authority to adopt rules requiring TV receivers to be capable of adequately receiving all frequencies allocated to TV broadcasting when such receivers are shipped in interstate commerce, or imported into the United States, for sale or resale. Section 330(a) prohibits shipment in interstate or foreign commerce of receivers which do not comply. It also contains a proviso that the prohibition does not apply to carriers who transport such apparatus without trading in it.

It is the Commission's belief that, as the number of all-channel sets increases, an important new impetus to the construction of UHF sta-

tions will be provided. Not only will new UHF stations bring additional outlets for local expression in those markets which now, by the economics of broadcasting, are confined to 1 or 2 TV stations, but the vast potential of 70 UHF channels will be unlocked. This will provide room for the growth of both commercial and educational TV.

Educational TV matching grants.—On May 1, 1962, President Kennedy signed into law legislation to establish a program of Federal matching grants to the States, totaling $32 million, for constructing noncommercial TV broadcast facilities to be used for educational purposes. The total amount of Federal grants for this purpose in any State cannot exceed $1 million and, with certain limitations, not exceed 50 percent of the cost of the project and 25 percent of the cost of educational TV broadcasting facilities owned by the applicant on the date of its application.

Under the bill, an applicant would be required to provide assurance satisfactory to the Secretary of Health, Education and Welfare that it is a State educational agency or a nonprofit foundation, corporation, or association organized primarily to engage in or encourage educational TV broadcasting and is eligible to receive a license from the FCC for a noncommercial educational TV broadcasting station pursuant to the rules and regulations of the Commission in effect on April 12, 1962.

While this legislation was enacted as a new part IV to title III of the Communications Act and primary responsibility for administering it is placed in the Secretary of the Department of Health, Education and Welfare, the Commission, under section 395, is authorized to provide such assistance in carrying out the provisions of this law as may be requested by the Secretary. This section further directs the Secretary to provide for consultation and cooperation with the Commission in administering his functions which are of interest to or affect the FCC.

This new law will advance the use of TV for educational purposes by helping to remove one of the greatest obstacles—the lack of funds to construct educational TV facilities. The Commission believes that as TV, with its unique capacity for reaching large audiences, is increasingly adapted to classroom use and for adult education, its strength as an educational tool will be more fully realized.

Monetary forfeitures.—A bill to authorize the imposition of forfeitures for certain violations of Commission rules and regulations in the common-carrier and safety and special radio fields was enacted at Commission request. It added a new section 510 to title V of the act. It was approved by President Kennedy on May 11, 1962, as Public Law 87-558. Requests for authority to impose such monetary forfeitures had been made by the Commission to Congress each year since 1951.

Its main purpose is to give the Commission an additional enforcement tool to cope with the growing number of infractions of its rules and regulations by nonbroadcast licensees. The new enforcement provisions could bring forfeitures of up to $100 for a single violation or $500 for several violations of any of 12 specified offenses such as unlicensed operation, failure to make proper identification, transmission of false distress calls, operation on an unauthorized frequency or with power in excess of that authorized, and rendering an unauthorized communications service.

Since World War II there has been a phenomenal expansion in these services. A continuing enforcement difficulty concerns minor violations by licensees, particularly stations used for the safety of life on water. In these cases, the Commission had available only the warning-letter technique or station revocation. The new law gives a much-needed additional enforcement tool which is more effective than a warning letter and yet less drastic than a license revocation.

Other Enacted Laws

After the close of the 1961 fiscal year, one bill affecting the FCC was adopted by the 87th Congress:

Public Law 87–306, enacted September 26, 1961, provides penalties for malicious damage to certain communication facilities.

The following additional bills amending the Communications Act became law in 1962 during the 2d session of the 87th Congress:

Public Law 87–439, enacted April 27, 1962, permits the Commission to renew a station license in the safety and special radio services more than 30 days prior to expiration of the original license.

Public Law 87–444, enacted April 27, 1962, eliminates the requirement of an oath or affirmation on certain documents filed with the Commission.

Public Law 87–445, enacted April 27, 1962, authorizes the issuance of radio operator licenses to nationals of the United States (such as natives of Samoa).

FCC Legislative Program

Commission proposals to amend the Communications Act were pending in the 87th Congress at the end of the fiscal year as follows:

An amendment to exempt persons serving in the FCC unit of the National Defense Executive Reserve, who are not otherwise employed by the Commission, from the conflict-of-interest provisions of section 4(b) of the act and other statutes (S. 1689, H.R. 6579).

An amendment to section 303(q) which would give the Commission authority to require the painting and/or illumination of abandoned radio towers (S. 684, H.R. 4114).

An amendment to section 3 and a new section 303 which would authorize the FCC to issue rules and regulations with respect to community antenna TV systems (S. 1044, H.R. 6840).

An amendment to provide for summary judgment procedure in the consideration of license applications in appropriate cases. This would clarify the situations in which a full evidentiary hearing is now required on applications filed under section 308 (S. 2108, H.R. 7895).

An amendment which would give the Commission authority to regulate networks to some extent short of licensing (S. 2400).

Not yet introduced are these Commission proposals:

An amendment to give it additional authority to grant special temporary authorizations for 60 days for certain nonbroadcast operations.

An amendment to section 309(e) to require that petitions for intervention be filed within 30 days after publication of the hearing issues.

Other Bills Affecting the FCC

Ninety-two bills and resolutions affecting the Commission directly or indirectly were introduced in the 2d session of the 87th Congress (72 in the House and 20 in the Senate). Some of them were duplicated in both Houses.

These measures included such subjects as:

Authorizing licenses for operation of amateur radio stations to aliens.

Operation of broadcast stations on clear channels.

Hours of operation of daytime broadcasting stations.

Equal opportunities provision of section 315 for candidates for public office.

Allowing foreign governments to operate, on a reciprocal basis, low-power radio stations at the Nation's Capital for transmission outside the United States. [Became law October 11, 1962.]

Requiring persons who solicit donations by radio or TV to report to the Attorney General.

The Commission either testified at hearings on these subjects or submitted comments on legislative proposals (more than 30) referred to it for study.

LITIGATION

The Commission was a party to a number of significant cases which enunciated principles of law and policy affecting its procedures and administration of the Communications Act. Jurisdiction over most of these cases was in the U.S. Court of Appeals for the District of Columbia Circuit.

Important Cases

The following cases were decided in important areas of Commission jurisdiction:

In *WKAT, Inc, et al.* v. *Federal Communications Commission,* 111 U.S. App. D.C. 253, 296 F. 2d 375, the court approved the Commission's findings and recommendation on remand to disqualify 3 of 4 applicants for new TV stations to operate on Channel 10 in Miami, Fla., because of *ex parte* attempts to influence the decision. The court also approved the

Commission's recommendation to award the contested license to the remaining qualified applicant for a period of 4 months. It held that such a grant solved the practical problem confronting the Commission of discontinuing service from a disqualified operator, while maintaining service to the public and permitting early comparative consideration of new applicants. On a procedural point, the court indicated that where it has remanded a case on appeal for an evidentiary hearing on the issue of irregularity in an award of a license, the Commission's orders should take the form of a report of recommendations to the court subject to court approval rather than the form of final Commission orders.

In *Patrick Henry, et al., d/b as Suburban Broadcasters* v. *Federal Communications Commission*, ___ U.S. App. D.C. __, 302 F. 2d 191, the court affirmed the Commission's refusal to grant a construction permit for a first commercial FM station in Elizabeth, N.J., where the sole applicant had made no inquiry into the needs and interests of that city and had submitted program proposals identical to those it had submitted for communities in Illinois and California. The Commission held that it could not determine whether the applicant could be expected to serve the needs of Elizabeth since the applicant had offered no evidence on this point in hearing. In affirming the Commission's action, the court held that the Supreme Court previously had determined in *National Broadcasting Co.* v. *United States*, 319 U.S. 190 (sustaining the Commission's power to promulgate the Chain Broadcasting Regulations) that the Commission could consider more than an applicant's technical qualifications in awarding a license and, in so doing, there was no violation of the constitutional guarantee of free speech or the proscription of censorship. Consequently, the appeals court held that the Commission may require that an applicant demonstrate an earnest interest in serving a community by evidencing a familiarity with its particular needs and an effort to meet them. On October 8, 1962, the Supreme Court refused to review the appeals court decision.

In Connecticut Committee Against Pay TV et al, v. *Federal Communications Commission and United States of America*, — U.S. App. D.C. —, 301 F. 2d 835, the court upheld the Commission's power to conduct a 3-year trial operation of subscription TV in Hartford, Conn. Rejecting a contention that the Commission lacks statutory power to authorize a system which requires the direct payment of fees from the public, the court found that the Commission was given broad authority in section 307(a) of the Communications Act to license any use of radio found to be in the public interest and not expressly prohibited by the act. Noting further that the Commission is directed in section 303(g) of the act to "study new uses for radio, provide for the experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest," the court held that the Commission had an affirmative duty to experiment with and develop the most desirable deployment and utilization of the Nation's communications facilities and that the challenged license fell within the scope of that duty. The court also held that the safeguards surrounding the trial operation were adequate to protect the public interest. On October 8, 1962, the Supreme Court declined to review the lower court's decision.

The Commission was reversed in *American Broadcasting-Paramount Theatres, Inc.* v. *Federal Communications Commission*, Nos. 16,264 and 16,528. In that case the Commission, without a hearing, had authorized WMRO, Inc., to operate on Class B FM Channel 236 in lieu of Class B FM Channel 300 at Aurora, Ill. ABC, the licensee of a station on Class B FM Channel 234 in Chicago, challenged the grant on grounds of interference within its 1 mv/m contour, claiming it amounted to modification of a license. The court rejected the Commission's contentions that the interference involved was too minimal to require hearing and that the Commission's FM rules do not afford protection against second adjacent channel interference within the 1 mv/m contour where authorization of another station in a nearby city will provide an efficient and equitable distribution of FM facilities. Holding that the rules protect FM stations against all interference within the 1 mv/m contour, the court remanded the case for a hearing on the interference question.

In *The State of New Jersey* v. *Federal Communications Commission*, No. 16,701, the Commission had approved the assignment of the license of WNTA–TV on Channel 13, Newark, N.J., from NTA Television Broadcasting Corp. (NTA) to Educational Television for the Metropolitan Area, Inc. (ETMA) for noncommercial educational use. A panel of the court of appeals granted a motion by the State for a stay of the Commission's action pending appeal. The Commission sought rehearing *en banc* on the grounds that the stay would probably compel NTA to terminate the assignment contract for financial reasons and thus cause 15 million persons within the Channel 13 service area to lost their first VHF educational service and deprive the public of the nucleus of an educational network. The court of appeals granted rehearing *en banc* and vacated the stay. Thereafter, New Jersey and ETMA voluntarily resolved their differences and the appeal was dismissed by agreement of the parties.

In *Joint Council on Educational Broadcasting and Rochester Area Educational Television Association, Inc.* v. *Federal Communications Commission and United States of America*, No. 16,594, the court sustained the Commission's rulemaking action in assigning a third VHF channel (Channel 13) to Rochester, N.Y., without reserving it exclusively for educational use. In affirming the Commission's decision, the court stated that it did not regard language found in the Commission's 1952 Sixth Report and Order on TV allocations, 17 F. R. 3905, as establishing a binding Commission policy, to be invariably applied, that in every city having 3 or more VHF channels the Commission would reserve 1 VHF channel for educational use. The court held that, in any event, even if the Sixth Report were construed as establishing such a policy, that policy should not be held to be so rigid and inflexible that the Commission could never deviate from it. The court also held that, because of the failure of the UHF band to be as fully utilized as the Commission expected in 1952 when the Sixth Report was adopted, with the result that a nationwide competitive service did not develop to the extent the Commission anticipated, the Commission was not arbitrary in deciding that the need for full competition among commercial stations prevented the making of a purely educational reservation, and in opening the channel to both commercial and educational applications.

The court also affirmed the Commission's action in *The Pennsylvania State University* v. *Federal Communications Commission*, No. 16,593, in which the Commission dismissed a petition by Pennsylvania State requesting that VHF Channel 3 be allocated to State College, Pa., at less than the mileage separation from other stations required by the Commission's rules, and that it be reserved for noncommercial educational use. The Commission, in a rulemaking proceeding, had determined to allocate "short-spaced" VHF channels to only those communities which met certain criteria. State College did not meet these requirements.

Another important decision was issued on July 19, 1962 in *Transcontinent Television Corp.* v. *Federal Communications Commission*, No. 16,685. The court affirmed the Commission's rulemaking action deleting Channel 10 from Bakersfield, Calif., effective upon expiration of the licensee's current license for that channel. It rejected a contention that this constituted a modification of the license, requiring an evidentiary hearing under sections 316(a) and 303(f) of the act. Construing these sections in light of the act as a whole (including the provisions of sections 307(d), 301, 304 and 309(h)), the court stated: "We construe section 316(a) as having reference to a modification which interferes with rights of a licensee during the term of its license." With respect to section 303(f) the court added: "We think section 303(f) in barring changes in frequency without consent of the station licensee or a public hearing does not bar deletion by rulemaking of a channel, the deletion not to be effective during the term of the license." The court also held that the Commission could properly dismiss a renewal application for Channel 10 without hearing since the frequency had been made unavailable by the rule amendment.

Statistics

During the fiscal year, the Commission was a party to 61 appellate cases in the Federal courts. Thirty-seven of these were instituted during that period, 5 on petition for writ of certiorari and 1 on a motion for a stay in the Supreme Court; 29 in the Court of Appeals for the District of Columbia Circuit; 1 in the Court of Appeals for the Second Circuit; and 1 in the Court of Appeals for the Ninth Circuit. The other 24 cases were pending at the beginning of the year.

Of the five petitions for certiorari, all filed by other parties in the Supreme Court, three were denied by the court and two are pending. An application for stay was withdrawn prior to decision by the Supreme Court. In the courts of appeals, the Commission was affirmed in 17 cases and reversed in 4 others. Thirteen cases were dismissed by the appeals courts on jurisdictional grounds, or remanded without decision on the merits, and one petition for mandamus was denied. The U.S. District Court for California granted the Commission's petition for enforcement of a subpena. (See "Enforcement and Rules.")

As of June 30, 1962, 20 cases were pending in the U.S. Court of Appeals for the district of Columbia Circuit. Of these, two have been

heard and await decision. Two petitions for certiorari were pending in the Supreme Court, and 1 case is in the Court of Appeals for the Ninth Circuit.

A tabulation of the litigation for the fiscal year follows:

	Supreme Court	Court of Appeals for the District of Columbia Circuit			Other courts of appeals	District courts	Total [2]
		402(a)	402(b)	402 (a) and (b)[1]			
Total	6	5	42	5	2	1	61
Cases affirming the Commission		2	13	1		1	17
Cases reversing the Commission		1	2		1		4
Cases dismissed on jurisdictional grounds or by agreement, or remanded	1		10	2			13
Petition for mandamus in Court of Appeals for the District of Columbia Circuit			1				1
Denial of certiorari	3						3
Cases pending June 30, 1962	2	2	16	2	1		23

[1] Cases under "402 (a) and (b)" were cases which sought review of the same Commission orders under both sections of the statute. While they may or may not have been consolidated in court, the court resolved the proceedings in the same decision.

[2] In addition, 5 motions for interlocutory relief were denied by the courts of appeals.

ENFORCEMENT AND RULES

The Commission's 1961 annual report referred to an enforcement program, commenced in 1959, which was directed against persons, primarily in the New York City area, who were operating industrial heating equipment causing serious interference to air navigation radio aids, police, TV, and other important services. The program has been highly effective. In the instances where violations occurred during the present year, compliance with part 18 of the Commission's rules was secured voluntarily.

During fiscal 1962 there were 117 cases involving the unlicensed operation of low-power TV repeater stations in remote western areas. They were providing TV signals to areas where direct reception was either impossible or unsatisfactory. The majority of these stations existed prior to the adoption, on July 27, 1960, of rules governing the licensing of TV repeaters, and had failed to apply for the required construction permit within the time period afforded by the rules. They were ordered off the air and formally warned of the penalties for unlicensed operation. Followup investigations were made in those cases where the Commission was not satisfied that operations had ceased. At the close of the fiscal year, 107 cases had been terminated, 9 were still under investigation, and 1 had been referred to the Department of Justice.

A proceeding was commenced in the U.S. District Court for the Southern District of California under section 409(g) of the Communications Act against a corporation which had refused to comply with a subpena issued by the Commission in the course of its investigation of the TV network industry. The court ordered enforcement of the subpena, but attached certain procedural conditions which are the subject of an appeal by the Commission to the U.S. Court of Appeals for the Ninth Circuit.

A common-carrier licensee forfeited $1,000 to the Government in a civil proceeding for transmitting messages to certain European countries without having proper tariffs on file with the Commission in violation of section 203 of the act.

The number of criminal cases pending in and referred to the Department of Justice in fiscal 1962 was 17, a decline of 9 from fiscal 1961. There were three convictions during fiscal 1962. It is believed that the passage of legislation by the 87th Congress extending the Commission's authority to levy forfeitures (Public Law 448, 87th Cong.) will assist it in maintaining nonbroadcast radio discipline. It should result in even less reliance on criminal prosecution in the future, since many types of cases not suitable for criminal prosecution may now be handled through civil forfeiture proceedings.

Other important actions taken during the year include the promulgation of rules to implement the FCC Reorganization Act (Public Law 192, 87th Cong.) which authorized delegation of adjudicatory cases to a staff review board (see "Commission"), a successful program to secure voluntary compliance with the radiofrequency radiation requirements of part 15 of the rules, and the initiation of a rulemaking proceeding looking to the possible establishment of a schedule of fees to compensate, in part, for the expenses incurred in the issuance of Commission licenses. (See "Commission.") In addition, the Commission participated actively in the work of the Administrative Conference of the United States.

National Defense

GENERAL

The "national defense" is one of the purposes for which the Federal Communications Commission was created.

In furtherance of this purpose, defined in section 1 of the Communications Act of 1934, as amended, the FCC is charged with broad defense responsibilities involving wire and radio communication.

The President is given special powers under section 606 of the act for marshaling wire and radio communication facilities in time of national emergency. Certain of these powers have been delegated by the President to the Commission.

The Commission's defense activities are under the direction of the Defense Commissioner (Robert T. Bartley) and two Alternate Defense Commissioners (Robert E. Lee, First Alternate, and E. William Henry, Second Alternate).

CONELRAD PROGRAM

In response to a request by the Commission, the Department of Defense submitted, on April 23, 1962, a reevaluation of the continuing need for CONELRAD. CONELRAD is a contraction of the words *CON*trol of *EL*ectromagnetic *RAD*iation and is the name given to the program created by Executive Order 10312 for minimizing enemy use of this country's radio stations as an aid to navigation of their aircraft, guided missiles, and other devices capable of direct attack on the United States.

In its reevaluation, the Department of Defense found, with respect to the combined military and civil defense requirements for national security, that there is no longer a need to minimize the use of electromagnetic radiation from radio transmitters as navigational aids to an enemy, but that there is a continuing need to preclude enemy use of accurate aeronautical navigation systems and the Long- and Short-Range Navigation Systems.

The remaining military and civil defense requirements call for the improvement and strengthening of the Emergency Broadcast System.

As a result of the new evaluation, a review of existing CONELRAD plans, rules and manuals is underway looking toward the deletion of CONELRAD requirements for all classes of radio stations except those in the broadcast, marine, and aeronautical services.

The long-established CONELRAD requirements for broadcast station operation in event of enemy attack continue to apply. On an alert, all broadcast stations would leave the air except certain AM stations which would operate on 640 and 1240 kc to communicate civil defense and other essential information to the public. However, they would not have to work in clusters in a system of rotation as formerly thought necessary to confuse enemy direction finding.

EMERGENCY BROADCAST SYSTEM

The National Industry Advisory Committee plan, "Technical Arrangements to Insure Nationwide Continuity of the Emergency Broadcast System During Conelrad and the Period Following Issuance of the Conelrad Radio All Clear," provides for the President and other Federal officials to communicate with the public via the broadcast networks preceding, during, and following an enemy attack. It is being amplified to permit the widest possible disseminations of messages from the President to the public under emergency conditions by establishing a number of entry points into the Emergency Broadcast System in every State to permit the President, wherever he might be, to communicate with the populace on short notice. The plan will assure continuity of communication between State and local civil defense directors and the general public within their respective jurisdictions.

In peacetime this system renders an incidental yet important service in giving advance warning of serious threats of hurricanes and other storms, floods, and acts of nature which might endanger life and property.

MILITARY–FCC EMERGENCY COMMUNICATIONS COMMITTEE

This committee, acting upon a request from the U.S. Air Force, has implemented a special test communications circuit between Omaha, Nebr., and the Washington, D.C., area using the technique of frequency shift keying on AM broadcast stations simultaneously with broadcast programing. This committee serves as a focal point for decisions on technical matters within the military establishments and will continue to evaluate and test the possibility of utilizing commercial broadcast and industrial radio facilities to provide emergency survival communication, in event of war or disaster, to back up common-carrier facilities which may be rendered inoperative by enemy action, indirect damage, or casualties of operating personnel.

It will review the restrictions applying to the non-Government communication services with regard to Department of Defense requirements for adequate and effective military and civil defense communication.

STATE DEFENSE NETWORKS (FM)

It is planned to extend the individual State Defense Networks (FM), which are a part of the Emergency Broadcast System, by interconnecting several States into area networks. For example, State defense FM networks from Maine to Florida have been utilized in establishing the Atlantic Seaboard Defense Network (FM).

These networks consist of emergency trunk circuits provided by off-the-air relay between FM broadcast stations in a contiguous area. By this means, it is practical to provide the public with emergency communication when normal facilities are disrupted or destroyed.

INDUSTRY ADVISORY COMMITTEES

The Third Annual Defense Communication Seminar for the Industry Advisory Committees was held in Washington during August 1961. Its general theme was the vital relationships between non-Government communication systems and the national defense. Representatives of the Department of Defense presented briefings on the use and importance of communication as a supporting function in the performace of the overall mission of national defense.

A National Industry Advisory Committee (NIAC), 9 Regional Industry Advisory Committees (RIAC), 50 State Industry Advisory Committee (SIAC), and numerous Local Industry Advisory Committees have been appointed by the Commission. These committees, through coordination and liaison, work continually on improvements to the Emergency Broadcast System, and provide technical advice and recommendations to the Commission with regard to emergency communication.

DEFENSE COORDINATION

The FCC Division of Defense Coordination reports to the Defense Commissioner and is concerned primarily with agency mobilization planning and liaison with other Federal departments and agencies on defense matters other than CONELRAD and radio frequency management activities. These matters include plans to assure the continuity of the Commission's essential functions in an emergency.

The division developed a cascade calling system during the year, designed to alert, on a 24-hour basis, all designated FCC emergency personnel in the event of any alert warning received in the agency. The system is periodically reviewed for currency and tested for readiness.

The Damage Assessment Officer in the Division of Defense Coordination assisted in the staffing of the National Resources Evaluation Center (NREC) at the Office of Emergency Planning relocated headquarters site. The NREC staff is on a permanent round-the-clock

call and participates in periodic unscheduled tests and alerts. The NREC collects and stores available data on essential resources for evaluation by a high-speed computer. The FCC furnished data, during the past year, for two additional categories of resource data for inclusion in the computer files. The FCC is now responsible for 5 categories of resources pertaining to telecommunications of the approximately 100 categories stored in the computer.

NATIONAL DEFENSE EXECUTIVE RESERVE

Executive Order 10660, February 15, 1956, provided for the establishment of a National Defense Executive Reserve Program in the Executive Branch of the Government. Pursuant to that order, the first appointments to the FCC unit of the reserve were made in 1957.

There are 20 persons on the present FCC roster of reservists. The program is presently under review to determine where, both organizationally and geographically, additional personnel may be required.

Reservists previously have received their training on an annual basis. During the year, their frequency of training was increased to two periods of 2 days' duration each. The primary area of their training has been in the actual work of the various FCC bureaus and offices to which they have been designated for assignment in the event of a national emergency. A portion of the training consisted of a visit by the reservists to the Commission's primary monitoring station at Laurel, Md., where observations were made of the use of frequency spectrum analyzing equipment and radio monitoring and direction-finding techniques. Reservists were also given training at the agency's emergency relocation site during the year.

EMERGENCY RELOCATION SITE

The emergency readiness posture of the emergency relocation site is being continually improved. Trained communicators are in attendance at the facility and their proficiency is maintained through regular practice periods and the medium of monthly drills in the operation of the emergency communication equipment there.

The mobile radio communication center prepositioned at the site is maintained ready and is regularly tested. During the year, arrangements were completed for the use of land to erect additional transmitting and receiving antennas in order that the mobile communication van can be remotely operated from the emergency relocation site to provide still more effective emergency contact with other FCC radio facilities. The mobile center has a capability of handling radioteletype and radiotelegraph messages directly with any one of several of the Commission's radio-equipped monitoring stations.

The essential operating documents on file at the emergency relocation site were completely reviewed for currency and adequacy. An improved filing code system for these documents was instituted during the year.

FAMILY RENDEZVOUS POINTS

These facilities serve as points for uniting members of FCC families in the event of their separation during an emergency. They also serve as points for certain designated employees to report and receive emergency assignments.

Emergency communication equipment, prepositioned at the Virginia facility, has the capability of maintaining communication with other FCC installations including the agency emergency relocation site. The facility is periodically tested for readiness.

During the year, arrangements were completed for establishing a second family rendezvous point in Maryland. It will be equipped with emergency communication equipment in a manner similar to the one in Virginia and, it is anticipated, will provide a comparable communication capability.

CUBAN CRISIS

The Cuban crisis in the fall of 1962 intensified the Commission's participation in communication plans and steps concerning the national defense. The FCC also obtained the cooperation of 10 domestic commercial radio broadcast stations in establishing a special link-up with transmitters of the "Voice of America" to insure a large Cuban audience for the President's message of October 22. This was the first time that private broadcasters had participated in such an emergency operation. The success of the joint undertaking brought a formal commendation for the FCC and the broadcasters from the Senate Subcommittee on Communications. A number of stations continued to cooperate with the "Voice of America" in other emergency programing.

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Space Communication

GENERAL

Greater strides toward space communication were made in the calendar year 1962 than in the previous period of its preliminary development. And in this march of progress the United States took the lead.

Marked advance was made toward achieving, with the cooperation of interested nations, a satellite system which will ultimately offer global coverage. The use of satellite relay, now proved practicable by this Nation's general space research, promises added world telecommunication facilities when existing international radio and cable systems will be hard pressed to handle mounting traffic, and will also make possible new oversea radio communication services, including live telecasts.

Further steps were taken, with the Commission playing a significant role, in formulating the U.S. views for an international conference next year to consider allocating frequencies for space communication operation.

As noted in the 1961 annual report, the Commission—long concerned with the prospect of extending communication into space—had begun a proceeding (docket 14024) to resolve some of the new and perplexing problems involved. This proceeding, however, was halted while Congress deliberated legislation on the subject. The result was enactment of the Communications Satellite Act of 1962, which authorizes creation of a corporation to build and operate such a system in partnership with foreign governments and businesses.

Meanwhile, the National Aeronautics and Space Administration (NASA) continued to experiment with communication satellites. In addition, the American Telephone & Telegraph Co., under FCC authorization, developed the now famous "Telstar." Orbited by NASA, it achieved results that won world acclaim. Additional experimental communication satellites, each with distinctive features, were planned by other U.S. business interests for launching by NASA.

These developments are bringing realization of American dreams, and attesting to America's electronic ingenuity, by proving the practicability of harnessing satellites for peacetime uses to benefit peoples throughout the world. They portend international communication on a scale which staggers the imagination.

SATELLITE COMMUNICATION DEVELOPMENTS

The feasibility of using satellites, both natural and artificial, to relay radio communication had been demonstrated prior to 1962. For example, in 1960 the Army launched the "Courier," which received and recorded messages from the earth and later retransmitted them, upon command, to ground stations. "Courier" was what is known as an "active" satellite because it carried both receiving and sending equipment. This differs from "passive" satellites which are not so equipped but reflect radio signals in the same way radar echoes are produced.

During 1960, NASA's "Echo I" set a pioneering record. This 10-story-high balloon, made of thin metalized mylar, was placed in a 1,000-mile-high orbit and used to reflect signals sent from the earth. It successfully relayed two-way transcontinental telephone conversations and other transmissions, including facsimile. Prerecorded messages of President Eisenhower and Senator Lyndon B. Johnson were among the first sent via "Echo I." It is currently noteworthy that this balloon satellite is still in orbit. However, improved versions, larger and more rugged, are planned in "Echo II" and "Rebound" projects.

During 1961, the FCC authorized experimental transmissions to the moon and back to earth, using that natural satellite as a reflector station.

"Telstar" Achievements

But it remained for "Telstar" to establish many new "firsts." It was the first satellite built by a private company which paid the launching cost; it was the first active repeater satellite to transmit internationally, and it was the first satellite to operate on the high microwave frequencies.

Rocketed into orbit by NASA on July 10, 1962, it relayed the first live transatlantic telecasts—from the United States to Europe—15 hours later. (The first picture was the American flag fluttering in the breeze in front of the sending station at Andover, Maine.) France, and then England, joined it with telecasts to the United States the following day. Still pictures in color were received from England on July 16. Test exchange of live telecasts between the two continents began on July 23. The first live color test was on September 12.

Pioneer telecasts by "Telstar" evoked intense popular interest. Although these demonstrations were spectacular, it should be kept in mind that the long-range objective is the development of a global space communication system to augment present international communication facilities in providing many forms of voice and record

communication. In effect, it will be an extension of microwave relay into space.

Consequently, the more technically minded were equally interested in "Telstar's" relay of other communication, which was also highly successful. It is capable of handling 600 one-way telephone messages, or 60 two-way telephone conversations, or 1 TV transmission at a time. The first space telephone message was relayed by "Telstar" about 15 hours after its launching. It began "Good evening, Mr. Vice President." Also sent from Andover, it traveled 3,500 miles and was received in Washington by Vice President Johnson. Multiple-telephone transmission was tested on July 19.

"Telstar" is sphere shaped, slightly less than 3 feet in diameter and weighs 170 pounds. Its aluminum shell covers a magnesium framework. It spins at 180 revolutions a minute and circles the world every 157 and a fraction minutes on an orbit ranging between 600 and 3,500 miles above the earth. It operates with 2¼ watts power on the frequency 4170 Mc to special earth stations which, in turn, use 6390 Mc to the satellite. It cost $1 million to build, $2.7 million to launch, and the special earth terminal at Andover, Maine, another $10 million. These figures do not include planning and other costs in connection with the project. It was launched by NASA at Cape Canaveral, Fla., under contract with A.T. & T.

More Test Satellites Planned

Under like arrangements with NASA, additional satellites are planned by American industry to test space communication. They include "Relay," for the Radio Corp. of America; "Syncom," for the Hughes Aircraft Co.; "Advent," a joint project of the General Electric and Bendix Corp.; and, possibly, another one for A.T. & T.

"Relay," like "Telstar," is designed as a medium-altitude repeater station. Shaped like a butter churn and weighing 150 pounds, it will have a duplicate radio system. It is intended to be used, among other things, for testing space communication between North and South America.

"Syncom" and "Advent" are high-altitude satellites for operation at about 22,000 miles, at which the 24-hour orbit time is the same as the rotation of the earth. If positioned above the Equator, they would travel at the same speed of the earth and, consequently, appear stationary over one part of the world.

A "synchronous" or "24-hour" satellite system has obvious advantages. Because of its great height, only three satellites—spaced at 120° angles—could serve 90 percent of the earth's surface. Because it is stationary with respect to points on the earth, there is less need for expensive tracking equipment. This would be important to the development of a global system, for many small nations cannot afford

to construct and maintain elaborate ground stations. However, the high-altitude system poses certain technical problems, such as a noticeable lag in voice relay as a result of the tremendous distances involved and the necessity of providing for precise positioning of the satellites.

A medium-altitude system—6,000 miles or so—is another possibility. Less elaborate tracking equipment would be required to follow the satellite across the sky.

"Telstar," which is an example of the low-altitude system, follows a random inclined orbit and is tracked by elaborate ground equipment. It is in sight of the ground station for only a few passes a day. Some of these passes last much less than an hour. For round-the-clock global transmission, it is obvious that a substantial number (possibly 30 or more) of such satellites would have to be in orbit at all times so that when one goes down over the horizon another will be in sight.

Thus, a system at lower altitude requires more satellites and more elaborate ground stations, while a higher-altitude system offers advantages but involves a number of yet unresolved technical problems.

"Telstar" and the test satellites to follow will answer many questions. One of the biggest unknowns is how long a solar-powered satellite will function. The final system may turn out to be a combination of satellites at several altitudes.

SPACE SATELLITE LEGISLATION

On July 24, 1961, President Kennedy issued a statement on space communication policy, in which he invited all nations to participate in a worldwide system. Thereafter, on February 7, 1962, he proposed legislation that was the subject of extensive hearings (in which the FCC testified 11 times). A modified version of the administration's proposal was approved by the Senate on August 17, 1962, by the House 10 days later, and became law with the President's signature on August 31, 1962.

Titled the "Communications Satellite Act of 1962," it authorizes the creation of a unique form of American corporation. It will be a private corporation for profit—not an agency or instrumentality of the Government, but subject to governmental regulation. The corporation will build and operate a commercial system. It will do this in partnership with foreign governments and businesses.

Half the stock (not more than $100 a share) of the corporation can be owned by communication companies—and the other half by investors from the general public. There will be 15 directors—6 elected by the communication carriers, 6 by public stockholders, and 3 appointed by the President with the approval of the Senate.

The law imposes specific duties on various Government agencies. The President will coordinate the activities of the Federal agencies

concerned. He will supervise the relationship between the corporation and foreign governments, and stimulate foreign participation in the system.

NASA, working with the corporation, will continue to explore and clarify the technical characteristics of the system.

The Commission has a number of important new responsibilities. It must ultimately, with the advice of NASA, pass judgment on whether the system will be high, middle, or low altitude—or some combination of the three. It must approve the radio transmission standards. It must approve the rates. It must insure effective competition in the procurement of equipment for the satellite system and ground stations.

It must approve stock issues or borrowing by the corporation; also, insure that no substantial additions are made to the corporation or to a ground station unless required by the public interest.

Where the Secretary of State advises that communication to a foreign nation by means of the satellite system should be established in the national interest, the FCC must institute proceedings to establish such service.

On October 4, 1962, the President named 13 persons as incorporators of the Communications Satellite Corporation, and on November 28 the Commission proposed regulations for authorizing common carriers to purchase stock in the corporation after the latter is formed.

SPACE FREQUENCY CONSIDERATIONS

In early 1957 the Commission recognized the need for international agreement on allocating spectrum space for satellite communication. Accordingly, it undertook, in collaboration with the Department of State and other Federal agencies and the communications industry, extensive studies which led to U.S. proposals to the Ordinary Administrative Radio Conference of the International Telecommunication Union at Geneva in 1959. Though this Conference felt that too little was then known about actual space communication needs, it did, principally on the initiative of the United States, make certain frequency bands available for space research. At the same time, it provided for an Extraordinary Administrative Radio Conference to consider further steps. That Conference is now scheduled for October of next year at Geneva.

The FCC, working with the Office of Emergency Planning and other Government agencies and with industry advice, drafted a document setting forth the "Preliminary Views of the United States of America—Frequency Allocations for Space Radio Communications." On October 24, 1962, the Commission invited (docket 13522) com-

ments to revised proposals. Although subject to modification, it is expected that the substance of these views will be the basis of the formal U.S. proposals at the 1963 session.

In addition, the Xth Plenary Assembly of the International Radio Consultative Committee (CCIR) of the ITU will meet at New Delhi in January 1963 to consider, among other things, technical matters relating to space systems. Since the results of that assembly will affect decisions to be taken by the subsequent special space conference at Geneva, the FCC has been active in the work of the U.S. committee of the CCIR dealing with space matters.

FCC SPECIAL SPACE COMMUNICATION TASK FORCE

In anticipation of the unprecedented technical and administrative problems invited by space communication, the Commission more than a year ago appointed a special space committee to coordinate its preliminary work on the subject. It is headed by Commissioner T. A. M. Craven and is representative of legal, engineering, common carrier, and other FCC units concerned with different aspects of space communication.

Later, on September 18, 1962, the Commission created an Office of Satellite Communications in its Common Carrier Bureau to administer and implement regulatory functions required of the FCC by the Communications Satellite Act of 1962, and a Space Systems Branch in the Office of Chief Engineer to handle related space communication engineering matters. The Office of General Counsel cooperates with both units on legal considerations in those connections.

Broadcast Services

COMPLAINTS

The general public continued in increasing numbers to raise its voice in protesting many aspects of broadcast station operations, including local and network programing, overcommercialization, and various other practices. There was also an increased tendency on the part of licenseees and other segments of the industry to report practices which were felt to have an unwholesome impact upon the broadcasting industry as well as the public.

During the fiscal year over 12,000 complaint letters were received, which was a substantial increase over the previous year. About 35 percent of them were about programing, the largest single category being objections to specific programs on the basis of excessive crime and violence. Next in volume were complaints concerning station commercial practices, including overcommercialization, loud commercials, false and misleading advertising, and the advertising of liquor, tobacco, and other controversial products. Such complaints comprised approximately 16 percent of the total.

A substantial increase was noted in complaints concerning false and misleading advertising, the increase coming shortly after FCC issuance on November 7, 1961, of a public notice reminding licensees of their responsibility in the broadcast of such advertising and announcing a procedure whereby the Federal Trade Commission would send to all licensees, on a regular basis, a publication summarizing current actions by that agency with regard to false and deceptive practices and containing a detailed discussion of problems in specific areas. After the November warning, complaints as to false and misleading advertising increased from an average of 20 to 54 per month.

Field investigations were conducted with respect to individual stations and industrywide practices. Public notices were issued warning licensees against the practice of double billing, the broadcast of horseracing information in such manner as to aid illegal gambling activities, and the broadcast of "teaser" spot announcements which did not disclose the identity of the sponsor. Investigations of individual stations covered such areas as hidden ownership, unauthorized transfers of control, misrepresentations in applications and other statements filed with the Commission, rigged contests, and violations of the requirements for sponsorship identification.

COMPLIANCE

The Commission continued its program of obtaining greater licensee compliance with requirements of statutes, rules, and regulations by invoking its authority to impose sanctions. Disciplinary actions taken during the year were unprecedented both in number and emphasis on programing issues.

Revocation Proceedings

Four broadcast station licenses were revoked during the fiscal year. They were:

WIOS, Tawas City-East Tawas, Mich.; for misrepresentation (December 20, 1961);

KLFT, Golden Meadow, La.; misrepresentation and technical violations (March 15, 1962);

KCPA(FM), Dallas, Tex.; technical violations (June 27, 1962); and

WGRC, Green Cove Springs, Fla.; unauthorized transfer (June 27, 1962).

Nine other stations were the subject of revocation proceedings during the year. These stations and principal issues were:

KWK, St. Louis, Mo.; conduct of contests; an initial decision of September 17, 1962 looked toward dismissing this proceeding;

KBOM, Bismarck-Mandan, N. Dak.; unauthorized transfer of control and other violations; effective date of an April 3, 1962, initial decision for revocation was stayed to consider pleading by applicant for the facilities to be vacated;

WMPP, Chicago Heights, Ill.; unauthorized transfer and misrepresentation; awaiting final decision;

KPSR (FM), Palm Springs, Calif.; unauthorized transfer; an initial decision of June 27, 1962, became effective August 16;

WPFA, Pensacola, Fla.; falsifying logs and misrepresentation; an initial decision of May 28, 1962 looking to revocation (see related WMOZ, Mobile, Ala., license denial proceeding);

WLOF (FM) Cranston, R.I.; misrepresentation and technical violations; proceeding terminated March 15, 1962, and afforded time to file additional data;

WIZR, Johnstown, N.Y.; character qualifications, hidden ownership and misrepresentation; awaiting hearing; and

WDOV AM-FM, Dover, Del.; double billing and misrepresentation; awaiting hearing; faces forfeiture if imposed in lieu of revocation.

On July 26, 1962 a revocation proceeding was brought against WCLM (FM), Chicago, Ill., for violating its subsidiary communications authorization by broadcasting horseracing information and commercials, failure to report a time broker's contract, and other violations.

License Renewal Proceedings

The Commission's first denial of a broadcast station license renewal primarily on programing consideration was on March 15, 1962, in the case of KRLA, Pasadena, Calif., for conducting "rigged" contests, altering program logs, etc. This decision was reaffirmed July 18, but stayed on August 6 pending KRLA court appeal.

Subsequently, on July 25, 1962, license for WDKD, Kingstree, S.C., was denied for vulgar and suggestive programs, misrepresentations, etc. This was stayed on August 16 pending consideration of a petition for review.

Nineteen other stations were involved in license-renewal proceedings during the year. They were:

Gila Broadcasting Co. stations KCKY, Coolidge, KCLF, Clifton, KGLU, Safford, KVNC, Winslow, and KZOW and KWJB–FM, Globe, all Arizona, for unauthorized transfer of control and technical violations; an initial decision of February 23, 1962, looked to their denial;

WGMA, Hollywood, Fla., for character qualifications of one of its principals involved in "fixed" network TV shows; in hearing;

WREA, East Palatka, Fla., for unauthorized transfer, abandonment, etc.; application was dismissed with prejudice January 4, 1962, for failure to comply with publicity requirements;

WMOZ, Mobile, Ala., for false program logs and misrepresentation; an initial decision of May 28, 1962, looked to denial (see related WPFA, Pensacola, Fla., revocation proceeding);

KPOR, Quincy, Wash., for unauthorized transfer and misrepresentation; proceeding terminated March 21, 1962, by acceptance of amended ownership report;

KISS–FM, San Antonio, Tex., misrepresentation; awaiting initial decision;

KMAC, San Antonio, Tex., misrepresentation; awaiting initial decision;

WRCV AM–TV, Philadelphia, Pa., antitrust consideration; awaiting hearing;

WSPN, Saratoga Springs, N.Y., misrepresentation, etc.; awaiting hearing;

WXFM, Elmwood Park, Ill., unauthorized transfer, misrepresentation, etc.; awaiting initial decision;

WWIZ, Lorain, Ohio, unauthorized transfer; in hearing;

WFAR, Farrell, Pa., unauthorized transfer; in hearing; and

WNAC, Boston, Mass., character qualifications; in hearing.

Forfeiture Proceedings

Under a 1960 amendment to the Communications Act, broadcast stations which engage in violations that do not warrant revocation proceedings can be held liable for forfeitures to be paid to the U.S. Treasury (not to the Commission).

The first such liability action was taken March 22, 1961, against KDWB, St. Paul, Minn., for technical violations. An original assessment of $10,000 was mitigated by the Commission on July 26, 1961, to $2,500.

During the fiscal year 8 other forfeiture notices were issued:

KOMA, Oklahoma City, Okla., November 21, 1961, $10,000 for technical violations; mitigated to $5,000 June 27, 1962;

WCUY (FM), Cleveland Heights, Ohio, December 6, 1961, $8,000 for technical violations; mitigated to $4,000 June 20, 1962;

KDAY, Santa Monica, Calif., December 13, 1961, $5,000 for "teaser" announcements violating the sponsorship rule; request to mitigate denied April 12, 1962;

KOLS, Pryor, Okla., March 28, 1962, $1,000 for unauthorized pre-sunrise operation; request to mitigate denied June 13, 1962;

WNOE, New Orleans, La., March 28, 1962, $10,000 for conducting a "rigged" contest;

WOL–FM, Washington, D.C., June 6, 1962, $1,000 for operating a new antenna without prior authority; and

WDOV AM–FM, Dover, Del., June 6, 1962, forfeiture up to $10,000 as alternative in revocation proceeding. (See "Revocation Proceedings.")

After the close of the fiscal year [up to November 1], 11 additional stations were held liable for forfeiture:

WBNX, New York City, July 5, $10,000 for broadcasting commercials without identifying the sponsor, failure to file time broker contracts, etc.;

KELP, El Paso, Tex., July 25, $5,000 for violating the sponsorship rule;

WCHI, Chillicothe, Ohio, July 25, $3,000 for operator requirement and technical violations;

WCHO, Washington Court House, Ohio, July 25, $1,500 for operator requirement violation;

WKOV, Wellston, Ohio, July 25, $2,000 for operator requirement violation;

KISN, Vancouver, Wash., September 6, $2,000 for improper station identification;

WCCO–TV, KSTP–TV, WTCN–TV, and KMSP–TV, all Minneapolis, Minn., September 6, $500 each for failure to identify a program sponsor, and

WRVB, Madison, Wis., October 11, $1,000 for unauthorized transfer.

Short-Term Licenses

The Commission continued to issue short-term licenses to stations whose violation records indicated need for closer supervision. This, too, is provided by the act's 1960 amendments.

Between March 1, 1961, and November 1, 1962, the following 24 stations, because of various considerations, were given license renewals for shorter periods than the normal 3-year term:

WIRA AM–FM, Fort Pierce, Fla.
WVOW, Logan, W. Va.
WPET, Greensboro, N.C.
WOOK, Washington, D.C.
KORD, Pasco, Wash.
WILD, Boston, Mass.
WAVA AM–FM, Arlington, Va.
WKKO, Cocoa, Fla.
WITT, Lewisburg, Pa.
KDB, Santa Barbara, Calif.
WAPA, San Juan, P.R.
WHOL, Allentown, Pa.
WESY, Leland, Miss.
WBRO, Waynesboro, Ga.
WSME, Sanford, Me.
WSRA, Milton, Fla.
KARY, Prosser, Wash.
WCHJ, Brookhaven, Miss.
WCGA, Calhoun, Ga.
WACA, Columbus, Miss.
WMPP, Chicago Heights, Ill.
KEYC–TV, Mankato, Minn.

License Renewals Deferred

In determining whether applications for renewal of broadcast licenses should be granted, the Commission is required to find that the public interest would be served thereby. Before making such a finding, the Commission considers the legal, technical, financial, and other qualifications of the applicants. As a result of congressional hearings and Commission inquiries conducted during 1960, action on an unusually large number of renewal applications had been deferred pending resolution of various questions. As of June 30, 1961, the deferred AM, FM, and TV renewal applications totaled 558. During the fiscal year, additional staff was assigned to review these applications, with the result that as of June 30, 1962, this total was reduced to 397.

Public Response to Renewal Applications

The Communications Act and the Commission's rules require applicants for renewal of licenses to publish announcements of their applications for public comments. During the period from July 1 to December 31, 1961, 340 letters were received by the Commission from listeners or viewers concerning pending renewal applications. During the period from January 1 to June 30, 1962, 1,406 letters were received.

POLITICAL BROADCASTS

Congress amended section 315(a) of the act, effective September 14, 1959, to exempt from the "equal opportunities" requirement appearances by legally qualified candidates on bona fide newscasts, news interviews, news documentaries or on-the-spot coverage of news events. In addition, the Commission is required to include in each annual report to Congress "a statement setting forth (1) the information and data used by it in determining questions arising from or connected

with such amendment; and (2) such recommendations as it deems necessary in the public interest."

Commission procedure with respect to section 315 complaints is: Immediately upon receipt, a complaint is acknowledged and the complainant informed that the Commission is communicating with the licensee. At the same time, the licensee is advised of the complaint and directed to reply within a given time. Such notice is given by telegram, letter, or telephone depending on the immediacy of the election.

All section 315 matters are given priority consideration. When a determination is made, both the licensee and the complainant are advised by telegram, letter, or phone as may be required by the circumstances.

In deciding whether a particular "use" of a station's facilities by a candidate comes within the section 315 exemptions, the Commission seeks factual information bearing on the determinative factors. For example, in a case in which the applicability of the exemptions was in issue, the Commission inquired into the following matters: Whether the candidate requesting "equal opportunities" was a "legally qualified candidate"; the format and content of the program on which he appeared; whether the program was "regularly scheduled" and, if so, the times of the day and week; when the program was first initiated and when a candidate first appeared on it; whether controversial issues were discussed and, if so, whether opportunity was afforded to present opposing viewpoints; the total amount of free time received by the initial candidate; a copy of the script of the program in issue; and the basis for the station's denial of the request of the complaining candidate for equal time.

The Commission has not experienced any serious problems in applying the 1959 amendments to section 315 in cases before it. Accordingly, it is not making any recommendations on the subject.

During fiscal 1962, several bills were introduced in Congress proposing to amend or suspend various provisions of section 315. These included proposals to exempt permanently the appearances of candidates for President and Vice President, also Members of Congress and Governors; to suspend section 315 for the President and Vice President in the 1964 election and for congressional and gubernatorial candidates in the 1962 election.

The following are among the significant section 315 matters which came before the Commission during the year:

In January 1962, a Negro minister, Rev. Robert L. T. Smith, a candidate for the Democratic nomination for U.S. Representative from Mississippi, sought to purchase 30 minutes' time on WLBT–TV, Jackson, Miss. Upon refusal of his request, he complained to the Commission. In response to Commission's inquiry, the station stated

the primary would be held in June; that it had not refused to sell time to Reverend Smith; and that it had offered to sell him time before the primary. The Commission accepted the response and so advised Reverend Smith.

On the following April 11 and 12, Reverend Smith again attempted to purchase time from the station. This request was refused on the ground that the station had concluded that it would not be in the public interest to make its facilities available to any candidate for the office sought by Reverend Smith. After receiving Reverend Smith's complaint, the Commission wrote to the station referring to its previous correspondence; to its programing policy statement of 1960 in which "political broadcasts" are listed as one of the "major elements usually necessary to meet the public interest, needs, and desires of the community"; to a Supreme Court decision recognizing the Commission's policy concerning political broadcasts, and requesting the station to set forth the basis for its conclusion that the public interest would not be served by the sale of time to candidates for the office sought. A few days later, the station advised the Commission that it would sell time to the candidates for the office.

In another case, the Commission held that a nonexempt program, such as a Congressman's weekly report, does not get exempt status by being broadcast as part of an exempt program such as a bona fide news broadcast. This holding was based on the legislative history of the 1959 amendments to section 315.

The Commission received a complaint from a congressional candidate that a station had sold to his opponent all the prime time segments in the week preceding the election. At the time of the complaint, the total time sold to both candidates, past and scheduled, was the same. The Commission held that where (*a*) the station's offer of certain specified time segments to the complainant was initially refused by him and (*b*) the station then sold those segments to the complainant's opponent, the station was not obligated to sell the complainant time immediately preceding or following the time segments previously offered to and refused by him and subsequently sold to his opponent. The Commission pointed out that the pertinent factors considered were (*a*) the total amount of time scheduled for each candidate; (*b*) the time segments previously offered the complainant; (*c*) the time segments scheduled for the complainant's opponent, which were previously rejected by the complainant; (*d*) the time segments scheduled for candidates for other offices, if any, and previously rejected by the complainant; and (*e*) the station's obligations to other candidates.

The Commission held that a summary of a session of a State legislature, broadcast on a regular basis at the close of each session, is a

bona fide news documentary and, therefore, incidental appearances on such program of a legislator, who is also a candidate, are exempt under the 1959 amendments.

In response to a request for "equal time," the Commission held that a program devoted to the subject of off-year elections, which included on-the-spot coverage of several conventions, interviews with various candidates, descriptions of their campaign techniques, and discussions of certain issues of the day, is a bona fide news documentary, and the appearance of any candidate on the program was merely incidental to the subject of the program and therefore exempt.

Where a station notified all candidates for the same office of a joint program which it would broadcast 4 days after the date of the notification, and where one of the candidates said that he could not participate because he was a Member of Congress then in session and the station was located a considerable distance away; that he had not been given sufficient notice; and that he would expect "equal opportunities," the Commission advised the station that the advance notice given the complainant was not adequate and that his inability to appear on the scheduled program did not foreclose his right to "equal opportunities" at a later date.

Since January 1, 1962, the Commission has handled 113 separate requests and complaints concerning section 315. Of these, 28 posed questions relating to the office of U.S. Senator and 38 to the office of U.S. Representative. With respect to the office of Senator, in 13 instances written opinions were given. The remaining 15 related to actual disputes. Thirteen of these concerned the appearance of one particular candidate. Of the cases relating to the office of Representative, in 18 instances the requests were for opinions, while the remaining 20 involved controversies requiring Commission disposition. Seven of these involved one particular candidate. There were 13 matters relating to the office of Governor of various States, of which 2 were requests for opinions and 11 presented controversies. As for all other offices, there were 34 cases, of which 15 were requests for opinions and 19 were controversial subjects.

Thirty-nine other requests and complaints raised questions as to whether the programs were exempted by the 1959 amendments. Of these, 13 related to newscasts, 3 to news documentaries, 7 to news interviews, and 16 were general in nature.

During 1961, the Commission handled 45 separate equal-time matters, 30 of which were received during the last 6 months of the year and related to various State elections. The latter group involved offices of U.S. Senator, 1; U.S. Representative, 4; Governor, 11; other offices, 29. Of the 45 total, 11 concerned 1959 exemption considerations of news-type programs—newscasts, 4; news interviews, 4; and 3 general.

BROADCAST OF CONTROVERSIAL PUBLIC ISSUES

In its 1949 "Report on Editorializing by Broadcast Licensees," the Commission held that when a licensee permits the use of his facilities for discussion of controversial issues of public importance, he is under an obligation to afford reasonable opportunity on his station for the broadcast of opposing viewpoints. This principle, sometimes referred to as the "fairness doctrine," has since been Commission policy.

Resultant complaints received by the Commission allege such things as one-sided presentations of controversial subjects, distorted news, biased commentaries, political slanting, unfair editorializing, etc. Commission procedure includes an acknowledgment of the complaint and its transmittal to the station involved. The principal objective of the Commission in these matters is to remind licensees of their "fairness" obligations and to obtain compliance.

On April 17, 1962, a Senate Commerce Committee subcommittee issued a report on "Freedom of Communications." It contains, among other things, recommendations that the Commission (*a*) promulgate definitive rules and make certain studies with respect to its "fairness doctrine"; (*b*) modify certain of its policies and adopt certain rules relating to section 315; (*c*) revise its internal procedures for handling equal-time and fairness complaints; and (*d*) advise Congress "exactly what is needed in the way of legislative authority and personnel in order to preserve for the public the freedom to hear and to see on the public airwaves, free from Governmental dictation on the one hand, but free as well from private licensee dictation on the other." Some of the recommendations in (*c*) have been put into effect by the Commission. Consideration is being given to the other recommendations.

The number of questions concerning treatment of controversial issues and editorializing over broadcast stations has increased sharply in the past 6 months. During 1961, 409 complaints and letters relating to editorializing and controversial issues divided into these general categories: slanted news programs (biased, etc.), 47; slanted news documentaries, 16; fluoridation, 105; communism, 56; "Medicare," 26; and miscellaneous controversial subjects, 159.

From January to June 1962, 418 cases related to broadcast treatment of controversial issues and editorializing. They were: slanted newscasts 63; slanted documentaries, 70; "Medicare," 25; communism, 60; and all others, 200. In addition, there were two cases concerning editorials involving public offices, eight in which editorial positions were taken on campaign issues.

From the foregoing, it is apparent that during the first 5 months of 1962 there were more complaints and inquiries about editorializing and broadcasts of controversial issues than there were during the entire year of 1961. The general elections of November 1962 were expected to add greatly to this year's total.

PROGRAMING INQUIRIES

TV Network Programing Inquiry

Taking of testimony in the Commission's public hearing on TV network programing practices was concluded when the Commission, sitting as a body in early calendar 1962, heard testimony by the networks. This particular phase of the overall TV network inquiry (docket 12782), previously heard from independent film producers in Los Angeles, and advertising agencies, TV program producers, directors, writers and artists, also national advertisers, in New York City.

This proceeding, which began in 1959, was an outgrowth of the Commission's prior TV network study initiated in 1955, completed in 1957, and subject of a report in 1960.

The record of the concluding phase comprises 29 volumes. It is being reviewed by the Commission's Office of Network Study for preparation of a staff report for consideration by the Commission.

Local TV Programing Inquiries

The Commission on February 21, 1962, ordered inquiry into local live programing by TV stations in Chicago. This was the first FCC hearing of its kind. Public sessions were held in that city before Commissioner Robert E. Lee from March 19 to early April. More than 100 public witnesses appeared, in addition to representatives of the 5 Chicago TV stations.

On June 18, Commissioner Lee submitted a 134-page report to the Commission. It found, in general, that the local TV stations, in varying degree, make reasonable effort to determine local needs and interests; that the major areas of controversy centered about the treatment accorded local religious groups, racial and social problems, and local talent; that local talent was not afforded much opportunity for development in local programing; and that local autonomy of network owned and operated stations was a serious problem.

On November 21, 1962, the Commission ordered a like inquiry into local TV programing at Omaha, Nebr.

OTHER PROGRAMING MATTERS

Local Audience Needs; Revision of Program Forms

On July 7, 1961, the Commission proposed further rulemaking to implement a requirement in its 1960 statement of programing policy that broadcasters make efforts to ascertain and fulfill the needs and desires of the people in the communities they serve. The rulemaking concerns proposed amendments to the statement of program service

in broadcast application forms. The Commission has evaluated the many comments received and at the close of the fiscal year was considering final action.

Meanwhile, on March 29, 1962, the court of appeals affirmed a Commission action of the year previous in denying an application for a new FM broadcast station because the applicant made no effort to ascertain the programing needs of the community it proposed to serve (See "Litigation.")

"Teaser" Advertising

On June 1, 1962, the Commission warned broadcasters about using "teaser" or "come-on" spot advertising without identifying the product or sponsor as required by law. It had received complaints that many stations were using such spots to arouse interest in forthcoming promotional projects.

A $5,000 forfeiture was imposed on—and paid by—a broadcast station at Santa Monica, Calif., in April 1962 for engaging in this practice. (See "Forfeitures" in this chapter.)

False and Deceptive Advertising

On November 7, 1961, the Commission sent a public notice to all broadcast licensees informing them of a new joint program, instituted by the FCC and the Federal Trade Commission, to aid broadcasters guard against airing fraudulent and deceptive advertising matter.

Sponsorship Identification

On April 27, 1961, the Commission proposed rules (docket 14094) to implement the amendments to section 317 (sponsorship identification) enacted by the Congress in 1960. The most controversy is over a section which provides that feature films made after the effective date of the proposed rules would be presumed to have been produced for later TV showing. Its adoption would require TV stations which broadcast feature films to comply with the sponorship identification requirements of section 317 with respect to any product or service publicized in the film, for which showing money, service, or other valuable consideration had been paid. The filed comments are being studied.

On July 20, 1962, the Commission reported on its findings in the case of a health program series broadcast by numerous stations which, in discussing diet, nutrition and other related subjects, touched on various controversial matters. In so doing, it reminded all stations about their responsibilities for fairness in handling public issues and making proper sponorship identification.

On August 1, 1962, the Commission warned stations about broadcast of foreign matter—documentary films, political propaganda, and controversial subjects—without announcing that the material is sponsored or paid for by foreign governments. This is pursuant to law and Commission's rules requiring announcement identifying the source of all sponsored or paid for material.

Broadcast Promotion Interest

The Commission is considering comments received in response to its rulemaking proposal of May 11, 1961, which would require broadcast networks, stations, and their principals and employees to disclose financial interests in services and commodities which receive broadcast promotion.

Broadcast of Horseracing Information

On November 22, 1961, the Commission reminded all licensees that the broadcast of horseracing information which would be of substantial use to persons engaged in illegal gambling is not in the public interest. In so doing, it set out the type of broadcast material which has been found to be of particular aid to unlawful gambling interests.

Broadcast of such information was one of the grounds cited by the Commission in a 1962 revocation action against a Chicago station. (See "Revocations" in this chapter.)

"Double Billing"

On March 9, 1962, the Commission warned broadcasters against engaging in the practice of "double billing," i.e., sending a local advertiser two bills for the same advertising, one of an amount locally agreed upon for the broadcast and the other in a larger amount to be sent by the local advertiser to a manufacturer or distributor to support the local advertiser's claim for reimbursement under a cooperative advertising agreement.

"Double billing" was one of the grounds cited by the Commission in a license revocation proceeding against a Dover, Del., station. (See "Revocations" in this chapter.)

Option Time Rules

The Commission's rules limiting option time were amended on September 14, 1960 to reduce from 3 to 2½ hours the amount of time an affiliate broadcast station can option to a network in each time segment of the broadcast day (docket 12859). This decision was appealed (*Times-Mirror Broadcasting Co.* v. *United States, et al., C.A.D.C., No. 16,068*). Upon request, the Commission obtained a remand in order to hold further proceedings.

On May 3, 1961, it proposed further rulemaking in the same docket to reconsider its 1960 decision on the basic question of whether the option time practice, apart from its legality under the antitrust laws, is in the public interest, meanwhile continuing in effect its 1960 option time rule amendments. Oral argument was held December 4, 1961, in which 11 parties, including the national networks and their affiliate groups, participated. The record is being studied for a determination.

GENERAL BROADCAST MATTERS

Multiple-Ownership Rules

On July 13, 1962, the Commission proposed to tighten the "duopoly" or "overlap" provisions of the broadcast multiple-ownership rules (docket 14711). These rules, which place limitations on the common ownership or control of multiple AM, FM, and TV stations which serve substantially the same area are intended to preserve and augment the opportunities for effective competition.

Many serious overlap situations now exist, and the Commission is of the view that there should be stricter limitations than at present. Precise overlap standards are proposed for each service. They would prohibit overlap of grade A service contours of commonly owned TV stations and overlap of the 1 mv/m service contours for commonly owned AM or FM stations. Licenses would not be granted where such overlap would result. The proposed rules would apply to applicants for new stations, major changes in existing stations, and assignments and transfers of control. The AM rules would not apply to class IV (local stations) desiring to increase power to the 1-kw maximum, or to noncommercial educational FM and TV stations. Divestiture of existing facilities because of overlap is not contemplated; however, commonly owned stations with an overlap problem prohibited by the contemplated rules could not be sold to the same buyer.

Broadcast Station Sales

On March 15, 1962, the Commission adopted a new rule which provides, with certain exceptions, that applications for the sale of broadcast stations within 3 years of their acquisition by the sellers will be designated for hearing. This rule followed expression of the Commission's view that "the appreciable number of such applications involving short-term ownership of stations in numerous communities compounds the problem of the accelerated trend in the sale of broadcast properties, and presents an important public-interest question of whether numerous communities throughout the country are being deprived of the benefits which we believe, based upon our experience,

come from sustained station ownership." The new rule's exceptions are cases involving lack of finances, death or disability of principals, or other hardship circumstances affecting the transferor since he acquired the station.

To implement the "3-year rule," the Commission adopted a policy of processing assignment and transfer applications in greater depth. This entails a more comprehensive study of the finances involved, the proposed programing, and the effect the grant would have on concentrations of control of all media of mass communication. As a part of this processing, the Commission is inquiring into problems presented by the increasing activity of small business investment companies in financing and owning broadcast stations.

Evidence of the high prices that continue to be paid for broadcast facilities is the $14 million for stations WKBW and WKBW-TV, Buffalo, N.Y.; $10.9 million for WMGM, New York City (the highest price yet paid for a single station); $10 million for WINS, also New York City; and $10.6 million for a half interest in WTAE (TV), Pittsburgh.

Network Affiliation Contracts

The Commission initiated a proceeding on July 13, 1962, looking toward making public network affiliation contracts filed with it (docket 14710). In inviting comments, it pointed out that in 1957 the Antitrust Subcommittee of the House Judiciary Committee and the staff report of the Senate Commerce Committee recommended that affiliation contracts be made a matter of public record, and that the subsequent report of the Commission's Network Study Staff made the same recommendation. Attention was also called to the basis of the Antitrust Subcommittee's statement that its "study of the agreements reveals the existence of widespread, arbitrary, and substantial differences in the terms accorded by each network to its individual affiliates, particularly in respect of station compensation for network broadcasting services. Further, these differences primarily favor larger multiple-station licensees vis-a-vis small, independent operators."

CBS TV Affiliates Compensation Plan

On May 29, 1962, the Commission held that a new CBS network TV compensation plan for affiliates violates section 3.658(a) of its rules which prohibits agreements that hinder affiliate TV stations from, or penalize them for, broadcasting programs of other network organizations.

The Commission determined that the effect of the plan would be to force affiliates to take a full line of afternoon and evening CBS commercial programs to the exclusion of programs produced by the affiliates themselves or supplied by other program producers. The

new plan differed greatly from the one used previously by CBS which is similar to the ones used by the NBC and ABC networks. Noting that CBS and its affiliates had indicated a willingness to renegotiate their contracts in event the Commission deemed the plan to be in violation of the network rules, the Commission requested the CBS TV network group to notify the Commission of the steps taken to comply. On October 31, 1962, the Commission denied a CBS petition for reconsideration, and tentatively held an amended CBS plan violative, but invited further comments.

TELEVISION (TV) BROADCAST SERVICE

General

The year was marked by two legislative actions which are expected to foster TV broadcasting materially. They are a requirement that future TV receivers be able to receive UHF as well as VHF channels, and the Government's offer to match State funds to construct educational TV stations. These, as well as various Commission actions to spur TV, are discussed in this chapter.

TV Development

The mold of the existing TV system was cast on April 11, 1952, when the Commission concluded a 4-year rulemaking proceeding by establishing a new nationwide "intermixed" assignment system which utilized the 12 VHF and 70 UHF channels as the frame for TV development. Because of the limited number of VHF channels, the Commission held that a truly nationwide, competitive TV service with multiple choice of programs and room for growth required intermixture of VHF and UHF channels. In consequence, the 82 VHF–UHF channels were assigned on an intermixed and engineered basis to 1,291 communities throughout the country.

The 1952 table provided 2,053 channel assignments for stations. Of these, 620 were VHF (540 commercial and 80 educational) and 1,433 were UHF (1,271 commercial and 162 educational). By June 30, 1962, additions to the table had upped the total to 2,220. Of these, 683 were VHF (including 92 educational) and 1,537 were UHF (including 190 educational).

Since 1952, TV has achieved remarkable growth, and its impact upon American life and economy has been profound. In mid-1952, 108 VHF stations were operating. At the close of fiscal 1962, 612 TV stations were actually on the air. These included 464 VHF and 84 UHF commercial stations and 44 VHF and 20 UHF educational stations, all but 8 of the ETV stations operating on reserved channels.

Some 57 million TV sets now reach an audience of over 165 million people. An estimated 49 million homes have TV, and industry esti-

mates that the average family set is turned on 5 hours and 22 minutes a day.

UHF–VHF Problem

The fact remains, however, that UHF has not lived up to expectations by developing as an integral part of the nationwide competitive system. Most of the TV growth has been on the VHF channels and most of the VHF channel availabilities are now occupied. Notwithstanding the much more ample supply of UHF assignments, they are only sparsely taken. As of June 30, 1962, only 104 UHF stations were in operation (including 20 educational). About 100 more UHF stations were formerly on the air but ceased operation. TV service is now provided by 508 VHF stations (including 44 educational) and 104 UHF stations (including 20 educational).

Despite its demonstrated ability to render satisfactory service, UHF has been retarded by a variety of factors which primarily involve the inability of UHF stations to compete economically with VHF stations. The failure of UHF to develop in combination with VHF has deterred the growth of TV in many areas. Some of the top 100 TV markets still have a critical need for at least 3 local outlets; many middle-sized communities which could easily support more stations have only 1 or 2; other areas needing local stations have none. A full choice of national network programing is not available in many areas and even more places do not have a choice between network and nonnetwork programing.

Over the years the Commission and the Congress have considered ways and means of solving this problem. Various possibilities for major long-range changes in the allocation system have been studied. These included a shift of all TV to the UHF band or adding additional VHF channels. The latter approach would require obtaining additional VHF channels from the Government. However, on August 15, 1960, the Office of Civil and Defense Mobilization advised the Commission that this is precluded by national defense, security, and expense considerations.

Multiphased TV Program

With no prospect of obtaining additional VHF spectrum space and with further expansion possibilities on the VHF channels nearly exhausted, the Commission on July 27, 1961, proposed a multiphased program aimed at improving the existing VHF–UHF system by getting the maximum use out of the VHF band and relaxing UHF requirements.

In this proceeding (docket 14229), a number of steps aimed at encouraging and facilitating fuller utilization of the UHF channels

were proposed. These included elimination of the UHF table of assignments; duel operation of both UHF and VHF stations in the same city by existing VHF station operators; a pool of UHF channels for future use by existing VHF broadcasters and educational interests; a policy of first-come-first-served with respect to applications for UHF channels; relaxation of various technical requirements for UHF stations to reduce costs of construction and operation; and use of UHF translators to provide TV service to unserved areas. On July 18 thereafter, the Commission eliminated the proposals to provide the pool of UHF frequencies and dual VHF–UHF operation by commerical TV licensees.

Deintermixture

For several years the Commission has considered deintermixture of UHF and VHF assignments to create all-UHF or all-VHF areas of service as an interim measure to improve the competitive situation and to meet the need for additional local outlets in certain markets. A few markets, including Peoria and Springfield, Ill. (1957), and Fresno and Bakersfield, Calif. (1961), were deintermixed to UHF areas under this policy.

As part of its overall program, the Commission on July 27, 1961, instituted rulemaking (dockets 14239 et al.) to consider the deintermixture of eight areas which had only one commerical VHF station and where it appeared that a meaningful improvement in the local TV situation and increased UHF services would result if local competition were made all-UHF. These markets are Madison, Wis.; Rockford, Ill.; Hartford, Conn.; Erie, Pa.; Binghamton, N.Y.; Champaign, Ill.; Columbia, S.C.; and Montgomery, Ala. In view of the subsequent all-channel receiver legislative requirement, this proceeding was terminated September 12, 1962.

The Commission also decided, after evaluating data concerning interim shorter spaced VHF assignments, that "squeeze-ins" were justifiable at this stage only in major markets where pressing need for a third service feasible only in VHF outweighed the preferred course of directing further expansion into the UHF band. Individual rulemaking proceedings were instituted on July 27, 1961 (dockets 14231 et al.), to consider adding a VHF channel at short spacing in eight cities deemed to have the greatest need for an additional VHF assignment; namely, Baton Rouge, La.; Dayton, Ohio; Birmingham, Ala.; Jacksonville, Fla.; Knoxville, Tenn.; Johnstown, Pa.; Charlotte, N.C.; and Oklahoma City, Okla.

On July 19, 1962, the court of appeals affirmed the Commission's decision of March 27, 1961 (docket 13608), that all TV assignments at Bakersfield, Calif., should be in the UHF band, thus making Bakers-

field as well as the entire San Joaquin Valley all UHF, and that the Bakersfield's channel 10 station should be shifted to UHF operation.

Pursuant to a July 27, 1961, remand order of the Court of Appeals, the Commission held a new rulemaking proceeding (docket 14267) to consider again the question of whether Channel 2 should be removed from Springfield, Ill., to make that community all UHF, and be reassigned to the VHF cities of St. Louis, Mo., and Terre Haute, Ind. The Commission on July 20, 1962, reaffirmed its 1957 decision. Another court appeal was taken.

All-Channel TV Receivers

In 1960 and again in 1961 the Commission recommended legislation to require that all TV receivers be capable of receiving both UHF and VHF. It viewed this as the most urgent and important step to aid the development of UHF, both commercial and educational. It saw it as a means of gradually eliminating the problem of getting UHF-equipped receivers into the hands of the public and creating an impetus for increased use and expansion of UHF in intermixed areas as well as an incentive for technical and service improvements in UHF.

In response to congressional inquiry, the Commission also expressed its judgment that, during the period of time needed to indicate whether the all-channel receiver authority would achieve the Commission's goal of a satisfactory system of assignments employing both UHF and VHF channels, it would not be in the public interest to proceed with the eight deintermixture proceedings initiated July 27, 1961, since they involve proposed removal of an existing VHF service, entail a certain amount of dislocation, and do not provide a general or long-range solution of the allocations problem. The Commission stated its hope and belief that over a period of years, all-channel receivers would accomplish the long-range objective and, with the possible exception of proceedings in four particular areas, not require any dislocation. These areas are Springfield, Ill. (docket 14267), Peoria, Ill. (docket 11749), Bakersfield, Calif. (docket 13608), and Evansville, Ind. (docket 11757).

On July 10, 1962, the Communications Act was amended to require that all TV broadcast receivers shipped in interstate commerce be capable of adequately receiving the 70 UHF channels as well as the 12 VHF channels. To implement this requirement, the Commission on November 21 thereafter adopted rules for technical compliance of such sets which are designed so as to afford manufacturers time to completely switch over to all-channel receiver production by April 30, 1964. This transition period is necessary for the industry, which designs new models a year in advance, to incorporate approved standards in its 1965 models. The rules are the result of conferences

with the Electronic Industries Association and reflect the views of many makers of TV receivers and tuners.

The Commission expects all 1965 model TV receivers to comply with the all-channel requirements whether they are produced before or after April 30, 1964. Industry, itself, expects a significant increase in the manufacture of all-channel sets. In the first 6 months of calendar 1962, of nearly 3.3 million TV receivers produced, 8.35 percent were UHF equipped. This contrasts with UHF reception provided for in 5.28 percent of the 2.8 million TV sets made during the same period the previous year.

Commercial TV

During the fiscal year, commercial TV authorizations netted four additional stations as compared to a net loss of three in 1961. However, the number of operating authorizations rose from 553 to 571, and TV translators and repeaters collectively increased from 1,700 to more than 2,500.

Interim TV Operating Authorizations

To hasten the commencement of service on newly assigned TV channels, the Commission on December 6, 1961, amended its rules to permit interim operation by groups of competing applicants pending the outcome of hearings on their applications. Conditional grants for joint operation may be made after rival applications for a channel are designated for hearing, provided, among other things, that all of the competitors have been given a reasonable opportunity to participate.

The Commission has since authorized such temporary operation by competitors for channels in Syracuse and Rochester, N.Y., and Grand Rapids, Mich. The grants are conditioned that no effect will be given to any funds spent for the mutual operations, nor preference given to any of the parties in the comparative hearings.

TV Satellites, Translators, Repeaters, and Boosters

To bring TV to smaller communities and isolated areas unable to support regular TV stations, the Commission has authorized satellite, translator, repeater, and booster operations.

TV satellites.—Since 1954, local TV stations have been eligible to operate satellites which do not require local studios or locally originated programs. This has brought service to some small communities where the costs of studio and programing staffs make regular stations uneconomic. Some satellites have built studios to provide local programing. Satellites operate on VHF or UHF channels to rebroadcast the programs of mother stations.

TV translators.—Translators pick up signals of other stations and rebroadcast them locally. When this operation started in 1956 it was confined to the 14 upper UHF channels but in 1960 was also authorized on VHF. Translators broadcast on UHF with power up to 100 watts; on VHF with 1 watt. At the close of the fiscal year there were nearly 1,500 translators (over 1,000 on VHF and over 400 on UHF). On June 3, 1962, action was taken to prevent the use of VHF translators by licensees of regular TV stations to extend their service.

TV repeaters.—In 1960 the Commission opened the VHF band to repeater operation. Repeaters also pick up outside programs for local broadcast but are required to use an output channel different than the one on which the incoming signal is received. In the main, this service enabled many formerly illegal boosters to qualify as repeaters pending their conversion to translator operation. More than 1,000 repeaters were on the air at the end of fiscal 1962.

TV boosters.—Boosters, also authorized in 1960, are intended to fill in the shadows of UHF station service areas. They may be used to amplify and retransmit the programs of the parent UHF station, on the same channel, but not to extend its coverage. During the year the only holder of such an authorization canceled it.

Educational TV

The year's event that is expected to give a new vitality to educational TV is the May 1, 1962, law which enables the Secretary of Health, Education and Welfare to make $32 million in matching grants to the States for the construction of noncommercial educational TV stations. Heretofore, lack of funds has been the biggest drawback to launching new educational TV outlets. The Federal funds are available only to those eligible to receive an FCC license for a noncommercial educational TV station. The money can be used for construction only; not operation. The Commission is cooperating with the HEW in working out the procedures in relation to the FCC's station licensing and regulatory authority.

The number of outstanding reservations for operation on reserved TV channels by noncommercial educational units increased by the yearend to 79, a gain of 10. Of this totoal, 56 were in operation. In addition to the outstanding authorizations, eight applications for new stations were pending. A small number of noncommercial educational TV stations were also operating on unreserved channels. The total channels reserved for ETV use had increased by mid-August to 309, or 67 more than were set aside originally for this purpose.

The special needs and interests of educators in TV caused the Commission, on October 18, 1961, to establish a new Research and Education Division within its Broadcast Bureau.

On July 25, 1962, the Commission proposed a new class of service to promote educational TV by using channels in the 1990–2110 or 2500–2690 Mc band to transmit instructional material to schools and other selected receiving locations. This would enable a central transmitter to serve scattered local schools with transmissions that could be converted for viewing on conventional TV receivers. The number of channels would be sufficient to permit sending different subjects simultaneously to different classrooms. These operations would be less costly than closed-circuit or microwave relay systems used for the same purpose. Tests of such a system for the Plainedge, N.Y., schools indicate its feasibility.

On July 25, 1962, the Commission provided 12 new UHF educational TV channels for Florida, 6 for Georgia, and 9 for Kentucky, to form links in educational TV systems being developed by those States.

On October 25, 1961, the Commission approved transfer of station WNTA–TV to a New York City educational group, thus providing the tristate area with its first VHF educational outlet. This transfer followed a Commission inquiry into means of obtaining a VHF channel each for New York City and Los Angeles for educational use.

Airborne transmitters operated by Purdue University are transmitting educational program material regularly over UHF Channels 72 and 76. This is pursuant to a December 22, 1959, FCC experimental authorization for air-telecasting educational courses to schools and colleges within 200 miles of Montpelier, Ind. The project employs two DC–6 AB airplanes, each with two transmitters, flying, one at a time, in a 10-mile circle at an altitude of 23,000 feet over central Indiana.

Video-taped instructional material has been so broadcast 4 days each week to educational institutions in six States since September 11, 1961. The telecasts included subjects such as mathematics, languages, history, biology, and music. Good to excellent reception has been reported from locations 200 miles from the aircraft.

The use of translators to rebroadcast the aircraft signals in urban areas at considerable distance from the airborne transmitters is being investigated. A 100-watt experimental translator was installed on a Detroit Board of Education building to rebroadcast the Channel 76 material to Detroit schools on Channel 81. Reception tests will be conducted throughout the Detroit area.

Subscription TV

The Commission is holding in abeyance consideration of whether subscription TV service should be authorized on a regular basis until it has had an opportunity to appraise trial operations by TV stations

which may be authorized under conditions specified in its March 24, 1959, report on the subject (docket 11279).

Among the main conditions under which trial operations may be authorized are: (*a*) a 3-year testing period; (*b*) operation only in cities within the grade A contours of at least four commercial TV stations; (*c*) trial of any system in only one market; (*d*) trial of one system in a market; (*e*) both VHF and UHF stations are eligible; (*f*) a station offering pay-TV must broadcast at least the minimum of free programs required for commercial TV stations; (*g*) charges, terms, and conditions of services must be applied uniformly to subscribers; and (*h*) the licensee may not sell any special receiving equipment to the public.

On February 23, 1961, the Commission authorized a first limited trial subscription TV operation over WHCT on Channel 18 at Hartford, Conn. On June 29, 1962, WHCT started such programing with some 225 subscribers. Charges for programs ranged from 25 cents to $3.50, with most programs falling in the price range of 75 cents to $1.50.

This pioneer grant was opposed by five motion-picture theater owners in the Hartford area and by the Connecticut Committee Against Pay TV, whose objections were considered in public hearing (docket 13814) prior to the grant. They went to the court of appeals. That court, on March 8, 1962, affirmed the Commission's decision and, on October 8, thereafter, the Supreme Court denied a review.

On October 3, 1962, the Commission granted a second application to conduct a trial subscription TV operation at Denver, Colo., over KTVR, on Channel 2. The system for Denver differs from that used in Hartford. The Zenith Phonevision System, which employs a "scrambling" device to prevent reception by nonsubscribers, is being used in the Hartford operation. KTVR will use the Teleglobe Pay-TV System. The aural portion of the program is not broadcast but is transmitted by telephone line to a special speaker not connected with the TV receiver. The video portion is received on the normal receiver, but without sound.

CATV Systems

When community antenna TV (CATV) systems first started they picked up directly the programs of not too far distant stations and relayed them by cable to customers in small, remote communities lacking regular TV service. This served a public need and presented no problems to the Commission.

However, the Commission has become increasingly concerned over the impact of CATV operations to the survival or growth of local TV outlets and services. This concern prompted it, in 1958, to inquire

into the impact of CATVs and other adjuncts upon the development of TV broadcasting (docket 12443). As a result, the Commission has on several occasions recommended that Congress give it some limited authority over CATV operations that compete with regular TV stations. (Since CATV systems do not engage in radio transmission, they are not licensed by the Commission.)

The Commission seeks authority to enable it to make rules to require a CATV system to carry the programs of a local station if the latter so desires, and, if that is done, to carry it without any degradation of quality, and not to duplicate on other channels of the cable system programs being carried simultaneously by the local station.

On February 14, 1962, the Commission denied an application for additional microwave facilities to serve CATV systems in Thermopolis, Riverton, and Lander, Wyo., which had been protested by Riverton's only TV station. In so doing, the Commission weighed the fact that a grant of the application would have permitted the rendition of better service to the CATV system against its jeopardizing the ability of the Riverton station to continue operation. It concluded that the need for the local TV station and the service which it provides to areas beyond reach of the CATV system outweighed the need for improved CATV service.

United States-Mexico VHF Agreement

On April 18, 1962, the United States and Mexico exchanged notes constituting an agreement which replaces one of 1951, as amended in 1952 and 1959, concerning the allocation and use of VHF channels within 400 kilometers (248.6 miles) of the border. The new agreement adds channels on both sides of the border, specifies minimum cochannel and adjacent channel separations, establishes zone lines consistent with FCC rules, and improves the procedure for notification of changes in assignments.

On July 25 thereafter the Commission amended the U.S. table of assignments to add 13 channels to Southwestern places as follows: Arizona—Nogales, Channel 11, and Prescott, 7; California—El Centro, 7 and 9; New Mexico—Silver City-Truth or Consequences, 6; Texas—Boquillas, 8; Brady, 13; Del Rio, 10; Fort Stockton, 5; Marfa, 3; Presidio, 7; San Angelo, 6; and Sonora, 11.

FREQUENCY MODULATION (FM) BROADCAST SERVICE

General

For the first time, the number of commercial FM stations on the air rose above 1,000. Authorized commercial FM stations were approaching 1,200, and 147 applications for new facilities were pending, many in competition.

The new interest in FM, which started in 1957, is being accelerated by the inability of prospective new broadcasters to elbow into the congested AM band, now under partial "freeze"; the opportunity afforded in FM to obtain additional revenue by furnishing "background" music and other supplemental services to paying customers; and its newer "green light" to engage in stereophonic broadcasting.

Industry estimates that FM now goes into 14 to 15 million homes.

During the year, the first commercial FM grants were made in Montana and Vermont. All States now have FM stations except North and South Dakota.

FM Broadcast Rules Revision

To deal with the upsurge of FM, and the technical and other developments which have occurred since its birth in 1941, the Commission on June 28, 1961, proposed to revise completely the covering rules. This was accomplished by actions of July 25, 1962. They established many new rules concerning classes of stations, power, zones, mileage separations, and application procedures. At the same time, rulemaking was initiated looking to the adoption of a table of commercial FM channel assignments to communities.

The adopted rules create three classes of commercial FM stations based on power (instead of the present two) and divide the country into three FM zones (instead of the present two).

Subsidiary FM Service

Of the commercial FM stations in operation at the close of the year, over 325 held subsidiary authorizations to engage in certain types of multiplexed activities typified by "functional music" and other services tailored to paying customers. The special programs are, in effect, "piggybacked" on the regular program transmission. They are received on special sets in stores, restaurants, factories, etc. This supplemental activity was first authorized in 1955 to enable the then struggling FM broadcast industry to obtain additional revenue.

Stereophonic Broadcasting

Since amendment of the FM rules on June 1, 1961, to permit commercial FM stations to transmit stereophonic programs on a multiplex basis, without making special application to the FCC, there has been a sustained growth in the number of stations engaging in this activity. At the yearend, the Commission had notification from 122 stations of their commencement of "stereo" broadcasting either on a full- or part-time basis.

At the request of noncommercial educational FM licensees, the Commission adopted rules, effective December 18, 1961, which permits them

to multiplex noncommercial stereophonic programs in accordance with the same technical requirements for commercial FM "stereo." (The Commission has under consideration a request to consider rules for TV stereophonic operation.)

Educational FM

The number of operating noncommercial educational FM stations reached its first plateau of 200 at the yearend, with 8 others under construction and 12 applications pending.

Most of these stations are low power and entail little "construction." Initial 10-watt operations are numerous, with higher power being added when feasible. Remote control is another boon to the "wee" educational FM station.

STANDARD (AM) BROADCAST SERVICE

General

At the yearend, AM station authorizations had climbed to a new high of nearly 3,900, of which more than 3,700 were operating, and 593 applications for new stations were pending. These figures typify the worsening congestion in the AM broadcast band caused by growing interference between stations, background invasion of program reception, and other technical deficiencies in service.

Reexamination of AM Assignment Policies

On May 10, 1962, the Commission ordered a partial halt to the acceptance of applications for new AM stations and for major changes in existing facilities as a first step in reexamining the rules and standards governing AM assignments. This did not affect processing of applications then on file.

In its covering report and order, the Commission explained that the partial "freeze" was necessary to avoid compounding present AM problems with a continual flow of new assignments based upon existing, possibly inadequate, standards while the restudy is being made.

At the same time, the Commission amended the rules to establish interim criteria to permit acceptance only of applications for new AM stations and major changes in existing stations which would provide service to "white" or unserved areas without causing objectionable interference to existing stations. The amendments also provide for the continued acceptance of most applications for power increases of class IV (local) stations, inasmuch as the Commission has given high priority to an overall increase in the power of these stations, and for the acceptance of applications for new class II–A stations on clear channels which would also provide initial service.

Clear Channels

The Commission moved toward a final resolution of the complex and longstanding clear-channel proceeding with an action of September 13, 1961 (docket 6741). Of the 25 class I–A clear channels, 11 were designated for "duplication" to the extent of permitting unlimited-time operation on each of these channels by one station other than the Class I–A dominant station. Two other class I–A clear channels were to be duplicated in specific communities to solve special problems arising out of the United States-Mexico broadcasting agreement. These new stations, called class II–A, may be applied for only in certain States, may operate with from 10- to 50-kw power, and must meet minimum requirements of service to areas not now receiving nighttime primary AM service.

The other 12 class I–A clear channels were retained in status quo pending further studies. It was recognized that should power in excess of 50 kw be authorized at some future date, the 12 reserved channels would permit 4 satisfactory skywave or secondary services throughout most of the Nation.

Bills were introduced in Congress to prohibit such duplication or to allow the Commission, under certain conditions, to grant power in excess of 50 kw, or both. The Commission opposed these proposals at hearings before the House Interstate and Foreign Commerce Committee. Some 22 petitions for reconsideration of the Commission's decision were under consideration at the end of the year.

A 1938 Senate resolution opposed power in excess of 50 kw on the class I–A clear channels. On July 2, 1962, a resolution (H. Res. 714) expressed the view of the House that the Commission may, notwithstanding the 1938 resolution, authorize clear-channel stations to operate with power higher than the present 50-kw. limit. The resolution also suggested a 1-year moratorium on the proposed additional assignments on class I–A clear channels. Twelve applications have been received for the new class II–A assignments on class I–A clear channels, some of which are for the same assignment, but none has yet been acted upon.

On November 21, 1962, the Commission reaffirmed its clear-channel decision and gave notice that unless Congress precludes such action before July 2, 1963, it will begin making grants in accordance with its 1961 decision.

Daytime Broadcast Hours

Commission decisions on two proposals to extend the operating hours of daytime AM stations were discussed in previous annual reports. In the first of these (docket 12274), the Commission denied a proposal of

the Daytime Broadcasters Association to extend the operating time from the present sunrise-to-sunset limitation to a broadcast day beginning at 5 a.m. or local sunrise (whichever is earlier) and ending at 7 p.m. or local sunset (whichever is later). In the second proceeding (docket 12729), the Commission denied a proposal for a more limited extension of time—from 6 a.m. to 6 p.m. In both cases, it determined that the loss of service through increased interference, both in terms of area and population, would far outweigh any increase in service.

Hearings were held by a subcommittee of the House Committee on Interstate and Foreign Commerce on H.R. 2745, 3334, 3469, 4695, 4749, 4830, 5626, 10121, 10523, in June 1961 and again in April 1962. These bills embodied the 6 a.m. to 6 p.m. extension proposal, with H.R. 10523 additionally proposing to permit existing presunrise operations earlier than 6 a.m. to continue. The Commission testified that the proposed blanket extension of operating hours would seriously disrupt AM broadcast service and would, therefore, not be in the public interest.

The Commission, on December 6, 1961, initiated proposed rulemaking (docket 14419) to make certain procedural changes and codify present practices with respect to the presunrise operating privilege. In its testimony of April 1962, the Commission indicated it would broaden its inquiry and explore possible courses of action which might offer hope of permitting some additional hours of operation by daytime stations consistent with the public interest. Accordingly, by order of April 25, 1962, the time for filing comments in docket 14419 was extended indefinitely pending issuance of further rulemaking.

On July 2, 1962, the House adopted H.R. 4749, which, if enacted as amended, would allow AM stations to operate with their daytime facilities from 6 a.m. until sunset and, additionally, during any hours between 4 a.m. and 6 a.m. in which they operated, consistent with Commission rules, for a period of 60 days during the year preceding date of enactment.

On November 28 thereafter the Commission proposed rules which would permit daytime-only Class III stations, if in a locality without an unlimited time station, to begin operation at 6 a.m. or local sunrise, whichever is earlier, with power of 500 watts and non-directional antenna. Regular licensing would begin 3 years after adoption of the rules. In the meantime, such pre-sunrise operation could be engaged in unless complaint of objectional interference is received.

Increased Power for Class III Stations Denied

On February 6, 1962, the Commission denied requests to consider increasing the maximum power for class III (regional) stations from the present 5-kw limitation to 25 kw. Regional stations are designed to provide service primarily to a metropolitan area and its contiguous

rural area. The Commission held that only a very limited potential exists for extending the service of regional stations in general because of interference considerations; that many regional stations could not operate with higher power because of such interference problems; and that it would not constitute a fair and equitable distribution of radio services to give regional stations more power.

Rooftop Antenna Power Increased

The rules were amended July 13, 1962 to raise the permitted operating power of AM stations utilizing rooftop antennas or antennas located in older parts of a city from 500 w to 1 kw under certain conditions. The Commission concluded that this would not result in any significant cross-modulation problems.

STL and Intercity Relay Rules Simplified

On February 14, 1962, the Commission amended its broadcast auxiliary rules (docket 14227) to combine all aural studio-transmitter-link (STL) stations for AM, FM, and TV into a single category called "Aural Broadcast STL Stations" and to rename intercity aural relay stations "Aural Broadcast Intercity Relay Stations."

Another amendment permits STL and intercity relay stations to multiplex aural programs to more than one class of broadcast station operated by the same licensee. This enables AM, FM, and TV station licensees with a common transmitter site and producing programs at a common studio location to use to single radio channel to send different aural program material to each station simultaneously. Similarly, a licensee using a channel to bring in program material from a station in another city may add program circuits to serve more than one class of broadcasting station. This amendment serves to improve the efficiency of frequency usage in the broadcast auxiliary services; also, to reduce the cost of program relaying equipment to broadcasters.

Other amendments relate to the transmission of cues, orders, telemetry signals, and other broadcast operational communications over STL and intercity relay systems, and to the control of the transmitter, bandwith, and station identification.

Emergency Broadcast Rules

On July 3, 1962, the Commission instituted a proceeding to consider changes in its rules governing emergency operation by AM, FM, and TV stations (docket 14703). These rules have been in effect for many years. The contemplated changes are intended to clarify and liberalize permissible operations during emergencies.

The revision would make clear that point-to-point transmission of communications promoting safety of life and property or to prevent or alleviate serious hardship (but not inconvenience) is permitted.

The decision to operate in an emergency (except during a CONELRAD alert) would be at the discretion of the licensee, not of local or other officials. It would also make clear that AM stations may use daytime facilities for nighttime emergency operation provided no music or commercial matter is transmitted. Daytime-only stations would be permitted to operate at other than authorized hours during emergencies if there are no unlimited-time stations engaged in transmitting emergency communications in the affected area, or if the daytime-only station can show that the area is not adequately covered by unlimited-time station emergency service.

NARBA and United States-Mexico Agreements

Two international treaties affect AM broadcasting in the United States. They are the North American Regional Broadcasting Agreement (NARBA) of 1950, ratified by this country in 1960, and a United States-Mexico bilateral agreement of 1957 which entered into force in 1961. Together, they are intended to minimize interference between AM stations in the United States, Canada, Cuba, Mexico, Dominican Republic, Jamaica, Bahamas, and Haiti.

Cuba, which ratified NARBA under a former administration, seems to ignore it under the Castro regime. It has made new assignments not in accord with the pact and in some instances electronic "jamming" of certain Spanish language programs broadcast by U.S. stations were traced to Cuba.

Mexico was a party to the first NARBA and interim agreement, but not a party to the 1950 NARBA. Separate negotiations with Mexico resulted in a bilateral agreement which generally parallels NARBA. Two distinctions are the provisions governing use of 1–A channels and the power limitations applied to class IV stations. United States use of 7 Mexican 1–A channels and Mexico's use of 25 U.S. 1–A channels are more restrictive than they would be under NARBA. The 1950 NARBA restricts the power of all class IV stations to 250 w, but has since been modified to permit 1 kw daytime operation. The Mexican agreement includes a provision for 1-kw operation except for a 62-mile-wide border zone. Negotiations are in process looking toward removing even the border zone curb.

INTERNATIONAL BROADCAST STATIONS

At the present time only two stations are licensed by the Commission for international broadcasting. WRUL, Scituate, Mass., broadcasts to Mexico, Central and South America, Western Europe, and Western Africa. KGEI, Belmont, Calif., broadcasts to Mexico, and Central and South America, and has applied for authority to broadcast to Japan. A construction permit has been issued for a new sta-

tion, WINB, at Red Lion, Pa., and operation is expected to commence shortly, with broadcasts to Mediterranean areas, including portions of Southern Europe, Northern Africa, and the Holy Land. Although not international broadcasting in its strict sense, an experimental station at Cincinnati, Ohio, uses an international broadcast frequency to provide a continuous signal for propagation studies by the National Bureau of Standards. Most international broadcasting from the United States is carried on by the U.S. Information Agency through its "Voice of America" service.

The Commission has been studying its international broadcast rules with an eye to their possible revision. Among other factors being considered are changes that may be necessary because of U.S. ratification of the 1959 Geneva Convention, the present decreasing sunspot activity which reduces available frequency hours, an increase in worldwide international broadcasting, and the growing needs of the "Voice of America."

MISCELLANEOUS BROADCAST SERVICES

There are more than 7,000 broadcast auxiliary stations. Over 5,500 of these are used for remote pickup purposes; others link studios and transmitters, and still others provide facilities for development and experimentation.

STATISTICS

Current Broadcast Authorizations

The 15,610 broadcast authorizations outstanding at the close of fiscal 1962 represented a net gain of 1,765 for the year.

Authorizations for the different classes of broadcast services at the yearend were:

Class	June 30, 1961	June 30, 1962	Increase or (decrease)
Commercial AM	3,757	3,886	129
Commercial TV	650	654	4
TV translators	703	1,483	780
TV repeaters	1,044	1,046	2
TV boosters	1	0	(1)
Educational TV	67	79	12
Auxiliary TV	1,254	1,357	103
Experimental TV	27	27	0
Commercial FM	1,092	1,191	99
Educational FM	199	209	10
International	4	4	0
Remote pickup	4,943	5,523	580
Studio-transmitter-link	69	83	14
Developmental	4	5	1
Low-power auxiliary (cueing)	31	63	32
Total	13,845	15,610	1,765

Status of Broadcast Authorizations

There were 8,548 AM, TV, and FM broadcast stations authorized at the close of fiscal 1962, of which 7,121 had operating per-

mits and 1,427 others held construction permits. The following is a breakdown:

Class	Operating authorizations	Construction permits
Commercial AM	3,745	141
Commercial TV	571	83
TV translators	487	996
TV repeaters	1,046	0
Educational TV	59	20
Commercial FM	1,012	179
Educational FM	201	8
Total	7,121	1,427

One commercial TV station was engaged in trial subscription television operation. Also, 323 commercial FM and 3 educational FM stations held subsidiary communications authorizations to furnish functional (background) music and other multiplexed services.

Broadcasting Since 1949

The following table shows the number of authorized, licensed, and operating broadcast stations, and pending applications at the close of the past 14 fiscal years; also the number of stations deleted during those years:

Year	Grants	Deletions	Pending applications	Licensed	CPs on air	Total on air	CPs not on air	Total authorized
				COMMERCIAL AM				
1949	200	55	382	1,963	43	2,006	173	2,179
1950	194	70	277	2,118	26	2,144	159	2,303
1951	116	35	270	2,248	33	2,281	104	2,385
1952	60	25	323	2,333	22	2,355	65	2,420
1953	187	23	250	2,439	19	2,458	126	2,584
1954	148	29	226	2,565	18	2,583	114	2,697
1955	161	18	304	2,719	13	2,732	108	2,840
1956	197	18	389	2,871	25	2,896	124	3,020
1957	232	14	431	3,044	35	3,079	159	3,238
1958	132	17	536	3,218	35	3,253	100	3,353
1959	159	12	679	3,328	49	3,377	123	3,500
1960	92	11	822	3,442	41	3,483	98	3,581
1961	178	2	702	3,545	57	3,602	155	3,757
1962	147	18	593	3,686	59	3,745	141	3,886
				COMMERCIAL TV				
1949	15	7	338	13	56	69	48	117
1950	0	8	351	47	57	104	5	109
1951	0	0	415	81	26	107	2	109
1952	0	1	716	96	12	108	0	108
1953	381	6	572	101	97	198	285	483
1954	174	81	200	104	298	402	171	573
1955	67	58	127	137	321	458	124	582
1956	60	25	128	186	310	496	113	609
1957	55	13	129	344	175	519	132	651
1958	35	21	125	427	129	556	109	665
1959	24	22	114	475	91	566	101	667
1960	22	36	106	481	98	579	74	653
1961	33	36	80	[1] 497	56	543	97	650
1962	24	20	114	[1] 494	77	571	83	654

See footnote at end of table.

Year	Grants	Deletions	Pending applications	Licensed	CPs on air	Total on air	CPs not on air	Total authorized
TV TRANSLATOR								
1957	74	0	48	17	24	41	33	74
1958	88	6	34	92	0	92	64	156
1959	96	7	27	158	0	158	87	245
1960	60	3	19	233	0	233	69	302
1961	420	19	685	279	0	279	424	703
1962	796	16	262	487	0	487	996	1,483
TV REPEATER								
1961	1,044	0	39	0	1,044	1,044	0	1,044
1962	5	3	29	0	1,046	1,046	0	1,046
TV BOOSTER								
1961	1	0	1	0	0	0	1	1
1962	1	2	0	0	0	0	0	0
EDUCATIONAL TV								
1952	0	0	1	0	0	0	0	0
1953	17	0	29	0	1	1	16	17
1954	13	0	17	0	6	6	24	30
1955	5	1	14	1	10	11	23	34
1956	7	0	11	1	19	20	21	41
1957	8	0	8	14	12	26	23	49
1958	4	0	9	29	3	32	21	53
1959	6	0	7	37	6	43	16	59
1960	6	1	7	40	7	47	17	64
1961	4	1	9	43	11	54	13	67
1962	13	1	8	[2] 43	16	59	20	79
COMMERCIAL FM								
1949	57	212	65	377	360	737	128	865
1950	35	169	17	493	198	691	41	732
1951	15	91	10	534	115	649	10	659
1952	24	36	9	582	47	629	19	648
1953	20	79	8	551	29	580	21	601
1954	27	54	5	529	24	553	16	569
1955	27	44	6	525	15	540	12	552
1956	31	37	10	519	11	530	16	546
1957	40	26	24	519	11	530	31	560
1958	98	24	57	526	22	548	86	634
1959	153	18	71	578	44	622	147	769
1960	165	22	114	700	41	741	171	912
1961	200	20	97	829	60	889	203	1,092
1962	138	39	147	955	57	1,012	179	1,191
EDUCATIONAL FM								
1949	18	7	9	31	3	34	24	58
1950	25	4	3	61	1	62	20	82
1951	19	6	2	82	1	83	12	95
1952	12	2	2	91	1	92	12	104
1953	13	1	3	106	0	106	10	116
1954	9	2	1	117	0	117	6	123
1955	7	3	1	121	3	124	3	127
1956	13	4	5	126	0	126	10	136
1957	17	5	2	135	0	135	13	148
1958	11	3	6	144	3	147	10	157
1959	16	8	2	150	4	154	11	165
1960	20	4	11	161	4	165	16	181
1961	21	3	4	176	10	186	13	199
1962	11	1	12	192	9	201	8	209

[1] 10 not on air.

[2] 1 not on air.

Reinstatement of some deleted authorizations and other considerations not detailed in this table account for any seeming discrepancy in the relation of grants and deletions during the year to the total yearend authorizations.

Stations actually operating or holding authorizations to operate are covered by the term "on the air." "CPs" indicate construction permit status.

Broadcast Applications

Broadcast applications received during the year totaled 15,560, or 60 more than the previous year. The following is a breakdown of broadcast applications in nonhearing status at the end of the fiscal year (for docket statistics, see "Commission" chapter):

Applications	Pending July 1, 1961	Incoming workload			Disposed			Pending June 30, 1962
		New	Returned to processing		Granted	Dismissed, denied, returned	Designated for hearing	
			Hearing	Nonhearing				
STANDARD BROADCAST (AM)								
New stations	519	230	13	9	87	98	175	411
Major changes	496	243	11	3	235	61	55	402
Subtotal	1,015	473	24	12	322	159	230	813
Assignments and transfers	174	668			615	73	4	152
Renewals	872	1,319	1	4	1,510	34	13	637
Licenses	339	928		1	892	25	3	348
All others	266	1,614			1,480	113	2	285
Total applications	2,666	5,002	25	17	4,819	404	252	2,235
FREQUENCY MODULATION (FM)[1]								
New stations	73	253	4		147	34	11	138
Major changes	54	237	1	1	167	23	2	101
Subtotal	127	490	5	1	314	57	13	239
Assignments and transfers	39	181			162	20	5	33
Renewals	218	371		1	403	9		178
Licenses	120	311		2	288	6		139
All others	109	653			601	47	5	109
Total applications	613	2,006	5	4	1,768	139	23	698
TELEVISION (TV)[1]								
New stations	36	103			24	17	39	59
Major changes	42	96	2		86	7	3	44
Subtotal	78	199	2		110	* 24	42	103
Assignments and transfers	25	117			116	7	1	18
Renewals	123	252			236	8	1	130
Licenses	153	94			2	4	1	240
All others	85	180			160	19	1	85
Total applications	464	842	2		624	62	46	576

See footnotes at end of table.

Applications	Pending July 1, 1961	Incoming workload			Disposed			Pending June 30, 1962
		New	Returned to processing		Granted	Dismissed, denied, returned	Designated for hearing	
			Hearing	Non-hearing				
TV TRANSLATOR, BOOSTER, REPEATER								
New stations	725	481		3	832	85	9	283
Major changes	12	203		3	136	12		70
Subtotal	737	684		6	988	97	9	353
Assignments and transfers		8			8			
Renewals	171	249		1	239	5		177
Licenses	46	600			224	30		392
All others	5	375			322	19		39
Total applications	959	1,916		7	1,761	151	9	961
ALL OTHER[1]								
New stations	147	1,142			1,056	107		126
Major changes	66	599			601	20		44
Subtotal	213	1,741			1,657	127		170
Assignments and transfers	54	322			311	6		59
Renewals	1,000	2,255			1,922	93	6	1,234
Licenses	429	1,384			1,245	75		493
All others	7	92			91	4		4
Total applications	1,703	5,794			5,226	305	6	1,960
Total nonhearing applications	6,405	15,560	32	28	14,198	1,061	336	6,430

[1] Includes noncommercial educational.

[2] Includes noncommercial educational.

[3] Includes international, relay and studio link, developmental, experimental TV, remote pickup, TV auxiliaries.

Broadcast Industry Financial Data

The radio and television industry for the calendar year 1961 reported total revenues (which are derived from the sale of time, talent, and program materials to advertisers) of $1,909.1 million.

Total radio revenues fell by 1.2 percent to $590.8 million, while total television revenues rose to $1,318.6 million, an increase of 3.9 percent above 1960.

Total radio and television profits were $266.4 million, a decrease of 8.1 percent from those of 1960.

The following tables show the comparative calendar 1960–61 financial data for the radio and television broadcast industries.

Broadcast Revenues, Expenses and Income of Networks and Stations of Radio[1] and Television Broadcast Services, 1960–1961

[$ millions]

Service	1960	1961	Percent increase or (decrease)
	Total broadcast revenues		
Radio	$597.7	$590.7	(1.2)
Television	1,268.6	1,318.3	3.9
Industry total	1,866.3	1,909.0	2.3
	Total broadcast expenses		
Radio	$551.8	$561.3	1.7
Television	1,024.5	1,081.3	5.5
Industry total	1,576.3	1,642.6	4.2
	Broadcast income (before Federal income tax)		
Radio	$45.9	$29.4	(35.9)
Television	244.1	237.0	(2.9)
Industry total	290.0	266.4	(8.1)

[1] Includes AM and FM broadcasting.

NOTE: 1961 radio data cover the operations of 4 nationwide networks, 3,610 AM and AM-FM and 249 independent FM stations. Excluded are 44 AM and AM-FM stations and 16 independent FM stations whose reports were filed too late for tabulation. 1960 data are for 4 nationwide networks, 3,470 AM and AM-FM and 218 independent FM stations. 1960 TV data cover the operations of 3 networks and 530 stations. 1961 TV data cover the operations of 3 networks and 540 stations.

Nationwide Networks Only, 1960–1961

[Including owned and operated stations]

Item	1960 ($ millions)	1961 ($ millions)	Percent increase or (decrease)
Total broadcast revenues	$703.7	$736.8	4.7
Radio	63.0	61.5	(2.4)
Television	640.7	675.3	5.4
Total broadcast expenses	611.5	649.6	6.2
Radio	66.0	61.3	(7.1)
Television	545.5	588.3	7.8
Total broadcast income (before Federal income tax)	92.2	87.2	5.4
Radio	(3.0)	0.2	106.6
Television	95.2	87.0	(8.6)

NOTE 1: Radio data include the operations of 19 nationwide network-owned AM stations in both 1961 and 1960.

NOTE 2: Television data include the operations of 15 network-owned stations in both 1961 and 1960.

Investment in Tangible Broadcast Property of 4 Nationwide Networks, Their 19 Owned and Operated Stations and 3,591 Other AM Stations, 1961

[$ thousands]

Item	Investment in tangible broadcast property	
	Original cost	Depreciated cost
4 nationwide networks	$8,061	$4,036
19 network owned and operated stations	9,852	5,075
3,591 other stations	398,148	210,783
Total	416,061	219,894

Broadcast Expenses of 4 Nationwide Networks, Their 19 Owned and Operated Stations and 3,591 Other AM Radio Stations, 1961

[$ thousands]

Type of expense	4 nationwide networks	19 network owned and operated stations	3,591 other AM stations	Total
Technical	$1,533	$5,114	$63,437	$70,084
Program	22,809	12,052	148,101	182,962
Selling	4,718	4,908	91,457	101,083
General and administrative	4,754	5,443	137,235	197,432
Total broadcast expenses	33,814	27,517	490,230	551,561

Comparative financial data of 4 nationwide AM radio networks and 3,610 AM stations 1960–1961

[$ thousands]

Item	4 nationwide networks	19 owned and operated stations	3,591 stations	Total, 4 nationwide networks and 3,610 stations	Percent of increase or (decrease)
Revenues from the sale of time:					
Network time sales:					
Sale of network time to advertisers	$31,692				
Total network time sales	31,692				
Deductions from network's revenue from sale of time to advertisers:					
Paid to owned and operated stations	540				
Paid to affiliated stations	3,732				
Total participation by others (excluding commissions) in revenue from sale of network time	4,272				
Total retentions from sale of network time	27,420	$540	$7,877	$35,837	2.3
Non-network time sales:					
National and regional advertisers		22,549	174,803	197,352	(2.4)
Local advertisers		11,715	372,338	384,053	(0.3)
Total non-network time sales		34,264	547,141	581,405	(1.0)
Total time sales	27,420	34,804	555,018	617,242	(0.8)
Deduct—Commissions to agencies, representatives, etc	4,707	6,557	54,909	66,173	(1.1)
Net time sales	22,713	28,247	500,109	551,069	(0.8)
Revenues from incidental broadcast activities:					
Talent	6,978	2,018	10,386	19,382	(15.1)
Sundry broadcast revenues	1,113	468	11,580	13,161	(2.1)
Total incidental broadcast activities	8,091	2,486	21,966	32,543	(10.3)
Total broadcast revenues	30,804	30,733	522,075	583,612	(1.4)
Total broadcast expenses	33,814	27,517	490,230	551,561	1.5
Broadcast income (before Federal income tax)	(3,010)	3,216	31,845	32,051	(33.7)

NOTE: Data for 1960 covered the operations of 4 nationwide networks and their 19 owned and operated stations.

Broadcast Revenues, Expenses, Income, Investment in Tangible Broadcast Property of Frequency Modulation (FM) Stations Operated by Non-AM Licensees, 1960–61

Item	1960 Number of stations	Amount ($ millions)	1961 Number of stations	Amount ($ millions)
	Total FM broadcast revenues			
FM Stations operated by:				
AM licensees:				
Reporting FM revenues	234	$3.6	284	$2.9
Non-AM licensees	[1] 218	5.8	249	[1] 7.1
Total FM stations reporting revenue	452	9.4	533	10.0
	Total FM broadcast expenses			
FM Stations operated by:				
Non-AM licensees	218	$8.2	249	$9.7
Industry total	----------	[2]	----------	[2]
	FM broadcast income (before Federal income tax)			
FM Stations operated by:				
Non-AM licensees	218	($2.4)	249	($2.6)
Industry total	----------	[2]	----------	[2]

Investment In Tangible Broadcast Property	
Original cost ($ thousands)	Depreciated cost ($ thousands)
$9,437	$6,995

[1] *In 1961 1.4 million of this total was reported as incidental broadcast revenues including revenues from providing functional music or other special services.* In 1961 this portion of the total shown for that year was 1.3 million.

[2] In view of the difficulty in a joint AM–FM operation in allocating FM operation expense separately from AM station operation expense, licensees of such stations were not required to report FM station expense separately. As a result, FM industry totals for expense and income are not available. AM-FM licensees, however, were requested to report separately the revenues, if any, attributable to FM station operation.

( ) Denotes loss.

Broadcast Financial Data of 3 National Television Networks and 540 TV Stations, 1961

[$ millions]

Item	Networks	15 network owned and operated TV stations	525 other TV stations	Total, 3 networks and 540 TV stations
Revenues from the sale of time:				
Network time sales:				
Sale of network time to advertisers	$476.8			
Total network time sales	476.8			
Deductions from network's revenue from sale of time to advertisers:				
Paid to owned and operated stations	32.8			
Paid to affiliated stations	148.1			
Total participation by others (excluding commissions) in revenue from sale of network time	180.9			
Total retentions from sale of network time	295.9	$32.8	[1] $151.6	$480.3
Non-network time sales:				
National and regional advertisers		102.8	365.7	468.5
Local advertisers		30.6	180.6	211.2
Total non-network time sales		133.4	546.3	679.7
Total time sales	295.9	166.2	697.9	1,160.0
Deduct—Commissions to agencies, representatives, etc	71.5	25.4	101.1	198.0
Net time sales	224.4	140.8	596.8	962.0
Revenues from incidental broadcast activities:				
Talent	273.0	3.4	10.3	286.7
Sundry broadcast revenues	29.1	4.6	35.9	69.6
Total incidental broadcast activities	302.1	8.0	46.2	356.3
Total broadcast revenues	526.5	148.8	643.0	1,318.3
Total broadcast expenses	501.8	86.5	493.0	1,081.3
Broadcast income (before Federal income tax)	24.7	62.3	150.0	237.0

[1] Total retentions from sale of network time of $151.6 million by 525 other TV stations includes revenues received from miscellaneous TV networks in addition to receipts from the 3 national TV networks

Investment in Tangible Broadcast Property of Television Networks and Stations, 1961

Items	Number of stations	Investment in tangible broadcast property ($ thousands)	
		Original cost	Depreciated cost
3 networks and their owned and operated stations	15	$136,132	$72,919
Other TV stations:			
VHF	444	456,833	225,660
UHF	81	38,065	18,785
Total	540	631,030	317,364

Broadcast Expenses of 3 TV Networks and 540 TV Stations, 1961

[$ thousands]

Type of expenses	Networks	15 network owned and operated TV stations	525 other TV stations	Total, 3 networks and 540 TV stations
Technical	$25,433	$14,760	$81,390	$121,583
Program	423,783	43,908	201,301	668,992
Selling	21,478	9,533	59,523	90,534
General and administrative	31,121	18,273	150,835	200,229
Total broadcast expenses	501,815	86,474	493,049	1,081,338

Safety and Special Radio Services

GENERAL

The Safety and Special Radio Services comprise more than 40 major categories of private and non-Federal Government users of radio. These licensees employ radio to protect life and property and for a multitude of purposes in conjunction with business, transportation, research, personal, and other activities.

The growth of private radio communication systems shows no signs of abating. At the close of fiscal 1962, 3,702,776 fixed, portable, and mobile transmitters were authorized to 936,380 safety and special licensees collectively. This is in contrast to 2,663,475 transmitters and 770,505 licensees at the close of the previous year.

LEGISLATIVE AIDS

Three amendments to the Communications Act during the year have particular benefit to administration of the safety and special services.

One helps enforcement by enabling the Commission to impose small forfeitures against station licensees and radio operators in these services (as well as in the common-carrier radio services) for willful or repeated violations in 12 specified categories. This new authority will be an effective tool for those cases where license revocation or criminal prosecution would be too severe or would eliminate useful services.

The other two amendments will result in considerable laborsaving to the Commission in handling the growing volume of safety and special applications, as well as being a convenience to the industry. One permits the Commission to grant full-term licenses to applicants for modifications of outstanding licenses which, in effect, combines the previously required two applications and two Commission actions. The second one provides that applications for station licenses no longer need be signed under oath. In view of sanctions against furnishing false information in 18 U.S.C. 1001, the previous oath requirement was found unnecessary.

REGULATORY DEVELOPMENTS

Microwave

Development and implementation of the Commission's policies concerning allocation and usage of microwave frequencies above 890 Mc in these private radio services continued during the year. Imple-

mentation has been achieved primarily by determinations on specific applications. In addition, a rulemaking proposal (docket 14179) pertains to applicants for microwave point-to-point licenses in the safety and special services. It would require a showing that a proposed microwave system would not cause harmful interference to existing systems operating in accordance with established technical standards. The proposal is significant because it is a departure from standards in these services which now generally require users to share frequencies and to tolerate interference from other licensees. The basis for the proposed change is that point-to-point systems cannot function effectively when interference reaches a certain level. Other microwave matters under study for possible rulemaking proposals concern further delineation of certain portions of the microwave spectrum between the private and the common carrier services both for point-to-point and mobile operations.

Operators of community antenna TV systems have shown a new interest in private microwave systems for relaying TV signals from pickup points to community antennas for distribution, via cable, to the receiving sets of CATV subscribers. Heretofore, such microwave relay has been by common carriers. The CATV interest in private microwave for this purpose appears to flow, in part, from determinations made by the Commission concerning applicants for such common-carrier microwave systems (discussed elsewhere in this report).

One application for a private microwave system in the Business Radio Service to relay TV signals to a CATV system was granted, and three other applications for similar authorizations were pending. Petitions to deny two of them were filed. Studies are underway to develop standard requirements to apply to this category of applications.

As indicated in the 1961 report, the Commission conducted an informal inquiry concerning defendants in the Philadelphia electrical price-fixing antitrust cases who are radio licensees or may become applicants. Except for one defendant, this inquiry was concluded when the Commission determined that no further action was warranted.

ENFORCEMENT

The enforcement program for the safety and special services continues to lay major emphasis on educating licensees and others concerning requirements of law and rules in the use of private radio systems. However, the need to impose sanctions against those offenders who wilfully or repeatedly violate various requirements continues to grow as the number of licensees increases.

During fiscal 1962, there were 59 license revocation actions. Of the licenses revoked, the great bulk of them were in the Citizens Radio

Service. Also in process were 12 suspension cases involving amateur radio operator licenses, as well as 52 marine forfeiture cases. Some of these formal enforcement actions resulted from special field investigations based on complaints of unlawful radio operations. Field hearings were required in some of the cases.

MARINE RADIO SERVICES

Safety at Sea

An important need for radio installations aboard ships and small water craft is that of safety. The Commission administers the requirements of domestic law and international agreement that certain vessels must carry radio installations for safety purposes.

Distress studies.—The Commission makes a continuing study of ship distress calls as a basis for regulating radio to promote safety of life and property. During the fiscal year, the radiotelegraph distress signal "SOS" was used in behalf of 275 vessels and aircraft. These calls for help were intercepted by 1,050 non-Government ships and coast stations in addition to U.S. Coast Guard ships and shore stations. There were 181 reports of auto alarms being actuated to alert off-duty ship radiotelegraph operators to distress calls. Radiotelegraph functioned effectively for such distress calls.

An analysis of public coast radiotelephone station logs shows that, although much ship-shore distress communication is handled directly between ship and Coast Guard stations on the distress frequency 2182 kc, public coast stations also contributed to the safety of vessels. Based on reports received from 20 public coast stations, each station participated on the average of 20 times per year in handling ship-to-shore distress signals. In most cases the coast station provided telephone communication between the ship and Coast Guard shore rescue facilities. In a few instances public coast stations alerted the Coast Guard to calls being transmitted on the distress frequency.

One of the year's worst disasters to indicate a need for radiotelephone installations on small craft was the sinking of the 20-foot cabin cruiser *Happy Jack* on May 12 off Huntington Beach, Calif. All nine persons on board were lost. This vessel was not equipped with radio and, as a result, search could not start until many hours after the sinking.

Exemption from coast station watch requirements.—Public coast radiotelephone stations operating in the 2-Mc band are normally required to keep a safety watch on the radiotelephone distress frequency 2182 kc. On May 2, 1962, the Commission exempted the New York Telephone Co.'s public coast station WOX from this requirement, after a trial period of approximately a year, on the basis that

the watch is adequately covered by Coast Guard facilities in that area. No other coast stations have been so exempted.

Radio Technical Commission for Marine Services (RTCM)

The RTCM is a cooperative association of U.S. Government and non-Government agencies interested in maritime telecommunications which studies and makes recommendations concerning problems of equipment, law, and procedure to organizations concerned. During the fiscal year it completed the following studies: Modernization of Shipboard Radio Antennas; Introduction of Radiotelephone Alarm Signal Usage in the United States; Study of the Use of 9300–9500 Mc Radar Band; Use of the New H. F. Radiotelephone Channels in the Maritime Mobile Service; and Ship 2-Mc Radiotelephone Educational Program, Revised. Studies presently under consideration are: Present and Future Communications Requirements for Voluntarily Equipped Non-Commercial Vessels; Program for the Development of Maritime Telecommunications; Selective Calling Devices for Use in the International Maritime Mobile Service; Standardization of Distinctive Signals (A2 Emission) for Use in Survival Craft Radiobeacons.

Marine Radio Communications Systems

Rule amendments.—Changes in the rules (docket 13952) have implemented that part of the 1959 Geneva radio regulations concerning high frequencies for coast and ship stations. By another rule amendment (docket 14161), the Commission simplified its requirements relating to certain technical measurements and adjustments for ship radiotelephone transmitters. The new rules are of particular benefit to small boats. In docket 14160, the rules were amended to make the intership frequencies 2738 and 2830 kc available to limited coast stations at causeways, bridges, waterways and similar locations for ship-shore communication pertaining to safety and related navigational needs.

Proposed rule changes.—New proposals in docket 14375 include, with two exceptions, the remaining rule changes necessary to fully implement the 1959 Geneva regulations for coast and ship stations. The proposal also involves policies which the Commission believes will further the use of VHF in the marine service. Another rule proposal (docket 14423) concerns the use of 2003 kc, the intership frequency, in the great Lakes area for ship-to-shore communication with U.S. Coast Guard stations and limited coast stations located at bridges, causeways, waterways, etc.

Rule waiver.—By rule waivers, the Commission authorized communication between ship stations and the FAA air traffic control tower

at La Guardia Airport, New York. The coordinated movement of vessels with high masts and aircraft is necessary because the takeoff path of certain runways is immediately over waters traversed by large vessels.

Authorization of special interest.—RCA Communications, Inc., public coast station (KQM) at Kahuku, Hawaii, was authorized to furnish special communications to the U.S. Government vessel *Roseknot* for Project Mercury. The station will provide one voice and two radioteletype channels on high frequencies.

Globe Wireless Ltd., Palo Alto, Calif., was authorized for developmental operation of public coast station KTK to use F1 emission on high frequencies for testing and developing a ship-to-shore teleprinter system. The vessels *China Bear* and *Philippine Bear* were equipped to communicate with KTK for this purpose.

RCA Communications, Inc., public coast station WBL, Martinsville, N.Y., was authorized to use single sideband for ship-shore communication on the Great Lakes and St. Lawrence River for regular message traffic. Increased use of this technique could increase the number of available communication channels. Only a few vessels in the Great Lakes area are capable of single sideband operation.

Press Wireless, Inc., operator of public coast station WCO at Centereach, N.Y., was authorized, on a temporary basis, to transmit weather maps to ships in Atlantic waters during the hurricane season.

The Commission denied an application for a permanently moored vessel to be licensed as a ship station. This decision and a companion decision relating to permissible intership communication should deter permanently moored vessels seeking ship station licenses as a device for circumventing the eligibility requirements for limited coast stations.

VHF radiotelephony for navigational communication.—Developmental authorizations were granted to 65 ships to use 156.65 Mc for bridge-to-bridge navigational communication. In addition, 100 units are authorized to the Pilots Association for the Bay and River Delaware for the same purpose. An outstanding proposal in docket 14375 would authorize these communications on a regular basis.

Radio communications in Alaska.—Landline communications facilities are not generally available in Alaska. Therefore, Alaskan communities rely largely on radio for safety and business purposes. The principal communication trunklines in Alaska are operated by the Alaska Communications System (ACS). These trunklines connect all communication facilities in that State with the rest of the Nation and other parts of the world.

Effective July 1, 1962, applicants, in Alaska, for ship radiotelephone and radar licenses may submit their applications by mail to the Anchorage, Alaska, FCC field engineering office when the applica-

tions are accompanied by written requests for interim licenses, and receive their interim licenses by mail.

During the fiscal year, the licenses of coast and ship stations in Alaska were modified by adding the frequencies 4390.2 kc (all zones), 4409.4 kc (zones 1, 2, and 3), and 4434.9 kc (zones 4, 5, and 6). These frequencies were made available for assignment to such stations beginning December 22, 1961, with modification of licenses effective the same date.

AVIATION RADIO SERVICES

General

The Commission regulates non-Government use of radio for aviation communication, aeronautical radionavigation, and allied safety and operational purposes, including international telecommunications in which air carriers under the U.S. flag are involved.

The Aviation Radio Services embrace stations aboard aircraft and on the ground. They include air carrier aircraft, private aircraft, airdrome control, aeronautical enroute, aeronautical fixed, operational fixed, aeronautical public service, aeronautical advisory, aeronautical metropolitan, aeronautical search and rescue mobile, survival craft, and Civil Air Patrol stations. Regulating these radio services requires coordination with the technical and policymaking groups described hereafter.

Radio Technical Commission for Aeronautics (RTCA)

The RTCA is a nonprofit cooperative association, representing Government and industry, which considers problems connected with aeronautical telecommunications devices and systems. Its findings and reports are often used by Government agencies in proposing regulatory measures affecting the aviation radio services. The Commission is represented on the RTCA executive committee and several of its special committees conducting specific technical studies.

Special committees in which Commission representatives participated during the year considered the following subjects: Interference to Aircraft Electronic Equipment by Devices Carried Aboard; Frequency Utilization Plan for the Band 108–136 Mc; Utilization of the Radio Frequency Band 9300–9500 Mc for Radionavigation; Standardized Procedure for the Measurement of Radio Frequency Energy Emitted from Aviation Radio Receivers; Development of a Compendium of Electronic Aeronautical Navigational Systems; Ground-air-ground Data Links System Requirements; and the Development of a Priority List of Electronic Equipments for Various Classes of Aircraft.

Domestic Aviation Coordination

Matters concerning domestic policies in the aviation field, which were formerly coordinated by the now defunct Air Coordinating Committee, continue to be coordinated by direct liaison between responsible agencies.

International Aviation Communication Coordination

In international aviation activity, policy is formulated by the Interagency Group on International Aviation (IGIA) for the guidance of U.S. representatives to such international meetings as the International Telecommunication Union (ITU) and the International Civil Aviation Organization (ICAO). ITU and ICAO are specialized agencies of the United Nations. ICAO recommends to its member nations uniform practices concerning international aviation matters including telecommunications.

During the year, representatives of the Commission assisted in preparing the U.S. position for the following ICAO meetings: Limited South American/South Atlantic (SAM/SAT) Rules of the Air and Communication (RAC/COM) Regional Air Navigation (RAN) Meeting; Fourth North Atlantic Regional Air Navigation (IV NAT/RAN) Meeting; Seventh Session of the Communications Division (VIIth COM) Meeting; Limited European Mediterranean (LIM/EUM) Frequency Assignment (VHF) Planning Meeting; Second Pacific Regional Air Navigation (II PAC/RAN) Meeting; Fourteenth Session of the ICAO Assembly; Seventh Session of the Airdromes, Air Routes, and Ground Aids Division (SAGA); and, Special ICAO Preparatory Meeting for the ITU Second Extraordinary Administrative Radio Conference (EARC II—Appendix 26).

Among problems considered at these meetings were those concerning: Radio navigational aids; aeronautical fixed and mobile communications services; air traffic services requirements for communications; search and rescue communications; provision of a VHF frequency channel for survival craft; extended range VHF for expanded ground-air-ground communications; single sideband areonautical communications, and consideration of a growing requirement for VHF general purpose frequency channels in the band 128–132 Mc to handle both air traffic control and aeronautical enroute operations, thereby reducing the requirement for HF radiotelephone facilities at international gateway stations.

Commission representatives continue to participate in study groups of the International Radio Consultative Committee (CCIR) of the ITU which include consideration of aeronautical mobile systems. In

addition, Commission representatives took a principal part in coordination with Canada VHF frequency allotments for enroute and air traffic control communications in the 118–136 Mc aeronautical band.

New Developments and Rule Changes

New rules to cover aviation developmental radio operations were adopted in docket 14052. Other significant developments during the year include a rule amendment which permits activation of airport lights by radio signals transmitted by aircraft (docket 14027). This makes it possible for pilots to turn on landing and related lights at equipped airfields which are not normally manned at night. In docket 14312, the frequency 121.5 Mc was made available for use by survival craft stations for communication and radiobeacon purposes.

The band 135–136 Mc was ordered reallocated to the Aeronautical Mobile Service on a shared Government-non-Government basis. This allows additional spectrum space for air traffic control operations. The use of the frequencies 4602.5 and 4630 kc by land and mobile stations of the Civil Air Patrol, within specified States, was authorized in dockets 14095 and 14186. The aviation radio rules were amended to implement certain pertinent parts of the Geneva 1959 regulations (docket 14452).

In docket 14524, rulemaking was proposed which would discontinue use of high frequencies for aeronautical mobile communication in domestic service within the continental United States. If adopted, domestic service would be handled on very high frequencies (VHF) and the high frequencies would be available to meet requirements in the international service.

Another rule proposal (docket 14657) would create a new class of station to be called "Multicom" which would permit, among other things, communication with aircraft for agricultural, ranching, and conservation activities, aerial application, parachute jumping and forest firefighting.

PUBLIC SAFETY RADIO SERVICES

General

The Public Safety Radio Services provide radio communication essential to alleviating emergencies endangering life and property and assist discharging non-Federal governmental functions. These services comprise the police, fire, forestry-conservation, highway maintenance, local government, special emergency, and State guard.

New Developments and Rule Changes

By a rule change in docket 14111, coordination procedures were simplified as to those frequencies made available by the Commission's channel-splitting program and assigned in a block to the police, fire, highway maintenance and forestry-conservation services. Instead of requiring applicants to obtain consent from existing licensees or to conduct field surveys, these split-channel frequencies may now be cleared by frequency coordination advisory committees. Similar relief was not afforded local government applicants since that service has no frequency advisory committees. However, it is anticipated that a committee will be designated for this service by November 1, 1963, the date for compliance with the final narrow-band technical standards of the channel-splitting program.

By rule amendment (docket 14139), the Commission provided that, in addition to those frequencies assignable for fire intersystem communication, licensees within a specific area could be assigned a common frequency for intrasystem or mutual-aid communication. Such intersystem frequencies are utilized for communication between States, counties or fire districts. Within these areas, and pursuant to approved fire communication plans, licensees may now obtain additional frequencies for their coordinated firefighting activities.

A significant innovation promising widespread application was introduced into the local government service by a rule amendment (docket 13971) which permits the control of traffic lights by emergency vehicles in transit.

Continuing the development of new uses of two-way emergency radio equipment, a current rulemaking proceeding (docket 14424) proposes that the operation of signal alarms be permitted to indicate the presence of intruders or fires. The operation would be allowed on frequencies above 25 Mc, on a secondary basis in the police, fire, and local government services and would utilize low-powered transmitters emitting tone or impulse signals when actuated by an intruder or fire.

Compliance with the requirement that fire communications be discontinued on police frequencies after October 31, 1963 (docket 11990), is apparently being accomplished with little difficulty. Affected licensees will have had more than 5 years to establish separate fire radio systems.

DISASTER COMMUNICATIONS SERVICE

This service authorizes communication facilities in the 1750–1800-kc band for use in emergencies such as storm, flood, and war. Its stations may transmit any communication necessary to civil defense or

relief work during disaster. At other times, communications are limited to those necessary in drills and tests to assure efficient functioning of equipment and competency of personnel. Over 85 percent of this service's licensees are civil defense organizations. Of the latter, 76 percent are also using the Radio Amateur Civil Emergency Service (RACES) for civil defense communication.

LAND TRANSPORTATION RADIO SERVICES

General

The Land Transportation Radio Services permit the use of radio to facilitate the commercial transportation by land of passengers and property (railroads, trucks, buses, and taxicabs), and for emergency road service to disabled motor vehicles. The value of radio to such activities is illustrated by one system of more than 275 radio-equipped buses in a large eastern city. This operation has nearly eliminated the need for roving supervisory vehicles and other personal contact. The increased efficiency and resulting convenience to the public has helped the company to establish a passenger-volume record well above the national average for cities of its size.

Hundreds of circuit miles were added during the fiscal year to several microwave systems already in operation by railroads, and plans for the future will result in some railroads having microwave communication over their entire systems. In addition, the railroads are testing a number of new uses of radio in conjunction with their particular needs. Taxicabs and trucking companies also continue to find radio essential in their business operations.

New Developments and Rule Changes

The railroad radio rules were amended (docket 14042) to permit continued use, until October 31, 1963, of transmitters of not more than 3 watts power with a bandwidth and frequency deviation in excess of normal limits. Such use is authorized on a basis of no harmful interference to equipment meeting narrow band requirements. By rule change in the Automobile Emergency Radio Service (docket 14501), license eligibility was broadened to include any person providing emergency public road service for disabled vehicles, whether or not such person operates a public garage. The rules pertaining to all of the Land Transportation Radio Services were amended to permit licensing microwave stations for a 5-year term, rather than the previous 1-year developmental authorization.

A number of interference problems in the Taxicab Radio Service have been reported from large metropolitan areas. They result largely

from the failure by some licensees to acquire modern, adequately selective radio equipment.

All categories of land mobile radio system licensees have been on notice for several years that they must convert to narrow-band operation by October 31, 1963.

INDUSTRIAL RADIO SERVICES

General

The Industrial Radio Services were created to satisfy the radio communication needs of American business and commerce. These radio needs range from the use of a single, low-powered "handy talky," carried by a lumberjack in a forest, to a highly complex, automated microwave system used to control the flow of electrical energy to cities. The scope of the activities of these licensees is indicated partially by the 10 major categories of radio services into which they are divided: Power, Petroleum, Forest Products, Motion Picture, Relay Press, Special Industrial, Business, Manufacturers, Industrial Radiolocation, and Telephone Maintenance Radio Services.

The growth rate in the Business Radio Service, which was created in 1958, has been especially notable. In fiscal 1962 more than 10,000 new stations were authorized, which was an increase of about 25 percent.

The various industrial services grow within the confines of a very small portion of the usable radio spectrum. This situation has led to extremely congested operating conditions in many areas. In turn, as areas become crowded with users, there is an increasing number of applications seeking authorization in higher priority services which are less crowded. The many ambiguous eligibility statements furnished by such applicants cause delays in processing because the applications require special attention and extra time to determine the true nature of the business activity of the applicant and the service in which he is eligible.

New Developments and Rule Changes

All industrial licensees operating on frequencies below 25 Mc were affected by a rule change which tightened the allowable frequency tolerances for transmitters (docket 14500) to conform with the 1959 Geneva regulations.

By rule changes in docket 14162, licensees in the Telephone Maintenance Radio Service were permitted to employ the technique of mobile relay, thereby extending the range of mobile-to-mobile communication between telephone wireline repair crews. Licensees in

the Petroleum Radio Service were granted authority by rule amendments (docket 14140) to perform many operations by means of radio signaling with tones or impulses. In substance, these radio tones and impulses are used to warn personnel of equipment failures, and thereby avert the development of hazardous conditions. Such signals are conducted on regular voice channels, on a secondary basis, but are transmitted so rapidly and with such short duration that voice communication on the same frequency is not interfered with. The rules governing the Manufacturers Radio Service were amended (docket 14525) to permit certain specialized subsidiary corporations, previously ineligible, to obtain licenses in this service if the parent corporation is a manufacturer and therefore eligible in this service in its own right.

Developmental authorizations were granted by the Commission which look toward the use of radio by commercial protective service organizations engaged in furnishing fire, burglary and other protective alarm services to industrial and business establishments.

The Commission has proposed additional "channel splitting" in the 25–42-Mc band, whereby a considerable number of new channels would become available for the land mobile service (docket 14503). This change, if adopted, would be especially beneficial to the Business and Special Industrial Radio Services, whose channels are particularly crowded. Another current rule proposal (docket 14502) would give frequency relief in the 152–162-Mc band to the Power Radio Service in the Pacific northwest.

CITIZENS RADIO SERVICE

General

The Citizens Radio Service (which is divided into classes A through D subcategories) authorizes short-distance voice communications or control of remote objects in connection with the business or personal activities of licensees. About 80 percent of the now more than 300,000 licenses in this service are in the class D category. Citizens radio is particularly valuable as a means of communication to land vehicles, small boats, or aircraft, as well as a wide variety of other business and personal activities, because of the relatively low equipment cost and the simplified license and operating requirements.

New Developments and Rule Changes

The problems pertaining to this service during the year were primarily administrative adjustment to the licensing and enforcement problems resulting from the extremely rapid growth in applicants and

licensees. Among other mechanics to meet these problems, a new, simplified application form was adopted for class B, C, and D stations. On November 14, 1962, the Commission proposed to tighten the citizens radio rules.

AMATEUR RADIO SERVICE

General

Amateur operation continued its steady growth with nearly a quarter million licensed operators now enjoying this popular and self-rewarding hobby. The pioneer spirit which has always highlighted this service was reflected by those amateur operators engaged in research and experimentation in space communication. The public service function of amateur operation was also evinced by the sizable increase in Radio Amateur Civil Emergency Service systems. RACES networks provide essential disaster and civil defense communication both in peace time emergencies and during wartime.

Unusual achievements of amateurs during the year were the placing of two satellites into orbit for their own research and training purposes.

New Developments and Rule Changes

Rule changes during the year included an amendment to permit maritime mobile operation in the frequency band 14.00–14.35 Mc on a worldwide basis (docket 14026). Rulemaking under consideration includes a proposal to remove the power restrictions in the band 420–450 Mc (docket 14610) and a proposal to make the bands 7245–7255 and 14220–14230 kc available in Alaska and Hawaii (docket 14349).

To help alleviate the administrative licensing burden which is a necessary incident of a service of this size, routine application processing is now being accomplished at Commission facilities located in Gettysburg, Pa.

STATISTICS

Stations in Safety and Special Radio Services

The 1962 fiscal year closed with 936,380 stations authorized in the Safety and Special Radio Services, or 165,875 more than the 770,505 in 1961. For these purposes, separate license, construction permit, or combination construction permit and license have been counted as one station. Therefore, in many cases, a station includes a base transmitter and various mobile units. The following table compares station authorizations at the close of fiscal years 1961 and 1962:

Stations in Safety and Special Radio Services

Class of station	June 30, 1961	June 30, 1962	Increase or (decrease)
Amateur and disaster services:			
Amateur	222,170	237,159	14,989
Disaster	406	411	5
RACES	12,105	14,089	1,984
Total	234,681	251,659	16,978
Citizens	206,106	305,138	99,032
Aviation services:			
Aeronautical and fixed group	4,339	4,743	404
Aircraft	72,612	85,825	13,213
Aviation auxiliary group	465	502	37
Aviation radionavigation land	386	402	16
Civil Air Patrol	14,977	15,451	474
Total	92,779	106,923	14,144
Industrial services:			
Business	28,420	39,266	10,846
Forest products	2,045	2,179	134
Industrial radiolocation	286	294	8
Manufacturer	449	630	181
Motion picture	53	64	11
Petroleum	8,502	9,064	562
Power	12,915	13,364	449
Relay press	150	164	14
Special industrial	24,708	27,688	2,980
Telephone maintenance	245	360	115
Total	77,773	93,073	15,300
Land transportation services:			
Automobile emergency	1,202	1,439	237
Interurban passenger	50	53	3
Interurban property	2,048	2,435	387
Railroad	3,499	3,861	362
Taxicab	4,868	5,029	161
Urban passenger	126	128	2
Urban property	282	333	51
Total	12,075	13,278	1,203
Marine services:			
Alaskan group	1,282	1,362	80
Coastal group	431	468	37
Marine auxiliary group	100	82	(18)
Marine radiolocation land	44	45	1
Ship group	108,576	125,676	17,100
Total	110,433	127,633	17,200
Public safety services:			
Fire	6,667	7,233	566
Forestry conservation	3,862	3,988	126
Highway maintenance	4,150	4,475	325
Local government	2,586	3,489	903
Police	14,982	15,001	19
Special emergency	4,400	4,473	73
State guard	11	17	6
Total	36,658	38,676	2,018
Grand total	770,505	936,380	165,875

Transmitters in Safety and Special Radio Services

More than 3 million transmitters were authorized in the Safety and Special Radio Services at the end of fiscal 1962. This was an increase of 562,307 over the 1961 figures reported in last year's annual report. A breakdown of land or fixed transmitters and mobile station transmitters, by class of station, follows:

Transmitters in Safety and Special Radio Services

Class of station	Land or fixed	Mobile	Total
Amateur and disaster services:			
Amateur	229,676		229,676
Disaster	411		411
RACES	2,951		2,951
Total	233,038		233,038
Citizens	9,734	963,688	973,422
Aviation services:			
Aeronautical and fixed group	7,543		7,543
Aircraft group		139,679	139,679
Aviation auxiliary group	55	2,347	2,402
Aviation radionavigation land	521		521
Civil Air Patrol	7,175	12,375	19,550
Total	15,294	154,401	169,695
Industrial services:			
Business	25,369	280,283	305,652
Forest products	2,200	19,585	21,785
Industrial radiolocation	170	540	710
Manufacturers	768	14,595	15,363
Motion picture	72	906	978
Petroleum	22,020	59,537	81,557
Power	11,216	149,018	160,234
Relay press	148	2,165	2,313
Special industrial	26,015	266,295	292,310
Telephone maintenance	350	11,310	11,660
Total	88,328	804,234	892,562
Land transportation services:			
Automobile emergency	1,355	13,699	15,054
Interurban passenger	43	477	520
Interurban property	2,440	41,136	43,576
Railroad	4,204	123,190	127,394
Taxicab	8,842	161,191	170,033
Urban passenger	102	3,098	3,200
Urban property	284	9,198	9,482
Total	17,270	351,989	369,259
Marine services:			
Alaskan group	2,789		2,789
Coastal group	728		728
Marine auxiliary group	533	6	539
Marine radiolocation land	72		72
Ship group		143,239	143,239
Total	4,122	143,245	147,367
Public safety services:			
Fire	6,558	80,884	87,442
Forestry conservation	9,344	33,128	42,472
Highway maintenance	3,963	42,124	46,087
Local government	14,546	34,267	48,813
Police	12,968	183,531	196,499
Special emergency	4,290	14,121	18,411
State guard	306	409	715
Total	51,975	388,464	440,439
Grand total	419,761	2,806,021	3,225,782

Applications in Safety and Special Radio Services

During fiscal year 1962, more than 428,000 applications for stations in the Safety and Special Radio Services were received, which was an increase of 36,099 from the corresponding figure of 1961. A compari-

son of the number of applications received in each service during the past 2 years follows:

Applications in Safety and Special Radio Services

Class of station	June 30, 1961	June 30, 1962	Increase or (decrease)
Amateur and disaster services:			
Amateur	116,884	123,777	6,893
Disaster	35	30	(5)
RACES	2,535	2,394	(141)
Total	119,454	126,201	6,747
Citizens	140,153	171,984	31,831
Aviation services:			
Aeronautical and fixed group	2,410	2,041	(369)
Aircraft	26,998	27,581	583
Aviation auxiliary group	260	215	(45)
Aviation radionavigation land	174	153	(21)
Civil Air Patrol	4,275	4,541	266
Total	34,117	34,531	414
Industrial services:			
Business	15,518	17,116	1,598
Forest products	862	536	(326)
Industrial radiolocation	306	296	(10)
Manufacturers	370	379	9
Motion picture	27	21	(6)
Petroleum	4,379	4,302	(77)
Power	5,775	3,585	(2,190)
Relay press	103	65	(38)
Special industrial	11,455	7,994	(3,461)
Telephone maintenance	228	255	27
Total	39,023	34,549	(4,474)
Land transportation services:			
Automobile emergency	507	544	37
Interurban passenger	27	37	10
Interurban property	1,041	967	(74)
Railroad	1,984	1,604	(380)
Taxicab	2,549	1,621	(928)
Urban passenger	77	39	(38)
Urban property	151	180	(29)
Total	6,336	4,992	(1,344)
Marine services:			
Alaskan group	469	301	(168)
Coastal group	626	223	(403)
Marine auxiliary group	44	100	56
Marine radiolocation land	41	40	(1)
Ship group	34,838	35,698	860
Total	36,018	36,362	344
Public safety services:			
Fire	2,456	3,163	707
Forestry conservation	1,862	1,911	49
Highway maintenance	2,439	2,563	124
Local government	2,289	2,723	434
Police	6,769	7,545	776
Special emergency	1,676	2,164	488
State guard	5	8	3
Total	17,496	20,077	2,581
Grand total	392,597	428,696	36,099

Exemption From Compulsory Ship Radio Requirements

During fiscal 1962, Commission action on exemption applications, under section 352(b) of the Communications Act, was as follows:

	Received during fiscal 1962	Granted	Denied	Pending
From compulsory radiotelegraph requirements	[1] 45	[3] 42	2	1
From compulsory radiotelephone requirements	[2] 29	24	5	0

[1] Not included in this table are 15 applications for temporary radiotelegraph exemptions, all of which were granted.

[2] These involved vessels in the Great Lakes area, passenger vessels of less than 100 gross tons, ferry vessels navigating solely on inland waters on international voyages, and vessels engaged in oil well drilling and production.

[3] Not included in this table are 9 applications for temporary radiotelephone exemptions, 8 of which were granted and 1 denied.

Common Carrier Services

DOMESTIC TELEPHONE

Highlights

Outstanding developments during the fiscal year 1962 included

The continued high rate of growth of the telephone industry, as measured in terms of increased investment in total telephone facilities, greater operating revenues, and gain in telephones served.

Activity in the private line case, TELPAK (private line multitype service), WATS (wide-area telephone service), WADS (wide-area data service), and other proceedings.

Adoption of revisions in procedures underlying separations between intrastate and interstate of the Bell System investment and expenses.

General reduction in the level of prices for products manufactured by the Western Electric Co. for sale to Bell System companies.

Overall View of Industry

That the telephone industry has been growing at an extremely high rate, one that exceeds the rate of growth of the Nation's economy as a whole by a wide margin, is evinced by the following facts.

Telephone companies.—The domestic telephone system comprises over 3,000 companies representing many diverse ownership interests. Whereas the Bell System, with its 24 operating units, serves the larger cities (as well as numerous smaller communities and rural areas) and owns and operates most of the basic toll telephone network, the independent segment is an integral part of the overall system. The independent companies, in the main, provide local exchange, short-haul, and terminal toll service in the smaller urban and rural communities; however, the total size of the territory they serve approximates that served by the Bell System. A single group (General Telephone & Electronics Corp.) accounted for approximately 40 percent of total independent telephone investment.

As shown in the following tabulation, the number of telephone companies, as a result of purchases and mergers, is undergoing a rapid reduction:

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Dec. 31, 1961	Total	Bell System	Independent [1]
1961	3,059	[2] 24	3,035
1960	3,323	23	3,300
1958	3,890	23	3,867
1956	4,413	23	4,390
1951	5,469	23	5,446

[1] Includes Alaska, Hawaii, and Puerto Rico.
[2] Additional company created out of Pacific T. & T. Co.

Telephones served.—Industry growth during the calendar year 1961, as measured by telephone gain, amounted to 3.2 million (4.1 percent). Of the 77.6 million telephones at the end of that period, 65.5 million (84 percent) were in the Bell System and 12.1 million (16 percent) were in the independent segment. Of these, dial telephones constituted 98 and 94 percent, respectively. Expansion of the industry is reflected in millions of telephones in service at the end of selected calendar years as follows:

Year	Industry total	Bell System			Independent companies [1]
		Total	Principal subsidiaries	Other [1]	
1961	77.6	65.5	63.2	2.3	12.1
1960	74.4	63.0	60.7	2.3	11.4
1958	66.9	56.7	54.7	2.0	10.2
1956	60.4	51.3	49.4	1.9	9.1
1951	45.8	38.9	37.4	1.5	6.9

[1] Mainly nonconsolidated associated companies
[2] Includes Alaska, Hawaii, and Puerto Rico.

In reviewing these statistics it is noted that, while the expansion during the 10-year period is material (68 percent for Bell and 75 percent for the independents), the rate of growth is considerably less than the corresponding increase in dollar investment.

Telephone plant investment.—On December 31, 1961, the gross investment in telephone plant facilities rose to the $31 billion level, of which approximately $26.5 billion (85 percent) represented the total of Bell System companies. The growth in terms of dollars during the last decade is shown in the following tabulation of the gross investment (billions of dollars) at the end of 5 selected calendar years:

[In billions]

Year	Industry total	Bell System			Independent companies [1]
		Total	Principal telephone subsidiaries	Nonconsolidated associated companies	
1961	$31.1	$26.6	$25.9	$0.7	$4.5
1960	28.8	24.8	24.1	.7	4.0
1958	24.4	21.2	20.6	.6	3.2
1956	19.9	17.5	17.0	.5	2.4
1951	12.6	11.3	10.9	.4	1.3

[1] Includes Alaska, Hawaii, and Puerto Rico.

These figures reveal that the rate of growth of the investment of independent companies has been significantly greater than the Bell System (246 percent versus 135 percent). Although the greater relative expansion of telephones served by independents was a contributing factor, the more important cause was the necessity of having to undertake a greater proportion of central office conversions and rehabilitation of outside plant, as well as relatively more rural plant construction. Of the total shown for the independent segment, General System represented $1.7 billion at the end of calendar 1961.

The total annual construction expenditures of A.T. & T. and its principal telephone subsidiaries, when related to total yearend assets, has ranged between 11 and 14.5 percent for the last 10 years. Further information in this regard, including the general sources of funds for financing the construction program, follows:

Year	Construction expenditures (in millions)	Percent of yearend assets	Source of funds			
			Portion generated internally		New money requirements	
			Amount (in millions)	Percent	Amount (in millions)	Percent
1961	$2,696	11.0	$1,637	61	$1,059	39
1959	2,249	10.8	1,452	65	397	35
1957	2,566	14.5	990	39	1,576	61
1955	1,643	11.3	821	50	822	50
1953	1,388	11.6	597	43	791	57
1951	1,059	10.9	599	57	460	43

This tabulation demonstrates the greater relative availability of internally generated funds (mainly depreciation and retained earnings) in recent years as compared to external sources (stocks, debentures, and bonds). The depreciation factor alone has contributed about 40 percent of the total funds used for construction during the last 3 years. Improved earnings level is the other major contribution to this shift in source of capital.

Earnings.—Consolidated earnings applicable to A.T. & T. common stock of $1,285 million for calendar 1961 represented a gain of 6 percent over 1960; per share earnings remained about the same ($5.52 versus $5.53). The return on interstate earnings as related to net investment in plant amounted to 7.75 percent, as compared to 7.81 percent for 1960. The revision in separations procedures made effective in April 1962 (discussed later) is estimated to have the effect of reducing the annual rate of interstate earnings by approximately one-half of 1 percent.

Trends and Developments

The trend toward mechanization and automation is dramatically demonstrated in the telephone industry. The introduction of new

technological developments has affected all phases of its operations—transmission and central office switching, as well as customer equipment.

During the last 10 years, as noted later in this chapter, the definite trend in toll transmission has been in the direction of relying on microwave radio and coaxial cable facilities rather than on traditional wire and cable. To a large extent this has made possible the handling of a far greater volume of regular toll messages and the development and expansion of numerous other services, including data transmission. Certain new developments such as the solid-state optical maser and the gas maser, which are still in the laboratory stage, promise increases in capacity many thousand times greater than now possible.

The world's first central electronic office was tested successfully, and it is expected that this type of equipment will be manufactured and installed on a regular basis by 1965. Electronic switching will make available new types of services and simplification of operation. Important as these developments are, the improvements made in recent years on the time-tested electromechanical dial switching equipment should not be overlooked, particularly in its application to long-distance operation. It has resulted in more efficient use of plant facilities and better quality of service. It has been the biggest single factor, for example, in speeding the handling of long-distance toll service, which for the Bell System averaged 58 seconds in 1961 as compared to 126 seconds in 1948.

A wide variety of equipment is now being provided for customers to talk, write, and transmit or receive data. To furnish more efficient communication service to businessmen and other large customers, numerous types of switching arrangements are now being provided from the relatively simple two-line installations to the giant multistation and line systems which rival in size and complexity many of the smaller central offices. One of the most interesting of these is the new CENTREX private branch exchange system, developed for use by large organizations or groups of organizations, which provides new features such as direct inward dialing, direct distance dialing, transfer of incoming calls to an extension, and automatic number identification. Although comparatively new, at the close of 1961 the coverage of this type of system had reached the 400,000-telephone level. Other important developments include the so-called touch-tone (pushbutton) telephone, which operates at a speed limited only by the ability of the user to depress the keys, and "dataphone" sets, which permit business machines to send and receive messages automatically.

In other areas, although the practice of burying interexchange (toll) plant has been in effect for some time, it is now being extensively applied to local distribution facilities. Among its benefits are

reduced maintenance costs, protection against weather, and longer life of equipment.

All these developments contribute to more efficient service and permit introduction of new uses for the subscriber. Also, for interstate long-distance service, the trend for more than a decade has been toward lower unit book cost.

Interstate Facilities

Considerable emphasis has been placed in recent years on customer direct distance dialing (DDD), which by the end of 1961 was available to 34 million customers. Of this total, 63 percent were able to dial long-distance calls, and substantially all telephones are now equipped to receive calls dialed from various long-distance points. However, the larger portion of interstate toll calls have in rement years been handled on an automatic switching and routing basis, through operator toll dialing. This latter development, rather than DDD, was the most significant factor in achieving better service, improved utilization of plant, increased efficiency, and lower unit costs of interstate toll operation.

With respect to interexchange circuit plant, the movement for some time has been away from reliance on wire (open and in cable) in favor of radio relay (microwave) and special cable (coaxial). As shown in the following table of calendar yearend figures, the latter types of plant now constitute over two-thirds of capacity available:

Type	Circuit miles (in thousands)		
	1950	1955	1961
Open wire	1,957	1,670	1,170
Cable (wire)	6,860	7,116	6,530
Carrier:			
Open wire	2,921	3,870	4,277
Cable	7,147	10,517	19,940
Coaxial cable	4,096	11,497	26,784
Radio relay		8,486	36,646
Unclassified	3,462	1,308	413
Total	26,443	44,464	95,760

Mainly in the interest of assuring uninterrupted service in national emergencies, the Bell System began construction in 1958 of a new radio relay system (type TH) designed to avoid large metropolitan and other critical target areas. This particular project, when completed and fully equipped some 5 or 6 years from now, will provide 10,000 additional direct circuits from coast to coast.

Another important project designed to meet this objective is the new transcontinental coaxial cable system, construction of which began in 1960. When completed, it will consist of 4,000 miles of cable, more

than 900 intermediate amplifying stations, and 9 communication centers, all of which will be placed underground. The buried communication center, for example, will be one or two underground stories of reinforced construction, and will be able to generate its own power and stock reserve fuel, food supply, and other facilities to sustain operating personnel for an extended period of time. The system will have 16 coaxial tubes in the eastern congested areas, and 12 tubes to the west coast. The cost to place the first two tubes into operation has been estimated at $200 million. The cost of the entire system may run to twice that amount. During 1962, the section between New York City and Cincinnati areas was placed in limited service. When fully equipped, this system will provide about the same capacity as the above-mentioned radio relay system.

During fiscal 1962, telephone construction projects authorized by the Commission amounted to $233.4 million, of which the largest single classification represented increased radio relay facilities (72,219 channel miles) at an estimated cost of $89.5 million. Approximately one-third of this latter amount related to new facilities and two-thirds to expansion of existing facilities. The larger portion of the remaining cost was for installing carrier equipment, and constructing new coaxial cable systems and expanding or modernizing existing ones.

Tariff Docket Cases

In early September 1961, the Commission suspended certain revisions of A.T. & T.'s TELPAK tariff and ordered an investigation of its overall offering covering bulk voice, teletypewriter, data, and other forms of communication (docket 14251). Since then, over 20 days of hearings have been held. Intervention in the proceedings by many business users and their trade associations shows a high interest in TELPAK on the part of the larger users since TELPAK rates for such customers are significantly lower than comparable private line charges. Also, active participation in the proceedings by Western Union and Motorola, Inc., raises issues as to possible competitive implications of TELPAK to Western Union operations as well as to the private microwave industry, in which Motorola is active.

Hearings were completed in the investigations of A.T. & T.'s Wide Area Telephone Service, or WATS (docket 13914), and Wide Area Data Service, or WADS (docket 13154), and both cases were awaiting initial decision. WATS is a long distance, station-to-station telephone service which makes available limited (measured time) and unlimited (full time) interstate calling within a maximum of six zones or calling areas at flat monthly rates. WADS is an interstate and intrastate teletypewriter service which also makes available limited and unlimited calling within specified areas at flat monthly rates.

in much the same manner as WATS. Western Union has voiced considerable concern about the competitive impact of WADS on the former's Telex and leased facilities services.

In these proceedings particular interest has centered on testing the reasonableness of using flat monthly zone rates. Although local telephone service has generally been based on flat rates, these wide-area tariffs represent the first major attempt to utilize a flat rate for interstate message service. While the WADS tariff itself has not yet become effective, its precursor, Developmental Line Switched Teletypewriter Service, is scheduled to terminate on December 1, 1962, at which time WADS will probably be offered as a nationwide service, utilizing the new mechanized Teletypewriter Exchange (TWX) network.

In the private line case (dockets 11645 and 11646), exceptions were filed and oral argument held since the Commission's initial decision of July 6, 1961. A final decision was in preparation. In the meantime, decisions in three rate cases, including SAGE services to the Department of Defense, awaited the final private line determination inasmuch as many of the issues in the three cases will be affected by the private line case precedent.

Hearings are now in progress in another case involving Department of Defense interest in A.T. & T. charges and regulations for the Ballistic Missile Early Warning System (BMEWS) and the Command Post Alerting Network (COPAN) services. This proceeding is expected to be concluded by the end of calendar 1962.

The railroad interconnection case (docket 12940) was terminated when the Commission granted a joint motion to do so based on revisions of A.T. & T.'s tariff regulations limiting the right of railroads and other right-of-way companies to interconnect their systems with Bell facilities.

Also, an initial decision was issued early in fiscal 1963 in the case involving request by the Doniphan Telephone Co. of Missouri for a change in points of interconnection of facilities with the Southwestern Bell Telephone Co. (docket 13778).

New Tariffs

Radiotelephone service with aircraft in flight was first established in 1946 and has since been offered on a limited basis. During the year A.T. & T. filed tariffs which would extend this service on a nationwide basis. However, the full effect of the new schedules will not be ascertainable until a rulemaking proceeding covering the allocation of frequency assignments for such service has been concluded. On aircraft participating in the service the passenger will be able to select one of six available channels, signal the nearest telephone oper-

ator handling such calls on the ground, and then be connected with the ground telephone system. On calls to aircraft, the ground telephone operator nearest the plane's flight location will dial the telephone number assigned it, and only that aircraft will recognize the signal.

Another new tariff offering was A.T. & T.'s proposal for interexchange and local distribution service for educational TV and other noncommercial TV users at considerably lower rates than are charged ordinary commercial TV stations. At the suggestion of the Commission, the tariff was modified so that the interexchange systems furnished would not be limited to transmission of educational TV material. The lower rates are made possible by the fact that high-quality channels and facilities are not required for this service.

The volume of telephone tariff filings continued at a high level, as shown by the fact that during the fiscal year 9,478 new filings were received. At the close of that period 1,501 tariffs were on file. In the interests of lessening the volume of pages filed, a study of its tariff structure was initiated by A.T. & T. Preliminary results were reviewed.

Separations Procedures

Following discussions with representatives of the Bell System and the Committee on Communications Problems of the National Association of Railroad and Utilities Commissioners (NARUC), the Commission approved, on an interim basis, certain modifications of the separations procedures employed by telephone companies to separate and apportion their investment and expenses between interstate and intrastate operations. After subsequent approval of the revisions by the NARUC Executive Committee, the Bell companies effected the changes in their division of revenue contracts as of April 1, 1962. The revisions provide for the use of less complex and more economical procedures consistent with current operating conditions.

The revisions had the effect of transferring approximately $69 million of book costs and $38 million of associated expenses annually from Bell intrastate to interstate operations and thereby reduced the revenue requirements from intrastate operations by about $45 million annually. This has enabled many of the State public utility commissions to pass the benefits of the changes on to the public in the form of intrastate toll rate reductions and at the same time alleviate, to some extent, the existing disparities between interstate and intrastate message toll rates. As of June 30, 1962, 31 States had availed themselves of this opportunity by reducing Bell intrastate toll rates $36 million annually.

Affiliated Manufacturing and Supply Organizations

The earnings of Western Electric Co. (manufacturing and supply unit of the Bell System) on sales to affiliated telephone companies declined from 10.2 percent return on net investment in 1960 to 9.5 percent in 1961. This was a result (at least in part) of the price reduction of $26 million, effective July 1, 1961, following issuance of the Commission's letter of July 7, 1961, to this company concerning its level of earnings. A further general price reduction, amounting to $32 million, went into effect May 1, 1962. As a result of these and other price reductions made in earlier years, the current average level of prices being charged on sales to Bell affiliates is now approximately 18 percent less than in 1947.

The Commission has continued its cooperative review with NARUC of Western's prices, earnings, and costs. Quarterly and annual reports containing financial data thus developed are sent to the State regulatory commissions. Recently, this activity was broadened to include consideration of a similar approach to the manufacturing, supply, and service organizations owned and operated by General Telephone & Electronics Corp. After considerable discussion and correspondence with officials of that organization, the NARUC Committee on Communications Problems, on March 5, 1962, requested information of G.T. & E. similar to that already furnished by the Bell System. The Commission is assisting in the study and evaluation of the data received in response to this request.

Depreciation

Depreciation expense of the 24 Bell companies for 1961 amounted to $1,166 million as compared to $216 million in 1945, an increase of 439 percent. It is the largest element of cost, except for labor, reflected in operating expenses. Its role as a source of capital has already been discussed. The task of prescribing depreciation accrual rates, as required by section 220(b) of the Communications Act, is becoming increasingly more complex and extensive as a result of the growth in plant and accelerated technological changes. Scheduled reviews of the underlying mortality and other data of the Bell companies on a 3-year-cycle basis has been in effect for some time. As a result of the dynamic forces involved, each review invariably results in changes in many of the rates. While some rates are increased and some decreased, the net effect in practically all instances is an increase. This is attributable primarily to changes resulting in early obsolescence and to the classification of certain plant as depreciable which formerly was not so treated.

During fiscal 1962, all of the larger independent companies fully subject to the Communications Act, total assets of which are small as compared to that of the Bell System, were circularized to determine the basis of the depreciation rates now in use and the underlying data available for study purposes. An evaluation of the results received indicates that only 11 of these companies have turnover in plant of sufficient magnitude to permit a precise determination of service lives and salvage factors. Studies for this group have been tentatively scheduled over the next 5 years.

Other Subjects

Original cost accounting.—This subject, when considered in relation to its impact on overall financial position, is not as significant as it was a decade or so ago. However, the volume of transactions continues at a fairly high level (24 separate journal entries), and the principles involved in certain instances are exceedingly complex. Some of the more important problems encountered, particularly in connection with the acquisition of properties, include determination of the purchase price in exchange-of-stock transactions, propriety of methods followed in estimating original cost, and review of basis of developing the related theoretical reserve requirements.

The largest single transaction disposed of during the year, in terms of dollars, was transfer of the properties, assets and liabilities of the Pacific Telephone & Telegraph Co., located in Washington, Oregon, and Idaho, to the new Pacific Northwest Bell Telephone Co. The most important action taken in this connection was approval of apportionment of the unappropriated earned surplus on basis of the net assets transferred.

Relief and pensions.—As of December 31, 1961, the total pension funds of the Bell System aggregated almost $2.9 billion, and the payments in 1961 for employee's service pensions totaled $221 million. Because of the large sums involved, and the wide area of judgment inherent in determining the actuarial basis for the accrual, the principles underlying pension fund transactions are frequently reviewed by the Commission.

Security and protective measures.—Increased emphasis is being placed on this subject by the Bell System, partly as an outgrowth of the May 1961 destruction by explosion of a radio relay system, a cable repeater station, and a microwave tower in Nevada and Utah which temporarily disrupted about 2,200 telephone, telegraph, and private line circuits, as well as 2 TV channels. Operating practices have been strengthened, and direction and responsibility of the function have been centralized.

One problem with which the Commission has concerned itself for several years is the matter of telephone set losses, which in 1961 reached the high figure of almost 800,000 sets. In addition to being a material loss, this item is important to billing control, since it may result in the installation of unauthorized extensions. It is hoped that measures recently taken by the Bell System, including increased employee responsibility, and better reporting and recordkeeping procedures, will improve the situation.

Field studies and reviews.—Studies during the year were made of certain of the accounts, records, and accounting procedures of six Bell companies and five independent companies to assure compliance with the Commission's accounting rules and regulations. They were made by the field offices as well as by the headquarters staff and were directed to such accounting matters as:

1. The proposed treatment of amounts to be billed A.T. & T. for costs of operating the transatlantic cable ship built and outfitted especially to install and maintain new-type (rigid repeater) oversea cable facilities;

2. The cost of conversion of teletypewriter from manual to dial operation in order to adapt this operation to the nationwide automatic toll network;

3. The research and fundamental development costs relating to the satellite communication system; and

4. The methods and procedures followed in establishing and maintaining continuing property records.

Also currently in progress is a limited study and review of certain accounting records, methods and procedures of Western Electric Co. insofar as they might relate to the pricing of equipment and supplies sold, and services furnished, to Bell companies.

Overseas study.—At the request of the Commission, A.T. & T undertook and recently completed a study of the investment, related expenses and revenues involved in furnishing overseas telephone service. A review and field test of such study is in progress. Whether this subject will be made part of a formal investigation has not been determined.

Miscellaneous.—The volume of transactions relating to such matters as application for (1) discontinuance of service, acquisitions, and consolidations, and (2) interlocking directorates continued at a low level. Seven applications involving property acquisitions and nine for service discontinuance were granted during the year without a hearing; also, seven applications for interlocking directorates.

DOMESTIC TELEGRAPH

Highlights

The Western Union Telegraph Co.'s gross landline operating revenue of $265,726,591 for calendar 1961 exceeded the previous high in 1960 by more than $3 million, notwithstanding a 7-percent decline in public message volume. The main reason for this increase was the continued growth of revenues from expansion of private wire and measured services. Net income from the company's entire operations was $12,226,262 in 1961, compared with $11,016,239 the previous year.

Speed of domestic message telegraph service deteriorated appreciably during the year, and the number of telegraph offices declined approximately 10 percent in 1961. The volume of telegraph messages and number of telegraph offices in the United States fell 50 and 43 percent, respectively, during the period 1945–61. Decline in message handlings and consequent reduction of offices raises a serious question as to the continued availability to the public of a nationwide message telegraph service.

In May 1962, the Commission instituted an investigation of domestic telegraph operations and services primarily to determine what steps should be taken to assure continuation and improvement of essential services in the domestic telegraph field.

In contrast to the declining message business, Western Union's gross private wire revenue amounted to $61.1 million in 1961, exceeding the previous year's record high by $4.5 million. Nevertheless, the bulk of private line telegraph service continues to be handled by the Bell System. In an effort to provide for the handling of complex and rapidly expanding communication requirements and to meet the increasing competition, Western Union is now engaged in the largest construction program in its history. Its transcontinental microwave relay system is scheduled for completion early in 1963. A significant step in the private wire field was the expansion by Western Union of its range of services to include voice and alternate record-voice communications and TELPAK, made possible by amendments to its facility interchange contracts with the Bell System.

Western Union System

For all practical purposes, the landline system of Western Union constitutes the domestic message telegraph industry in the continental United States, excluding Alaska. In addition to providing service between points on its own lines, the company renders service to and from Alaska by connection with the Alaska Communications System (which in 1962 was transferred from the Army to the Air Force).

Through connections in Mexico and Canada, Western Union provides service between Canada and Mexico and between the United States and these countries. The company is the sole agency for the landline handling of oversea and ship-shore messages originating or terminating in the continental United States outside the so-called gateway cities. The company furnishes private line and other communication services, such as telegraphic money orders. It has long operated a transatlantic cable system, but is required to divest itself of these facilities. (See "International Telegraph and Telephone.")

As of December 31, 1961, Western Union's landline system represented a gross plant investment of $435 million; it had 17,047 telegraph offices, of which 1,923 were company operated and the remainder were agency offices operated by railroads, small telephone companies and small businesses. As of October 31, 1961, it employed 31,425 people, including 4,922 messengers but excluding telegraph agencies and their employees.

Message telegraph volume was 117 million in 1961, compared to 124 million the previous year. Domestic public message service was responsible for 59 percent of the company's total landline revenue in 1961, as compared with 61 percent in 1960. Public message gross revenue was $158 million in 1961, compared with $161 million the previous year.

Investigation Into Western Union's Future

Although message service volume and the number of telegraph offices have shown a substantial and progressive decline in the past 17 years, there remains a sizable demand for such service and substantial resources are employed in its rendition. However, continuation of this declining trend gives cause for concern about the future of nationwide message telegraph service. Consequently, in May 1962, the Commission instituted an investigation, on its own motion, of domestic telegraph operations and services (docket 14650). It will, primarily, undertake a basic study of the public need for comprehensive, nationwide, public telegraph message services; the extent to which that public need is being supplied now and will be supplied in the future under current policies and plans; and what steps are most appropriate and feasible to assure continuation and improvement of essential record telecommunications services in the domestic field. The Commission's Telephone and Telegraph Committees, which are conducting the inquiry, will make recommendations to the Commission. The Commission has solicited active participation in this investigation by the Department of Defense, the Post Office Department, the General Services Administration, the Governors of the several States, and several organizations.

Some Growing Services

In comparison to the waning message business, private line telegraph and teletypewriter exchange services are growing. Private line telegraph services accounted for 23 percent of Western Union's total revenues in 1961, as compared with 22 percent the previous year. Its annual private line telegraph revenue mounted from $6 million in 1945 to $61.1 million in 1961. During that same period, Bell System's private line telegraph revenue increased from $24 million to $121 million a year, and its annual teletypewriter exchange service (TWX) revenue jumped from $17 million to $68 million. Telex, Western Union's service which is directly competitive with TWX, was first offered in 1958 and, although considerable expansion is planned, its revenue was running at an annual rate of only $1.4 million a year.

Causes of Declining Business

During 1945–61, Western Union's share of total domestic telegraphic communication revenues declined from 80.7 to 56.9 percent, while Bell's share increased from 19.3 to 43.1 percent. Western Union attributes the decline in message business largely to telephone and airmail competition, TWX expansion, diversion of message traffic to private wire services of both Western Union and the Bell System, the effect of increased prices for message telegraph services, and a continuation of the Federal excise tax on telegrams. The telegraph company claims that the WADS and TELPAK offerings of A.T. & T. have resulted in customers canceling existing services or orders for Western Union service aggregating $4.1 million a year, a figure equal to 10 percent of the carrier's private wire revenue from commercial users in 1961.

Modernization and Expansion

In an effort to meet increasing competition, Western Union has embarked upon the largest construction program it has undertaken in its 111 years of operation, requiring capital investments of $375 million in the 4-year period from 1961 to 1964. It is designed to provide new and technologically advanced plant facilities capable of handling the complex and rapidly expanding communication requirements of the Government, industry, and the public generally. This program requires substantial amounts of new capital in addition to funds generated from operation. Initial steps to finance the program were the sale of additional shares of stock amounting to $41.5 million in September 1961, and the issuance in February 1962 of $50 million of 5¼-percent sinking fund debentures due in 1987. Also, under a standby bank credit agreement with 10 participating banks, Western Union has $50 million available for borrowing through De-

cember 31, 1962, on notes maturing serially, one-third at the end of each of the years 1964, 1965, and 1966.

In the 5-year period from 1957 through 1961, Western Union's expansion and improvement program resulted in additions to the company's plant aggregating $223.9 million. The principal items were: $98,100,000 for customers' private wire equipment; $18,200,000 for microwave beam construction; $17,600,000 for teleprinter equipment; $17,000,000 for line construction; $12,500,000 for carrier equipment; $12,300,000 for telefax equipment; and $8,700,000 for reperforator switching equipment. During the same period an additional $11,300,000 was expended for research and development.

The west coast section of Western Union's new transcontinental microwave relay system is now in operation and its main transcontinental route is scheduled for completion in the early part of 1963. This new broadband system should vastly increase present circuitry and add to the range of services which can be offered. These facilities, designed and routed to serve key cities and defense installations, represent an important addition to the country's defense capabilities.

DATACOM (Phase 1—COMLOGNET), a nationwide data communications network, is now being installed by Western Union for the U.S. Air Force. This high-speed, fully automatic, and transistorized communication linkage was scheduled for completion late in 1962, and will be the world's largest and most advanced digital data system. The network consists of five switching centers interconnecting airbases, stations, depots, contractors, and other installations. Each switching center contains two large, solid-state computers, and the system will be capable of interchanging traffic automatically with other Air Force networks.

Construction of a nationwide bomb-detecting system for the Air Force was nearing completion. This system designed by Western Union, utilizes a device called a "sensor" which converts the intense light from a nuclear blast into an electrical impulse. This impulse is flashed instantly to special alerting boards at military command centers. The system will be used in other ways to strengthen the Nation's military and defense capabilities.

Western Union placed in service, for the Joint Chiefs of Staff, a new Emergency Message Automatic Transmission Service (EMATS) which will automatically flash top-priority instructions and orders to major military commands around the world. It permits pushbutton command of the system's global telegraph facilities for immediate transmission of vital messages, selects any one of a number of previously prepared emergency messages, and transmits it automatically to military commanders overseas, and to the headquarters of the armed services in the Pentagon. A similar system has also been installed for the Air Force.

Western Union plans to introduce in 1963 a new record and voice service, called "Broadband Switching." It will provide customer-to-customer wide-band connections which can be used for transmitting voice, data, facsimile or any other type of digital communication. A single compact pushbutton telephone instrument will combine a handset for voice communication with a switching device for convenient transfer to data or other record messages. The system is designed to utilize a portion of the microwave beam system capacity and will be initially offered in cities along the coast-to-coast microwave trunk route.

Western Union's Telex service (a teleprinter exchange service similar to the Bell System's TWX service) was available in 64 cities in the United States at the end of the fiscal year, and expansion to 117 cities was scheduled by the end of calendar 1962. The company plans to offer the nationwide Telex service through automatic exchanges in 181 cities by the close of 1964.

Extension of Facilities and Curtailment of Service

Western Union was authorized to supplement and extend its lines by the addition of some 1,550,000 telegraph channel miles, 41,000 data channel miles and 6,500 facsimile channel miles, obtained mainly through lease from other carriers. Most of these facilities were required to meet the increasing needs of private wire telegraph services and the remainder for extension of lines and improvement of message telegraph service.

The Commission granted 1,147 Western Union applications for authority to discontinue or reduce service in communities or parts of communities. Thirteen requests were withdrawn; 1 was denied; 1 was granted in part; and 90 were pending. Approximately two-thirds of the authorizations involved closure of railroad-operated or other agency-operated offices in small communities where the traffic volume did not warrant their continuation. As a result, direct telegraph service was discontinued but substitute service is available by telephone. The authorizations also involved replacement of company-operated offices by agency offices in 79 communities and closure of 22 company-operated branch offices, with substitute service provided through other offices or facilities. The bulk of the remaining requests were for reduction in hours of service at company-operated main and branch offices, substitute service being provided through alternative company-operated or agency-operated offices. The Commission's staff makes a limited number of on-the-spot checks of proposals to curtail service as well as inspection of service conditions following authorized service curtailments.

Speed of Service

Western Union is required to make daily studies and submit monthly reports to the Commission relating to the origin-to-destination speed (time filed to time delivered or first attempt) of its message services at the 75 largest telegraph offices. Because of budget limitations, Commission spot checks of service conditions are confined to the most urgent cases.

Complaints received by the Commission from users are brought to the company's attention for investigation and report. These sources revealed a progressive decline in speed of service during the year, despite the Commission's urging of Western Union to make reasonable efforts to bring service up to the company's own minimum speed requirements. The company is far from achieving this schedule which calls for delivery of 95 percent of messages by telephone or tie-line within 60 minutes from time of filing, and for delivery of 95 percent of business messages by messenger within 75 minutes. The declining trend in speed and quality of service resulted principally from an apparent effort of the company to reduce operating expenses.

Rates and Tariffs

Tariff schedules.—During the year, Western Union filed 1,070 pages of domestic telegraph tariff material and 30 requests for special tariff permission to file tariff schedules effective on less than statutory notice. New or revised tariff filings by the company relate principally to leased facilities services. No changes were made in the rates for domestic message telegraph services.

DATACOM services.—Effective June 1, 1962, rates and regulations were established for the nationwide data communications network of the U.S. Air Force, known as DATACOM (Phase 1—COMLOGNET), mentioned previously. It is expected that the revenue from DATACOM operation will approximate $29 million a year. As a result of a series of conferences among representatives of Western Union, the Air Force, and the Commission, the new DATACOM rates are approximately $800,000 lower per year than the initial rates. Over the life of the DATACOM system, estimated by Western Union to be 8 years, these savings to the Air Force will aggregate $6½ million.

TELPAK services.—Western Union filed tariffs establishing rates and regulations, effective June 16, 1962, for TELPAK channels and services and providing for connection of TELPAK component channels furnished by the telegraph company, when used for voice transmission, with certain services and channels provided by A.T. & T. or

its connecting carriers. TELPAK service permits a customer to lease broadband communication facilities for use either as a single wide channel or subdivision smaller width channels for both voice and record services. This enables large volume customers to satisfy their communication needs at less cost. The telegraph company's rates and regulations for TELPAK services are the same as those of the telephone company. This service offering is made possible by modification of facility interchange contracts between Western Union and the Bell System.

Private line services.—Western Union filed tariffs, effective January 1, 1962, establishing rates and regulations for private line voice, alternate voice-data, alternate voice-teleprinter, and alternate facsimile-voice transmission services and providing for connection of channels for certain of these services with Bell facilities. Heretofore, Western Union has offered private wire service only in the record field. These leased facilities services are directly competitive with similar A.T. & T. offerings and were also made available by amendments to the interchange contracts.

Leased facilities.—The initial decision of the Commission in its investigation of charges, classifications, regulations, and practices concerning leased telegraph facilities of Western Union and the Bell System (dockets 11645 and 11646) was issued in July 1961. Exceptions were filed by the carriers and several users. In April 1962, the Commission heard oral argument and final decision is now pending. Both the overall level of telegraph private line charges and the details of telegraph private line rate structure are at issue in this case.

Telex service.—Revised rates and regulations for domestic Telex service were made effective June 11, 1962, which substantially modified the rate structure for this service. The modifications were filed to make Telex more marketable under competitive conditions by (1) eliminating the separate 50-cent connection charge per call and modifying the usage charges; (2) establishing a reduction of 40 percent in the rates to a customer for usage in excess of 3,500 pulses ($87.50) during a month; (3) enlarging the base rate area to include a 10-mile zone around Telex exchange cities; (4) establishing uniform rate zones for intra-United States, United States-Canada, and United States-Mexico services; and (5) reducing the monthly service charge for automatic sending and receiving teleprinters from $65 to $50. In the aggregate, the revised rates will reduce Western Union's Telex revenue almost 10 percent.

On June 11, 1962, a Telex service from subscribers to nonsubscribers was established between six cities on an experimental basis. Messages under this service are charged at the regular Telex rate to the destination city, plus a 75-cent delivery charge.

Personal opinion messages.—Effective January 21, 1962, rates and regulations were established applicable to flat-rate personal opinion messages for a 1-year experimental period. Generally, this service permits any person anywhere in the continental United States to telegraph the President or Vice President, or any Member of Congress at Washington, expressing an opinion on a matter of public interest for a flat rate of 75 cents for 15 words. Tariffs were filed, effective March 16, 1962, also on an experimental basis, for the handling of such messages from points in Alaska served directly by the Alaska Communications System at a through charge of $1.50 per message.

Other Regulatory Matters

Effective January 1, 1961, Western Union resumed the practice of capitalizing interest on certain plants under construction. Such interest amounted to $978,620 that year.

DOMESTIC COMMON CARRIER RADIO FACILITIES

Air-Ground Radiotelephone

The Commission instituted rulemaking proceedings to establish a public air-ground radiotelephone service on a regular basis. Interest is running high among common carriers which have filed formal comments concerning frequency allocations, technical standards, and restrictions on prospective licensees. Air-ground trials initiated in 1957 at Chicago and Detroit and expanded in 1960 to include land stations at Pittsburgh, Washington, and New York City were further expanded. Five additional land stations were authorized in the Chicago-New York-Washington triangle to operate on a limited and developmental basis. The Commission approved the additional tests to obtain further factual information which it will consider in this proceeding.

Point-to-Point Microwave Radio Service

The ability of point-to-point microwave radio facilities to provide efficient telephone, telegraph, video, and data transmission has resulted in its widespread use in the common-carrier field, plus the creation of new issues inviting resolution by the Commission, the courts, and Congress. Point-to-point microwave common carriers have been utilized for relaying TV broadcasts to CATV systems in small communities. Problems of competition have arisen between some local broadcasters and CATV operators, with a consequent threat of loss of regular TV service to some rural areas. Some local TV stations objected to the economic competition by opposing the establishment of new point-to-point microwave facilities to serve

CATV systems. The right of a broadcaster to be heard on the issue of economic injury was upheld by the Commission in the *Carter Mountain Transmission Corporation* case (docket 12931) which is now in court.

A number of point-to-point microwave systems furnishing program material to CATV systems were authorized to furnish an audio program service either to their present subscribers, or to new subscribers, including broadcast stations. This is accomplished by multiplexing the signals of a desired AM or FM station on the microwave carrier in addition to the audio and video signals of a TV station. No degradation of the audio or video signals results from transmission of this additional signal. Such operation is considered to be an efficient use of the radio spectrum, in addition to furnishing stations with program material not otherwise obtainable.

Enforcement proceedings in the point-to-point microwave service have mainly concerned section 21.709 of the Commission's rules. This requires microwave common carriers to show, at the time of an application for renewal, that at least half of their services are rendered to subscribers independent of the carrier. Licensees utilizing frequencies allocated to common carriers are obliged to serve the general public rather than provide exclusive service to interests under common control with the licensee. About eight cases involving the application of this rule were the subject of hearings during the year.

In Alaska, applications by Trans-Alaska Telephone Co. to modify the condition imposed on its microwave licenses resulted in the Secretary of Defense filing a petition to deny. It contended, among other things, that a grant would result in competition with toll facilities of the Alaska Communications System and would consequently impair possible future sale of the system to private interests. On June 20, 1962, the Commission granted the applications with conditions when the petitioner offered no objection to their being amended to provide a private voice circuit to a specified subscriber at Swanson River.

Transmission for Educational TV

There was an increase in the number of authorizations for circuits specifically designed to transmit educational TV material for school purposes. This is particularly true in South Carolina where Southern Bell Telephone & Telegraph Co. furnishes a number of one-way TV circuits for State educational use. A number of point-to-point microwave carriers presently serving CATV systems in other parts of the country are furnishing, or have applied for permission to serve school administrations in their areas. These microwave links bring isolated communities educational material of a quality and scope not otherwise obtainable.

Alarm and Control Circuits

The Commission contemplates rulemaking concerning reliability requirements and standards for alarm and control circuits for point-to-point microwave systems. In past years such circuits were provided by wire lines. Extensions of these systems to remote areas, and the need of faster switching to handle data transmissions, raise the question of the advantage of providing radio circuits for these purposes. An evaluation must consider the overall demand for portions of the radio spectrum available for common-carrier assignments.

Emergency Radio Facilities

In September of 1961, Hurricane Carla devastated the Texas coastal area, including vital communication facilities. In the spring of 1962, coastal storms destroyed communication facilities to Chincoteague Island, Va. Emergency point-to-point microwave radio facilities were instrumental in the prompt restoration of service in each case.

Transistorized Transmitters and Multiplexers

Recent advancements in the field of solid-state electronics have permitted the development of a number of transistorized microwave transmitters and associated multiplexing equipment for use in the common-carrier services. This new equipment is expected to provide improved reliability for point-to-point microwave radio circuits, particularly during and after interruptions in primary power sources, since it generally operates from storage batteries which are "floated" across the primary power source. The batteries insure uninterrupted operation and, because of the low current drain inherent in transistorized equipment, the transmitter will operate for extended periods in the absence of primary power. Numerous other advantages are expected to accrue from use of this equipment. Among them are the possibility of requiring less expensive housing and less elaborate ventilating systems because of the smaller physical size and lower heat output of transistorized transmitters and multiplexers.

Domestic Public Land Mobile Radio Service

Competition for frequencies in this service has increased. A growing awareness of the value of one-way paging systems and two-way communication facilities to business and professional people has resulted in a surge of applications by telephone companies and other common carriers to provide such services. Several comparative hearings, and hearings on protests to grants of applications, have resulted.

Enforcement in this service is seriously limited by the lack of investigatory personnel. Nevertheless, vigorous action has been taken

regarding reported violations. One investigation resulted in consolidated hearings involving nine applications by Charles P. B. Pinson, Inc., et al. (dockets 13579–13587). Over a period of 2 years extensive hearings were held in Florida, and several motions and oral arguments were heard in Washington.

Extension of Area Coverage

The Commission has received increasing pressure from the common-carrier industry to alter its basic policy that base stations of land mobile systems be located so as to satisfy the needs of the persons residing in the vicinity of the base station. The establishment of new or additional base stations along principal highways and in areas remote from the message center to serve mobile units of the licensee would (if the Commission's basic concept of local service is to be sustained) also necessitate additional message centers to provide local access to the radio system. The Commission has under consideration petitions for rule changes for extended area coverage without providing local access.

In connection with a Bell System program to develop an exclusive one-way signaling service in the 150-Mc band, the Commission authorized the establishment of such facilities on a restricted and developmental basis at Seattle, Wash., and at Washington, D.C., and specified particular tests to be conducted at each station. The Seattle station is operating on 152.54 Mc, the base station frequency of one of the split channels available for assignment for two-way facilities but not presently employed for that purpose in the Seattle area. The Washington station authorization is for the use of a splinter frequency of 152.486 Mc, which is 6 kilocycles within the lower band edge of the base station frequencies available for telephone land mobile systems. The authorization of these developmental facilities is precedent to rulemaking to provide for one-way signaling stations on a nationwide basis, employing frequencies within the existing 152–158-Mc band which are presently available to wire-line common carriers in providing two-way radiotelephone service.

INTERNATIONAL TELEGRAPH AND TELEPHONE

Highlights

Satellite space communication attracted huge public and governmental interest during the year, internationally as well as nationally. Because of its importance, it is the subject of a special chapter in this report.

Meanwhile, new undersea telephone cables, which are also capable of being used for telegraph traffic, are being laid to keep abreast of

the growth of international communication traffic. The telegraph companies are showing increased reliance on channels leased in such cables for telegraph services to supplement their own oversea cable or radio facilities. The Commercial Cable Co. abandoned its telegraph cable system across the Atlantic and is, instead, using channels leased in transatlantic telephone cables, thereby attaining economies and more efficient service.

The popularity of international teleprinter exchange service (Telex) continues, with revenues from such service increasing. Telex was inaugurated during the year to a number of additional foreign points by the various carriers.

General

Telegraph and telephone service between the United States and oversea points is provided by means of ocean cable and radio. The three major telegraph companies are the American Cable & Radio Co. (operating through four subsidiaries), RCA Communications, and Western Union. Three smaller companies also engage in this field. A.T. & T. offers telephone services between the United States and foreign points. Telegraph and telephone service to ships at sea is offered by a number of these companies.

In consequence, telephone service, by cable or radio, is now available to about 160 foreign points, of which number 65 are served by direct circuits. Telegraph service is possible to some 70 foreign points directly, with indirect service to 180 other more remote points.

Financial Position of Industry

Total operating revenues of the international telegraph carriers increased 3.5 percent to $90 million in calendar 1961. The added revenues more than offset an increase in operating expenses of 2.3 percent and resulted in net revenues, before Federal income taxes, of $11,669,000. The revenue increase was due principally to greater use of Telex, which advanced 32.7 percent to $10 million, and to an expansion in leased-channel service, which rose 11.5 percent to $9.5 million. Message service revenues declined slightly and accounted for about 72 percent of total revenues, off from 75 percent in 1960.

Revenues from oversea telephone services continued to rise, reaching $50 million, an increase of 16.7 percent.

Ocean Telephone Cables

The oversea telephone cable system of A.T. & T. continues to expand. A cable to Bermuda was opened for service in January 1962. In addition, a telephone cable to Japan, via Midway, Wake, and

Guam, is expected to be completed in 1964. An application to extend the planned United States-Jamaica cable to Panama and Colombia was also approved. In September 1962, the Commission authorized a telephone cable to connect Guam and Okinawa to tie in with the Pacific cable system.

A.T. & T.'s long-range plans call for additional telephone cables across the Atlantic, in the Caribbean and Latin America area, and in the Pacific.

Use of Telephone Facilities by Telegraph Carriers

The lease and use of channels in ocean telephone cables by the telegraph carriers continued to increase during the year. One telegraph carrier, the Commercial Cable Co., was authorized to discontinue the use of its own telegraph cables, which were old and subject to increasingly frequent interruption, and to substitute therefor leased facilities in the new Canada-United Kingdom transatlantic telephone cable owned by Canadian and British interests. Other telegraph carriers have leased facilities in this cable, also in the new cable to Bermuda. This leasing has enabled the telegraph carriers to introduce several new services to the public, including private line oversea broadband telegraph service and oversea data exchange service.

Congestion in International Frequency Bands

Congestion continues in the high-frequency bands available for international common-carrier use. Although the new high-capacity cables handle an ever-increasing volume of traffic over the world's principal communication routes, high-frequency radio is still required as a supplementary and standby service. This use, plus expansion of service to points reached only by radio and the increasing communication needs of the new and developing countries of the world, make it appear unlikely that any significant improvement in the present situation will be forthcoming in the foreseeable future. However, studies are being made internationally to promote more efficient use of the high-frequency range with a view of reducing such congestion as much as possible. The sunspot cycle, with consequent crowding of operations into the lower part of the spectrum, is another factor contributing to congestion.

International Radio Circuits

A.T. & T. established direct radiotelephone service to Belgrade, Yugoslavia, in May 1962. There has been no significant change in the number of direct radiotelegraph circuits, as the telegraph car-

riers have increasingly relied on leased cable facilities for expansion of their services.

Rates for International Telegraph Services

During the year only minor changes were made in the level of rates for the various international telegraph services. A continued high demand for private channel and Telex services was evident. A new service, Datatelex, inaugurated between New York and London, permits the exchange of data communications for a minimum period of 10 minutes.

The Commission is continually studying the rates and services offered by the carriers to insure that the public is afforded efficient services at reasonable rates.

Western Union Cable Divestment

The Commission on February 2, 1962, interposed no objection to a supplemental agreement between Western Union and American Securities Corp., which amended their agreement of September 15, 1960, for the divestment of the former's international telegraph operations to the latter (docket 6517). One of the conditions of the agreement calls for an arrangement by American Securities with the Anglo-American Telegraph Co. with respect to the five transatlantic cables owned by Anglo and leased to Western Union. Western Union and American Securities filed a supplemental agreement on August 24, 1962, to which the Commission interposed no objection. Additional steps relating to capital stock registration and underwriting by both Western Union and American Securities must be taken before complete divestment can be effectuated.

Pan American Complaint

The Pan American Union and the Pan American Sanitary Bureau asked for a declaratory ruling on their joint complaint against six international telegraph carriers, alleging that they are entitled to the lower rates for international telegraph messages accorded under similar circumstances to messages of foreign governments (docket 14198). The defendant carriers denied liability but interposed no objection to the procedure requested. On February 9, 1962, the Commission called for briefs on the defendants' liability, which were filed by the parties. A request by the complainants for oral argument before the Commission was granted.

Depreciation

No depreciation rates for international carriers were prescribed in fiscal 1962. Preliminary studies of the previously prescribed rates

indicate that some revisions may be appropriate. Continued consideration was given to the reasonableness of the carriers' annual depreciation rates and charges, their booked depreciation reserves, and the propriety of their depreciation accounting practices and procedures.

Tariff Schedules

During the year, carriers filed 2,126 pages of international tariff material and 76 applications for permission to file tariff schedules on less than statutory notice.

Other Regulatory Matters

To aid in effective compliance with Commission regulations, the staff continued various studies to implement or improve existing regulations concerning the international carriers' pension plans, their keeping of up-to-date property records, and their following reasonable and proper accounting practices.

STATISTICS

General

Annual reports were filed by 599 common carriers and 7 controlling companies for the calendar year 1961. Considerable financial and operating data taken principally from these reports are published annually in a volume entitled "Statistics of Communications Common Carriers." The larger telephone and telegraph carriers also file monthly reports of revenues and expenses, and summaries of these data are published monthly by the Commission.

Telephone Carriers

Annual reports were filed by 590 telephone carriers, including 163 carriers engaged in general landline telephone service and 427 miscellaneous common carriers engaged only in providing land mobile radiotelephone service. Sixty-five of the 163 telephone carriers were subject to the comprehensive landline telephone reporting requirements of the Commission and the remaining 98 were required to report on the more limited basis applicable to mobile radio carrier licensees.

Selected financial and operating data concerning 56 general telephone carriers whose annual operating revenues exceed $250,000 are shown in the following table for the year 1961 as compared to 1960.

Telephone carriers [1]

Item	1960	1961	Percent of increase or (decrease)
Number of carriers	56	56	
Book cost of plant (as of Dec. 31)	$25,719,565,064	$27,711,620,816	7.75
Depreciation and amortization reserves	$5,578,101,298	$5,946,517,849	6.60
Net book cost of plant	$20,141,463,766	$21,765,102,967	8.06
Local service revenues	$4,823,707,294	$5,095,423,633	5.63
Toll service revenues	$3,148,839,257	$3,385,783,383	7.52
Total operating revenues	$8,366,266,697	$8,898,868,625	6.37
Operating expenses and operating taxes	$5,764,505,747	$6,098,889,997	5.80
Provision for Federal income taxes	$1,201,967,065	$1,279,594,290	6.46
Net operating income after all taxes	$1,399,793,885	$1,520,384,338	8.61
Net income	$1,249,913,368	$1,335,911,591	6.88
Dividends declared	$795,655,909	$900,895,317	13.23
Company telephones:			
Business	17,285,271	18,003,511	4.16
Coin	1,222,671	1,251,099	2.33
Residence	46,568,858	48,453,956	4.05
Number of calls originating during the year:			
Local [2]	101,324,681,606	103,923,711,259	(3)
Toll [2]	3,943,657,332	4,174,561,089	(3)
Number of employees at end of December	[4] 626,827	605,567	(3.39)
Male	[4] 266,708	264,656	(.77)
Female	[4] 360,119	340,911	(5.33)
Total compensation of employees for the year	$3,384,865,901	$3,477,407,363	2.73

[1] Data shown relate to telephone carriers whose annual operating revenues exceed $250,000. Intercompany duplications, except in minor instances, have been eliminated.

[2] Partly estimated by reporting carriers.

[3] The number of calls shown are not comparable, as many calls were reclassified from "Toll" to "Local" during 1961, due to enlargement of numerous local calling areas. The Bell System, after adjusting for such reclassifications, reported for 1961 increases of 3.25 percent in local conversations and 5.50 percent in toll conversations.

[4] At end of October.

Landline telephone companies filing reports with the Commission include most of the larger companies (accounting for over 90 percent of the industry revenues) but exclude the great majority of the 3,000 telephone companies in the United States. There are also additional thousands of connecting rural or farmer lines and systems. Telephone industry estimates are that its operating revenues in 1961 totaled $9.8 billion, with book cost of plant at December 31, 1961, of $31.1 billion, and 681,000 employees.

Land mobile radiotelephone service is offered in more than 400 cities and towns by 33 of the 65 telephone carriers reporting to the Commission as "fully subject" carriers, with revenues for the year 1961 amounting to $7.0 million. This service is also offered in more than 100 cities and towns by 98 other carriers engaged in general landline telephone service and also by 427 miscellaneous common carriers. Operating revenues received by the latter group of 525 carriers during 1961 totaled $4.4 million. More than half of the miscellaneous common carriers reported operating losses for 1961.

Domestic Telegraph Carrier

The following table sets forth financial and operating data relating to the domestic landline operations of the Western Union Telegraph Co. for the calendar year 1961 as compared to 1960. The data pertaining to its cable operations are included in tables below showing data of international telegraph carriers.

The Western Union Telegraph Co.[1]

Item	1960	1961	Percent of increase or (decrease)
Book cost of plant (as of Dec. 31)	$398,022,904	$434,932,518	9.27
Depreciation and amortization reserves	$168,604,885	$177,850,445	5.48
Net book cost of plant	$229,418,019	$257,082,073	12.06
Message revenues	$189,789,329	$187,819,005	(1.04)
Teleprinter exchange service revenues	$315,163	$726,467	130.51
Leased-circuit revenues	$54,841,406	$58,988,241	7.53
Total operating revenues	$262,365,106	$265,726,591	1.28
Operating expenses, depreciation and other operating revenue deductions	$246,767,968	$253,374,435	2.68
Net operating revenues	$15,597,138	$12,352,156	(20.80)
Provision for Federal income taxes [2]	$4,350,000	$3,295,000	(24.25)
Net income	$10,204,688	$11,833,309	15.96
Net income (landline and cable systems)	$11,016,239	$12,226,262	10.98
Dividends (landline and cable systems)	$8,949,326	$9,703,700	8.43
Number of revenue messages handled [3]	124,319,364	117,263,367	(5.68)
Number of employees at end of October	32,655	31,425	(3.77)
Total compensation of employees for the year	$164,524,204	$165,856,398	.81

[1] Represents data for landline operations. Figures covering cable operations are included in tables below showing data of international telegraph carriers.

[2] Reflects estimated net reductions in Federal income tax liability of $2,470,000 and $2,288,000 in 1960 and 1961, respectively, arising from the utilization, for income tax purposes but not for accounting purposes, of a liberalized depreciation method recognized by sec. 167 of the Internal Revenue Code of 1954. Also reflects estimated net increases of $216,000 in both 1960 and 1961, in Federal income tax liability arising from the use in prior years of 5-year amortization authorized under sec. 168 of the Internal Revenue Code of 1954. The accumulated amount to Dec. 31, 1961, of liberalized depreciation and 5-year amortization income tax differentials accounted for on the "flow through" basis was $13,775,000.

[3] Includes domestic transmission of transoceanic and marine messages (about 10,586,000 in 1960 and 10,768,000 in 1961

International Telegraph Carriers

Financial and operating statistics relating to the U.S. international telegraph carriers for the calendar year 1961 are shown below as compared to similar figures for 1960. Statistics pertaining to radiotelegraph and ocean cable carriers are also shown separately.

International telegraph carriers

Items	1960	1961	Percent of increase or (decrease)
Number of carriers	9	9	
Book cost of plant (as of Dec. 31)	$163,798,267	$172,050,577	5.04
Depreciation and amortization reserves	$82,609,921	$85,210,203	3.15
Net book cost of plant	$81,188,346	$86,840,374	6.96
Message revenues:			
Domestic [1]	$3,191,306	$3,372,835	5.69
Transoceanic [2]	$58,003,652	$57,260,913	(1.28)
Marine	$1,790,659	$1,883,630	5.19
Teleprinter exchange service revenues	$7,359,363	$9,717,639	32.04
Leased-circuit revenues	$7,489,772	$8,618,343	15.07
Total operating revenues	$86,975,831	$90,048,179	3.53
Operating expenses, depreciation and other operating revenue deductions	$76,885,077	$78,378,632	1.94
Net operating revenues	$10,090,754	$11,669,547	15.65
Provision for Federal income taxes [3]	$4,510,983	$4,926,115	9.20
Net income	$7,991,209	$8,466,805	5.95
Dividends declared [4]	$1,423,468	$1,620,000	13.81
Number of revenue messages handled:			
Domestic [5]	139,469	139,229	(.17)
Transoceanic	24,590,278	24,479,835	(.45)
Marine	1,041,376	1,059,356	1.73
Number of employees at end of October	11,011	10,734	(2.52)
Total compensation of employees for the year	$47,635,567	$48,876,440	2.60

See footnotes at end of table.

Radiotelegraph carriers

Item	1960	1961	Percent of increase or (decrease)
Number of carriers	6	6	
Book cost of plant (as of Dec. 31)	$65,240,198	$73,428,081	12.55
Depreciation and amortization reserves	$24,864,004	$27,379,010	10.12
Net book cost of plant	$40,376,194	$46,049,071	14.05
Message revenues:			
Domestic [1]	$2,931,774	$3,083,130	5.16
Transoceanic	$28,572,709	$28,479,800	(.33)
Marine	$1,790,659	$1,883,630	5.19
Teleprinter exchange service revenues	$6,928,065	$8,502,156	22.72
Leased circuit revenues	$5,775,056	$6,868,748	18.94
Total operating revenues	$50,806,434	$53,776,574	5.85
Operating expenses, depreciation and other operating revenue deductions	$42,202,554	$43,979,997	4.21
Net operating revenues	$8,603,880	$9,796,577	13.86
Provision for Federal income taxes [3]	$3,040,983	$4,406,115	21.01
Net income	$7,153,221	$7,290,663	1.92
Dividends declared	$1,070,000	$1,620,000	51.40
Number of revenue messages handled:			
Domestic [5]	72,020	65,306	(9.32)
Transoceanic	13,571,407	13,342,386	(1.69)
Marine	1,041,376	1,059,356	1.73
Number of employees at end of October	[6] 5,397	[6] 5,300	(1.80)
Total compensation of employees for the year	$28,550,634	$29,204,773	2.29

Ocean cable carriers (including Western Union cable operations)

Item	1960	1961	Percent of increase or (decrease)
Number of carriers	3	3	
Book cost of plant (as of Dec. 31)	$98,558,069	$98,622,496	0.07
Depreciation and amortization reserves	$57,745,917	$57,831,193	.15
Net book cost of plant	$40,812,152	$40,791,303	(.05)
Message revenues:			
Domestic [1]	$259,532	$289,705	11.63
Transoceanic [2]	$29,430,943	$28,781,113	(2.21)
Teleprinter exchange service revenues	$431,298	$1,215,483	181.82
Leased-circuit revenues	$1,714,716	$1,749,595	2.03
Total operating revenues	$36,169,397	$36,271,605	.28
Operating expenses, depreciation and other operating revenue deductions	$34,682,523	$34,398,635	(.82)
Net operating revenues	$1,486,874	$1,872,970	25.97
Provision for Federal income taxes [3]	$870,000	$520,000	(40.23)
Net income	$837,988	$1,176,142	40.35
Dividends declared [4]	$353,468	----------	(100.00)
Number of revenue messages handled:			
Domestic [5]	67,449	73,923	9.60
Transoceanic	11,018,871	11,137,449	1.08
Number of employees at end of October	[6] 5,614	[6] 5,434	(3.21)
Total compensation of employees for the year	$19,084,933	$19,671,667	3.07

[1] Includes revenues of two ocean-cable carriers and the radiotelegraph carriers from the domestic transmission of transoceanic and marine messages outside of points of entry or departure in the United States, and revenues from domestic-classification messages.

[2] Radiotelegraph transoceanic message revenues of All America Cables & Radio, Inc., $1,898,956 in 1961 and $2,207,821 in 1960 are not included.

[3] All America Cables & Radio, Inc., Commercial Cable Co., and Mackay Radio & Telegraph Co. had net reductions in 1961 Federal income tax expense of $96,000, $32,000, and $108,000, respectively, arising from the utilization, for income tax purposes but not for accounting purposes, of a liberalized depreciation method recognized by sec. 167 of the Internal Revenue Code of 1954. These amounts were accounted for on the "flow-through" basis with the $32,000 applicable to Commercial being apportioned to the other 2 companies, $10,000 to All America and $22,000 to Mackay. The liberalized depreciation income tax differentials accumulated in the accounts of All America and Mackay amounted to $885,000, the same as existed at Dec. 31, 1960, at which date the accounting was changed from "normalization" to "flowthrough" with the $155,000 accumulation for Commercial apportioned $60,000 to All America and $95,000 to Mackay. The accumulations in the accounts will be amortized in equal amounts over 10 years commencing Jan. 1, 1962, to provision for Federal income taxes. RCA Communications, Inc., had a reduction in 1961 Federal income tax expense of approximately $384,000, arising from the liberalized depreciation method under sec. 167 of the Internal Revenue Code. The accumulated amount to Dec. 31, 1961, of liberalized depreciation income tax differentials accounted for since 1957 on the "flowthrough" basis was $1,208,000.

[4] All dividends declared by Western Union Telegraph Co. are reported in the table relating to the domestic landline operations of that company.

[5] Represents domestic-classification messages (primarily Canadian and Mexican).

[6] Certain employees of one radiotelegraph carrier and two ocean-cable carriers serve more than one of the companies. The amounts of compensation reported for each of these companies are after intercompany charges and credits.

Oversea Telegraph and Telephone Traffic

During calendar year 1961 a total of 643,767,000 words were handled into and out of the United States by international cable and radiotelegraph carriers. In the outbound direction 334,251,000 words were transmitted, while 309,516,000 were inbound. There were also during calendar year 1961 2 million telephone calls outbound from the United States and 1,753,300 calls inbound. The foregoing figures include traffic between continental United States and Hawaii and oversea territories. The word volume of oversea telegraph traffic and the number of telephone calls between the United States and oversea points during calendar year 1961 are set forth in the following table:

United States oversea telegraph (radio and cable) traffic in words and telephone calls (radio and cable), 1961

(Includes traffic transiting the United States)

Country	Telegraph traffic. Number of words (in thousands)		Telephone traffic. [1] Number of calls (in hundreds)	
	Outbound from the United States	Inbound to the United States	Outbound from the United States	Inbound to the United States
Europe, Africa, and the Near East				
Ascension Island (Bahrain relay)			2	8
Algeria	166	137		
Arabia	1,268	993	7	8
Austria	1,563	1,486	99	40
Belgian Congo	363	457		
Belgium	4,775	4,220	162	86
British East Africa	1,291	922		
British West Africa	1,620	1,316		
Bulgaria	127	124		
Canary Islands	183	134		
Czechoslovakia	810	685		
Denmark	2,208	1,724	125	60
Egypt	2,269	2,823	14	15
Ethiopia	374	304		
Finland	663	702	17	10
France	16,215	16,025	836	921
French Equatorial Africa	183	205		
French West Africa	856	295		
Germany	18,901	16,039	1,828	920
Greece	2,249	1,745	82	51
Hungary	324	526		
Iceland	238	235	12	8
Iran	1,345	1,237		
Iraq	713	1,374		
Ireland	1,133	1,056		
Israel	3,293	3,334	64	38
Italy	14,959	11,372	550	315
Lebanon	1,475	1,442		
Liberia	1,233	1,360		
Libya	559	294		
Luxembourg	173	152		
Madagascar	129	45		
Morocco—French	121	72		
Morocco—Tangier	352	328		
Netherlands	8,034	6,732	241	188
Norway	3,239	2,284	102	54
Persian Gulf	827	677		
Poland	1,009	1,374	11	18
Portugal	1,419	1,110	24	16
Portuguese West Africa	100	111		
Rhodesia	293	342		
Rumania	265	313		
Spain	5,083	3,129	109	89
Sweden	4,172	4,159	161	129
Switzerland	10,505	8,138	433	266

See footnotes at end of table.

United States oversea telegraph (radio and cable) traffic in words and telephone calls (radio and cable), 1961—Continued

(Includes traffic transiting the United States)

Country	Telegraph traffic. Number of words (in thousands)		Telephone traffic. [1] Number of calls (in hundreds)	
	Outbound from the United States	Inbound to the United States	Outbound from the United States	Inbound to the United States
Europe, Africa, and the Near East—Continued				
Syria	261	197		
Transjordania	252	260		
Tunisia	407	232		
Turkey	1,516	1,463	13	16
Union of South Africa	2,850	2,781	18	17
U.S.S.R.	4,676	3,791	9	17
United Kingdom	48,972	47,086	2,070	1,985
Vatican City	107	116		
Yugoslavia	1,276	1,270		
All other places	880	1,243		
Total	178,274	159,971	6,989	5,275
West Indies, Central, North and South America				
Argentina	7,956	7,437	186	215
Aruba			17	20
Bahamas	1,804	1,838	952	647
Barbados	347	222	35	44
Bermuda	1,310	1,034	419	102
Bolivia	1,615	1,023		
Brazil	9,586	8,997	167	153
British Guiana	432	349		
British Honduras	326	272	8	
Canada [3]	9,113	13,484		
Canal Zone	712	598		
Chile	3,...7	2,251	55	68
Colombia	5,929	4,378	136	184
Costa Rica	1,515	1,412	75	68
Cuba	4,653	12,221	3,068	3,727
Curacao			20	32
Dominican Republic	1,515	1,597	154	164
Ecuador	2,492	1,727	34	39
French West Indies	190	124		
Greenland	110	18		
Guatemala	2,195	1,821	86	96
Haiti	1,209	879	40	36
Honduras Republic	1,349	990	51	59
Jamaica	2,052	1,547	295	247
Martinique			2	4
Mexico [4]	2,804	1,863		
Netherlands West Indies	1,041	966		
Nicaragua	1,292	818	61	76
Other British West Indies	389	292		
Panama	2,149	1,667	172	205
Paraguay	422	283		
Peru	3,130	2,709	89	96
Puerto Rico	7,312	6,129	2,389	2,267
Salvador	1,766	1,016	46	39
Surinam	320	226	6	10
Trinidad	1,409	1,012	49	76
Uruguay	2,613	2,203	30	30
Venezuela	9,181	11,194	193	250
Virgin Islands	699	635		
All other places	110	43		
Total	94,464	95,275	8,835	8,959
Asia and Oceania				
Afghanistan	174	149		
Australia	5,340	4,968	104	111
Burma	576	516		
Ceylon	763	397		
China (Excluding Hong Kong)			(2)	(2)
Formosa	2,117	1,626	25	23
French Indo China	1,041	1,370		
Guam	382	434	67	46
Hawaii	7,111	5,650	3,089	2,561

See footnotes at end of table.

United States oversea telegraph (radio and cable) traffic in words and telephone calls (radio and cable), 1961—Continued

(Includes traffic transiting the United States)

Country	Telegraph traffic. Number of words (in thousands)		Telephone traffic.[1] Number of calls (in hundreds)	
	Outbound from the United States	Inbound to the United States	Outbound from the United States	Inbound to the United States
Asia and Oceania—Continued				
Hong Kong	3,357	2,498	63	70
India	6,292	5,259		
Indonesia	1,848	2,129	2	12
Japan	18,868	14,953	512	260
Korea	1,485	1,676	108	53
Malaya, Federation of	1,391	1,122	5	10
New Zealand	1,335	1,252	21	21
Okinawa	705	860	91	16
Pakistan	2,152	2,420		
Philippines	4,639	4,992	83	103
Society Islands	180	162		
Tahiti			4	4
Thailand (Siam)	1,262	1,354		
Vietnam			2	9
All other places	474	284		
Total	61,497	54,081	4,176	3,299
Unknown destination or origin	21	189		
Grand total	334,251	309,516	20,000	17,533

[1] The data on telephone calls include the number of oversea calls handled via radio and via North Atlantic, Hawaii, and Caribbean telephone cables. A.T. & T. reports its volume of oversea telephone traffic transmitted to, and received from, each point of communications, which may be either (1) the foreign country or oversea point of destination or origin of the calls, or (2) the intermediate country or oversea point through which the calls are relayed onward. Therefore, the number of calls reported herein with respect to a particular place is not necessarily the number of calls originating or terminating with that place. The absence of calls for certain countries or oversea points indicates only that no direct cable or radiotelephone service was provided in 1961. Any calls that may have been handled with such countries during 1961 are included in the traffic of the intermediate country through which indirect service was rendered. Service with Canada and Mexico is by means of wire lines and with Alaska by means of wire lines, radio, and ocean cable.

[2] Less than 100 calls.

[3] Represents international-classification traffic which originated at oversea points and was destined to Canada (outbound from the United States), and international-classification traffic which originated in Canada and was destined to oversea points (inbound to the United States). This traffic was handled between such points and Canada by U.S. carriers via the United States.

[4] Represents international-classification traffic which originated at oversea points and was destined to Mexico (outbound from the United States), and international-classification traffic which originated in Mexico and was destined to oversea points (inbound to the United States). This traffic was handled between such points and Mexico by U.S. carriers via the United States.

Common Carrier Applications

Over 7,500 applications were filed with the Commission by common carriers during the fiscal year (exclusive of Alaskan and marine mobile). The following table shows the number of applications according to class of service:

Class	Pending June 30, 1961	Received [1]	Disposed of	Pending June 30, 1962
Radio facilities				
Domestic:				
Point-to-point microwave radio stations	441	3,227	3,162	506
Local television transmission stations	2	12	14	
Rural radio stations	29	272	235	66
Domestic public land mobile radio stations	138	1,263	1,145	256
Developmental stations	7	123	116	14
Registration of Canadian radio station licensees		33	33	
International:				
Fixed public and fixed public press telegraph	1	60	61	
Fixed public telephone		45	45	
International control		1	1	
Subtotal	618	5,036	4,812	842
Wire facilities				
Telephone extensions	7	266	263	10
Telegraph extensions	5	144	144	5
Telephone reductions		12	11	1
Telegraph reductions	130	1,128	1,162	96
Subtotal	142	1,550	1,580	112
Miscellaneous				
Interlocking directorates		8	8	
Jurisdictional determinations				
Submarine cable landing licenses	1	5	5	1
Petitions or motions (nondocket)				
Renewals:				
Point-to-point microwave radio stations				
Local television transmission stations				
Rural radio stations				
Domestic public land mobile radio service:				
Systems of—				
Telephone companies		498	498	
Miscellaneous common carriers				
Customers licensed for mobile units utilizing base stations of—				
Telephone companies		356	356	
Miscellaneous common carriers				
Developmental stations		51	51	
International				
Subtotal	1	918	918	1
Total	761	7,504	7,310	955

[1] These figures do not represent any loss in the filing of applications for new or modified radio station facilities, but reflect that substantial numbers of related applications have been grouped together for administrative convenience in processing and in issuance of consolidated instruments of authorization wherever feasible. In such cases a group of related applications is counted as a single application. Further, there were fewer common-carrier radio station license-renewal applications filed during the fiscal year due to the fact that licenses in the various common-carrier radio services, which are issued for terms of 1 to 5 years, do not expire at a uniform rate from year to year.

Field Engineering and Monitoring

GENERAL

To thousands of licensees, the Commission's image outside of Washington, D.C., is its Field Engineering and Monitoring Bureau. The latter's 31 scattered offices, supplemented by 18 monitoring stations, have daily contact with hundreds of licensees and members of the listening and viewing public. The Bureau's headquarters constitute a control board both for field service and enforcement campaigns.

Established services merge with newer ones under the Bureau's surveillance. For example, radio operator license examinations, interference elimination for the public and industry, and furnishing location fixes to lost ships and aircraft are older continuing field functions. One new one is assisting Federal agencies in connection with the space program, including necessary monitoring and identification. Another relatively new activity is utilizing two (soon to be three) TV mobile units to help improve video reception throughout the country.

Enforcement duties grow with radio's expansion, and when new services are created the enforcement problems increase proportionately. The yearly issuance of more than 20,000 violation and advisory notices, warning letters, cease-and-desist orders, etc., indicates some measure of this expanding work. The scope of field operations, together with a summary of accomplishments, is contained in the following paragraphs.

"RFI"—ITS CAUSE AND CURE

The man on an isolated farm in Iowa as well as the cliffdweller in Manhattan's canyons are becoming increasingly aware of communication phenomenon called radio frequency interference, or "RFI" for short. Once regarded only as a dry technical subject, even the layman is beginning to realize that RFI may result in aborting a missile shot, endangering the flight of an astronaut, jeopardizing the lives of airline passengers, or disrupting a favorite TV program.

Military and industry communication people have learned through experience that they must not only design "in" certain operational specifications but design "out" RFI. FCC engineers are fortunate

in being able to draw upon years of accumulated knowledge of the subject.

Modern man expects to be kept informed of events as they happen; industry wants not only to communicate immediately with a plant in a nearby town but also to one on a distant continent; the military needs instantaneous communication with its forces in many parts of the world. These communication needs tax a now crowded radio spectrum and each new radio station adds a potential source of interference to existing ones. Millions of dollars are spent annually to refine communications equipment and techniques so as to reduce the RFI threat.

The field engineering staff handled 32,012 RFI complaints during the year. Examples: Interference to air-ground communication at a Maryland Air Force base was determined to originate in France; interference to about 250 homes in Fort Morgan, Colo., was traced to a defective TV receiver; communication by commercial aircraft in Texas was interfered with by an electronic heater in a furniture factory; defective radio equipment at a police radio station played hob with an aircraft instrument landing system.

The limited field staff could not possibly investigate all interference complaints. To alleviate the problem, the FCC encourages the formation of local self-help committees (industry, amateur radio, citizens radio, broadcast listeners) for the purpose of suppressing or eliminating RFI. FCC field engineers furnish the guidance and knowledge and the self-help committees do the work. Only the more difficult cases require Washington attention.

Incidental radiofrequency radiation from industrial machines is a difficult problem, particularly in the New York City area. It is a serious threat to aircraft communication and air navigation aids. In some instances, the source of the trouble is better detected from the air in teamwork with a mobile direction-finding car on the ground. An agreement with the Federal Aviation Agency enables FCC field engineers to ride in FAA planes in a joint search for RFI sources.

"BUGGING" TRANSMITTERS

Since the advent of compact miniature transmitters not larger than a cigarette package, there is an increased use of radio for eavesdropping. Because of the mistakenly assumed short communication range of these devices, it is becoming increasingly difficult to enforce the applicable rules. Often their range is, surprisingly, thousands of feet. This was the case of an eavesdropping device found under a conference table in a Washington, D.C., hotel and the conversations recorded in an adjoining room.

Eavesdropping devices have also been found on telephone lines to relay conversations to remote receiving locations. In other instances, they have been hidden in homes to record conversations to be used as evidence in divorce proceedings.

In addition to violating the technical rules, these "bugging" devices present a hazard to communication by authorized radio stations, particularly where they operate on frequencies used by radio navigation or safety services. The Commission's field offices are making a special effort to apprehend users of such illegal transmitters.

MONITORING

Monitoring Facilities

The Commission's monitoring and direction-finding facilities include 10 primary and 8 secondary stations located in 17 States, including Alaska and Hawaii.

Nine continental primary stations and two secondary stations are connected together and with monitoring control in Washington by a private-line, 24-hour teletype network. The remaining stations maintain continuous network contact by means of manual radiotelegraph and, to a limited extent, radioteletype. To speed up emergency alerting of stations on this monitoring network, technical improvements are being made both in equipment and in operation. When completed, they will greatly increase the use of radioteletype contact.

Both industrial and residential expansion of urban areas have encroached on several monitoring stations, bringing with it increased electrical noise which makes some of these sites almost untenable. Future planning includes relocation of stations most seriously affected.

During the year, 120 acres of land was purchased so that the entire Douglas, Ariz., monitoring station, rather than only 11 acres, is now Government owned. Construction included a monitoring building addition at Livermore, Calif., a new basement at Kingsville, Tex., a new transmitter building at Fort Lauderdale, Fla., modernization of monitoring facilities at Laurel, Md., and swamp drainage at Powder Springs, Ga.

The high cost of modern technical equipment compared with available funds continues to deprive the field force of such apparatus in adequate quantity. However, it was able to acquire a limited number of highly sensitive VHF–UHF general-coverage receivers, a precise frequency standard, specialized equipment for its third TV mobile enforcement unit, 18 hand-carried "interference locator" receivers, a new mobile microwave installation and a special instrument to facilitate checking FM station stereophonic operation.

Some expensive instruments must be shared by several field offices; equipment that has become excess to the military or other agencies is

used insofar as possible; and certain specialized equipment not commercially available is constructed by the field Equipment Construction and Installation Branch at Powder Springs. But these methods, helpful as they are, do not solve the problem of shortage of up-to-date equipment to perform increasingly complex measurements and monitoring functions.

Wide-Aperture Direction Finder

Ships at sea were the first general users of radio direction finders. These locating devices were later adopted for aviation and other navigational purposes.

The basic design—the narrow-aperture type—continued for some 40 years. However, inherent deficiencies prevented needed refinements in accuracy. Recent years introduced a wide-aperture direction finder. The latter is larger and is much more expensive. However, greater accuracy and improved sensitivity are attainable.

An experimental low-cost modification of a wide-aperture direction finder was constructed at the Laurel monitoring station during the year for test and comparison purposes. Preliminary results are encouraging.

Puerto Rico Emergency Direction Finder

The Puerto Rico field office installed a radio direction finder for use in emergencies where bearings from that area are needed to obtain a position fix. The accuracy of fixes is largely dependent upon the geographical spread over which direction finders operate, and the Puerto Rico unit fills a long need for such an extension. It is intended primarily to provide emergency assistance in the southeastern sector to the regular direction-finding net, and to materially help in solving serious cases of interference to aeronautical as well as other vital communications circuits in that area.

Mobile Monitoring and Measuring Equipment

A program has been initiated to provide field engineers with the precision equipment needed to determine that stations are operating on their proper frequencies. A recently acquired frequency standard has a stability of 5 parts in 10 billion. This is equivalent to an error of less than a millionth of 1 percent, or measuring the diameter of the earth to an accuracy of one-tenth of an inch.

In an effort to secure better listening for the public, measurements of nearly 400 AM broadcast stations were made to determine the strength of their signals. Ten percent of them were not radiating a signal as strong as authorized. Subsequent corrective action by the notified owners resulted in improved service.

The range of TV and FM is less than for AM. Two roving mobile units for monitoring TV and FM stations are able to check their technical performance and furnish guidance for curing their technical deficiencies, with direct benefit to the viewing and listening public. A third TV mobile unit will be placed in service in fiscal 1963.

Microwave systems transmit many telephone, telegraph, telemetry, or network TV programs over a single radio beam. The signals are confined to a narrow beam, akin to a searchlight, and it is necessary to employ mobile units to monitor them. Two FCC mobile microwave units are in use, one in the East and one in the West.

Monitoring Surveillance and Special Services

One important task of the monitoring network is to continually "police" the radio spectrum to detect illegal operations. In addition to routine spot checks of the various services for rule enforcement, a high-priority program of cruising through the spectrum is rotated among the monitoring stations to assure reasonable coverage on a continuous basis. The importance of this vigilance has not decreased in recent years. A total of 529 unlicensed radio operations were uncovered in 1962, or 282 more than the year previous.

Eleven special surveys were conducted for the Commission and other Government agencies. Their purpose was to support factfinding studies and to supply data on spectrum occupancy and frequency usage. Monitoring reports on frequency usage forwarded to the International Frequency Registration Board during the year numbered 29,626.

Monitoring Enforcement

Loose, irresponsible operations by class D licensees in the Citizens Radio Service have become a major monitoring surveillance problem. More effective means of enforcement will have to be developed to bring order in that mushrooming group of licensees.

Monitoring enforcement in the older services continued despite personnel shortages. FCC observers monitored ships at sea, aircraft in flight, broadcast stations, individual amateurs, as well as international point-to-point and other radio stations to determine their degree of compliance with the rules.

Resultant violation notices showed a 30-percent increase for FCC licensees and a decrease of 10 percent for foreign radio stations.

Marine Monitoring

The number of radio installations on small boats has multiplied many times and, next to the Citizens Service, presents the biggest

monitoring enforcement task. Unfortunately, budgetary limitations have curtailed marine monitoring activities and the number of violations notices has dwindled. Since 1959 the marine safety watch had been a token effort. During that year 1,455 citations were issued. In fiscal 1962 less than 500 were issued.

Search and Rescue Operations

The direction-finding network continued to provide emergency bearings on ships and aircraft in distress to assist search-and-rescue operations.

In March, for example, there were nine requests for this emergency direction-finding assistance. Two pertained to aircraft and seven involved ships. One of the latter was a Chinese vessel wallowing helplessly in the Atlantic after losing its rudder. The long-range DF net obtained a fix which enabled a rescue ship to reach the scene. In another case the FCC furnished the Coast Guard four successive fixes on a plane ditched off Puerto Rico which resulted in all on board being picked up by a ship. A small boat bound for Honolulu ran into trouble 17 days out of Los Angeles. Because of the craft's low power, only the FCC's Waipahu, Hawaii, monitoring station was able to get a bearing, and no fix was possible. But a Coast Guard plane headed out along the Waipahu bearing line and soon located the stricken vessel.

Space Monitoring

The Commission's enforcement responsibilities now extend to frequencies used for space communication. Special facilities at five monitoring stations watch these channels to prevent their unauthorized use by other stations and to identify and locate sources of interference. Two stations monitored the first test communication satellite, "Telstar."

To date, the FCC space monitoring program has been devoted primarily to "target practice" observations on United States and Russian satellites; also to improving facilities and techniques. These operations, coupled with experience in more conventional monitoring and direction finding, have proved of value in special monitoring of space frequencies for other Government agencies. For example, in the second Mercury orbital flight, FCC aid was asked when interference appeared on the channel used for communication between the satellite and the ground and on another frequency used by vessels standing by for the capsule landing. Observations were also made of signal strengths produced by various types of space capsule antennas.

Nuclear Blast Effect on Radio Waves

Many communication circuits depend on radio which utilizes the ionosphere layer in the atmosphere as a reflector to extend communication over long distances. Nuclear blasts at high altitudes can temporarily blot out or otherwise disrupt these circuits. This was shown by FCC special monitoring of propagation paths during the U.S. high-altitude nuclear tests in the Johnston Island area of the Pacific in 1962 and reports made to it by affected communication carriers. The findings are expected to contribute to knowledge and understanding of a new consideration in studying ionospheric propagation.

Educational Stratovision Field Strength Recording

For several months the Allegan monitoring station made continuous field-strength recordings of experimental educational UHF–TV stratovision broadcasting. The recordings provided a continuous indication of the strength of the TV signal while the aircraft carrying this "station in the sky" flew in a 10-mile circle (averaging about 100 miles from the monitoring station), permitting reception over an area far greater than would be possible from the tallest TV land antenna. This information is likewise valuable in connection with propagation studies.

FIELD INSPECTION

Marine Inspection

Vessels subject to title III, parts II and III, of the Communications Act, and to the Great Lakes Agreement with Canada are required to be certificated on an annual or biannual basis in order to meet safety requirements. In addition, the Commission has an obligation under the Safety of Life at Sea Convention to inspect radio equipment on foreign vessels when so requested by the nations whose flags they fly. In 1962 all such requests were honored. This necessitated 4,809 inspections, including special ones to clear 445 major violations. The Commission also conducted 21 investigations of disasters involving compulsorily equipped vessels. There was no known instance during the year where there was loss of life or property resulting from failure of the required radio equipment.

The first inspection and license certification of radio equipment aboard a nuclear-powered ship was made by the Norfolk office. The vessel is the U.S.S. *Savannah*, first pioneer merchant ship of its kind constructed in the United States. It is intended to be a passenger ship but is being operated as a cargo vessel while crews are being trained.

The mounting interest in boating activities is attested by the 116,000 station licenses outstanding at the yearend which had been issued to boats voluntarily equipped with radio. Despite the fact that only 1 percent of these stations were inspected, there was indication of some leveling off in the number of violations. This is attributed to enforcement action together with an increased awareness on the part of licensees of the need for a program of self-regulation. For safety's sake, marine groups and publications devoted to boating activities have been of considerable assistance to the Commission in emphasizing the importance of rule compliance in order that the marine radiotelephone frequencies may be relied upon for safety purposes. However, much work remains to be done, both from an enforcement and educational standpoint, to alleviate the chaotic conditions that still exist in certain areas.

Broadcast Station Inspection

The high level of broadcast station enforcement that was instituted in 1961 was maintained in 1962. A total of 2,366 AM station inspections were made during the year. They included a determination of compliance with technical standards as well as on-the-air performance. Some of the findings were the basis of revocation and forfeiture actions, as well as short-term licensing. This program, which will eventually be expanded to include FM and TV stations, is designed to survey the performance of a station at least once during its license term with followup inspections when necessary. The initial AM phase will be completed in 1963.

New broadcast stations which go on the air under construction permits are given "initial" inspections before being permitted to engage in regular commercial operation. These inspections not only determine that equipment meets the terms of the permit but that operation is in accordance with the rules. In addition, such inspections make it possible for the field engineer to meet with the licensee and his operating staff and explain rule requirements. This obviates any subsequent misunderstanding.

A total of 381 initial inspections of AM and FM broadcast stations in 1962 resulted in the issuance of 139 violations notices for failure to meet minimum requirements. Major violations are required to be cleared before licenses are issued.

An analysis of all broadcast station inspections during a 4-month period, ending February 28, 1962, disclosed 552 violations notices as the result of 716 inspections or other observations. In addition, there were 80 instances where station operation failed to meet some term of its authorization.

Five of the ten most frequent violations are technical defects in the transmitter and its operation and three are for failure to maintain program or operating logs as required. Failure to properly identify by call letters and geographic location is another violation. Also, many nondirectional stations operating with power of 10 kw or less fail to employ at least one full-time, first-class operator as required by the rules.

Nonbroadcast Station Inspection

Despite the tremendous growth of radio stations in services other than broadcast, it was not possible to increase the number of inspections over the 1961 level. The 4,950 inspections in this category in 1962 means that only 0.5 percent were inspected, or 1 out of every 190 stations. This work was limited by the emphasis on broadcast enforcement and other priority assignments and insufficient personnel to provide adequate coverage in all areas. Such sampling, however, does serve a useful purpose in that it provides an indication of radio services where serious enforcement problems exist so that remedial action may be taken.

Plans have been formulated for a comprehensive 5-year inspection program which will initially determine the extent of enforcement problems in other than broadcast areas and then to develop a coordinated inspection program that will insure adequate attention for all services based on priority and geographical area needs.

COMMERCIAL RADIO OPERATORS

With the exception of certain small "pushbutton" type of radio apparatus, actual operation of a radio transmitter must be carried on by a radio operator licensed by the Commission. His immediate control is necessary to proper technical functioning and dealing with operational problems as they arise.

There is a degree of international standardization as to operator requirements for certain classes of stations, mainly those of ship and aircraft. These mobile stations commonly share operating frequencies and their adherence to prescribed operating procedures is important to the orderly and expeditious handling of communications, both in public correspondence and in the field of safety. In the case of operator licenses of the grades prescribed for ship and aircraft stations, the Commission's requirements are aligned with those of governing treaties. During the year steps were taken to conform two radiotelegraph licenses and one radiotelephone license with the international regulations.

The licensing of operators makes them subject to disciplinary measures provided by the Communications Act. Licenses were suspended in 20 instances for such violations as superfluous transmissions

(monopolizing shared radio channels), transmitting fraudulent distress signals, misusing distress channels, operating unlicensed transmitters, and obtaining licenses by fraud.

For many years the law restricted operator licensing to U.S. citizens. An amendment during the past year relaxed this ban to the extent of authorizing the licensing of U.S. "nationals." It was sought by the Department of the Interior in behalf of residents of American Samoa, who are nationals but not citizens of the United States. The change makes it necessary to establish additional criteria for determining eligibility for such licenses and to make arrangements for conducting examinations in the remote area.

The Commission receives many requests from aliens for operator licenses, or for recognition of foreign licenses, for the operation of broadcast and other classes of stations, which cannot be granted. The only exception is temporary authorizations to pilots of foreign commercial aircraft whose routes include the United States.

ANTENNAS

Antenna Application Processing

The Federal Aviation Agency's new rule, part 626, effective July 15, 1961, requires FCC applicants to simultaneously notify FAA of antenna proposals filed with the Commission, and limits aeronautical approvals to 18 months for towers where construction has not started. Subsequently, the Commission effected new FCC interim antenna processing procedures.

The number of antenna proposals processed for all radio services in fiscal 1962 totaled 18,583, a decrease from 1961's record high of 23,391. This drop is attributed mainly to the new procedure which cut down the number of applications referred to FCC's Antenna Survey Branch for antenna processing during that period. The new provisions are designed to provide maximum practicable assurance that antenna towers will not be hazards to air navigation.

Antennas and Air Safety

In a further effort to safeguard air navigation from the potential hazards created by antenna structures, FCC field engineers gave increased attention, within existing personnel limitations, to checking heights and locations of towers constructed along airway routes and in proximity to airports. These inspections revealed several towers built in excess of authorized heights or at unauthorized locations that endangered air navigation. These cases were referred to the FAA for recommended action. Towers which FAA determined to be hazardous were required either to reduce in height or relocate to the site approved in the station authorization.

Tall TV Towers

TV transmitting towers continue to increase vertically as well as numerically. During fiscal 1962, 14 additional towers over 1,000 feet in height were constructed, including the 1,749-foot structure at Columbus, Ga. (now the world's tallest manmade structure), used jointly by WRBL–TV and WTVM. Other towers over 1,500 feet tall placed in operation were KYTV, Springfield, Mo., 1,609 feet; WITN, Washington, N.C., 1,523 feet; KONO–TV, San Antonio, Tex., 1,505 feet; and a "candelabra type tower" shared by KCRA–TV, KXTV, and KOVR, 1,549 feet at Sacramento, Calif. Towers in excess of 1,000 feet now number 116.

Seven construction permits for tall TV towers were outstanding, of which one is for 1,074 feet at Milwaukee, Wis., for joint use by WMVT, WMVS, and WITI–TV. Applications were pending for 23 additional high shafts. The proposed 1,794-foot antenna of KATV at Little Rock, Ark., will bid for the temporary title of the world's tallest structure. In March, FAA granted aeronautical clearance for a tower 2,000 feet high at Sioux City, Iowa, proposed jointly by the KTIV Television Co. and the Peoples Broadcasting Co.

CONTRACTUAL SERVICES FOR FEDERAL AGENCIES

The field bureau continued to furnish special technical services for various Federal agencies. They included field-strength recording, monitoring, tracking and direction finding in connection with transmissions from high-altitude weather balloons, cargo balloons, anchored and free-floating weather and hurricane-detection buoys—all to obtain scientific data for research and defense programs. One tracking was of a recordbreaking balloon flight from Bermuda to a point 700 miles south of Tokyo, requiring 19 days.

The cost of these fiscal 1962 services, for which the Commission was reimbursed, exceeded $115,000.

FIELD RECRUITMENT AND TRAINING

To aid the recruitment of engineers for the Commission, field engineers help to prepare examinations, evaluate the applications, and interview prospective engineering college graduates. In maintaining its own skilled personnel, the field bureau conducts technical training programs and study courses so that its people can qualify for advancement. In addition, under cooperative arrangements with various colleges, engineering students are trained in the work of the field offices and monitoring stations and, after graduation, are a source of recruitment for engineers throughout the Commission.

FIELD ENGINEERING OFFICES AND MONITORING STATIONS

A list of field engineering district offices and monitoring stations follows:

1_____ 1600 Customhouse, Boston 9, Mass.
2_____ 748 Federal Bldg., New York 14, N.Y.
3_____ 1005 New U.S. Customhouse, Philadelphia 6, Pa.
4_____ 415 U.S. Customhouse, Baltimore 2, Md.
5_____ 405 Federal Bldg., Norfolk 10, Va.
6_____ 718 Atlanta National Bldg., Atlanta 3, Ga.; (suboffice) 214 Post Office Bldg., Savannah, Ga.
7_____ 312 Federal Bldg., Miami 1, Fla.; (marine office) 201 Spradlin Bldg., Tampa 6, Fla.
8_____ 608 Federal Bldg., New Orleans 12, La.; (suboffice) 439 U.S. Courthouse and Customhouse, Mobile 10, Ala.
9_____ 5636 New Federal Office Bldg., Houston 2, Tex.; (suboffice) 301 Post Office Bldg., Beaumont, Tex.
10_____ Room 401, States General Life Insurance Bldg., Dallas 2, Tex.
11_____ 849 South Broadway, Los Angeles 14, Calif.; (suboffice) 1245 Seventh Ave., San Diego 1, Calif.; (marine office) 356 W. 5th St., San Pedro, Calif.
12_____ 323–A Customhouse, San Francisco 26, Calif.
13_____ 201 New U.S. Courthouse, Portland 5, Oreg.
14_____ 806 Federal Office Bldg., Seattle 4, Wash.
15_____ 521 New Customhouse, Denver 2, Colo.
16_____ 208 Federal Courts Bldg., St. Paul 2, Minn.
17_____ 3100 Federal Office Bldg., Kansas City 6, Mo.
18_____ 826 U.S. Courthouse, Chicago 4, Ill.
19_____ 1029 New Federal Bldg., Detroit 26, Mich.
20_____ 328 Post Office Bldg., Buffalo 3, N.Y.
21_____ 502 Federal Bldg., Honolulu 8, Hawaii
22_____ 322–323 Federal Bldg., San Juan 13, P.R.
23_____ 53 U.S. Post Office and Courthouse Bldg., Anchorage, Alaska
24_____ Room 106, 718 Jackson Place NW., Washington 25, D.C.

Primary Monitoring Stations

Allegan, Mich.
Grand Island, Nebr.
Kingsville, Tex.
Canandaigua, N.Y
Santa Ana, Calif.
Laurel, Md.
Livermore, Calif.
Portland, Oreg.
Powder Springs, Ga.
Waipahu, Hawaii

Secondary Monitoring Stations

Searsport, Maine
Spokane, Wash.
Douglas, Ariz.
Fort Lauderdale, Fla.
Ambrose, Tex.
Chillicothe, Ohio
Anchorage, Alaska
Fairbanks, Alaska

STATISTICS

Field engineering statistics for fiscal 1962 in comparison with 1961 follow:

Field inspection statistics

Stations	United States		Foreign	
	1961	1962	1961	1962
Ship				
Authorized stations:	103,835	120,427		
Compulsory:				
Inspections	3,936	4,619	147	190
Violation notices	1,432	1,904	12	30
Items cleared during inspection	3,464	3,965	122	150
Certificates issued [1]	2,271	2,842	97	159
Voluntary:				
Inspections	1,258	1,356		
Violation notices	1,132	859		
Broadcast				
Authorized stations	13,845	15,164		
Inspections	2,774	2,368		
Violation notices	2,657	2,411		
Other radio services [2]				
Authorized stations	433,370	565,402		
Inspections	3,552	5,971		
Violation notices	1,542	2,287		

[1] Safety convention, Communications Act Safety Radiotelephony, and Great Lakes Agreement Radiotelephony Certificates.

[2] Excludes ship, broadcast, and amateur.

Investigative statistics

	1961	1962	Increase
Interference complaints received by FCC:			
Interference to monochrome TV	23,029	25,918	2,889
Interference to color TV	83	116	33
Interference to aural broadcast	2,767	3,255	488
Interference to other services	2,858	3,349	491
Total	28,737	32,638	3,901
Interference investigated by FCC	16,499	17,562	1,063
Other investigations by FCC	1,313	2,370	1,057
Total	17,812	19,932	2,120
Number of Cooperative Interference Committees	36	40	4
Number of TV Interference Committees	618	640	22
Total	654	680	26
Number of unlicensed stations found in violation of the Communications Act	247	529	282
Indecent-language cases	23	32	9
Unauthorized divulgence of radio communications cases	10	14	4

Monitoring statistics

	1961	1962	Increase or (decrease)
Source and number of major interference complaints:			
U.S. military agencies	578	711	133
Civil government agencies	143	184	41
Commercial companies	798	758	(40)
Foreign governments	2	4	2
Total	1,521	1,657	136
Monitoring net alerts	7,983	8,014	31
Direction-finder bearings:			
Case bearings	46,787	45,624	(1,163)
Search and rescue bearings	820	446	(374)
Total	47,607	46,070	(1,537)
Cases monitored and developed:			
Major:			
Interference	1,521	1,657	136
Noninterference	456	465	9
Minor:			
Interference	4,625	4,930	305
Noninterference	8,092	8,470	378
Total	14,694	15,522	828
Survey cases	17	11	(6)
Contractual cases for other Government agencies	4	5	1
Signals identified and indexed	90,514	77,221	(13,293)
Monitoring reports to IFRB:			
FCC	42,527	48,250	5,723
Commercial companies (via FCC)	42,313	16,750	(25,563)
Total	84,840	65,000	(19,840)
Monitoring observers participating in agency training program	107	117	10
Citations:			
FCC licensees (including marine watch)	8,296	9,673	1,377
U.S. Government stations	435	529	94
Foreign stations	4,419	4,547	128
Total	13,150	14,749	1,599

Commercial radio operator licenses

Class of license	Outstanding June 30, 1961	Outstanding June 30, 1962	Increase
Radiotelegraph:			
1st class	8,438	9,790	1,352
2d class	12,344	14,825	2,481
3d class	2,771	3,271	500
Radiotelephone:			
1st class	102,981	127,603	24,622
2d class	79,159	97,658	18,499
3d class	85,993	115,748	29,755
Restricted permits [1]	1,990,462	2,189,458	198,996
Total	2,282,148	2,558,353	276,205

[1] Restricted permits issued for lifetime of operator as of Nov. 15, 1953. This class of license, normally issued for the lifetime of operator, does not include 751 permits issued for a term of 1 year or less to alien aircraft pilots.

Applications processed by Antenna Survey Branch

Services	Pending July 1, 1961	Received in ASB	Completed by ASB	Pending [1] June 30, 1962	Obstruction markings assigned
Broadcast:					
AM	94	748	748	94	410
FM	28	386	364	50	209
TV	80	1,174	1,148	106	282
International	0	4	3	1	0
Experimental	0	21	21	0	0
Total broadcast	202	2,333	2,284	251	901
Common carrier	71	1,378	1,310	139	462
Safety and special radio	891	14,507	14,989	409	567
Grand total	1,164	18,218	18,583	799	1,930

[1] Includes all applications pending.

Proposals referred to Federal Aviation Agency for special aeronautical study

Services	Pending at FAA July 1, 1961	Additional during year	Final actions during year	Pending at FAA June 30, 1962
Broadcast:				
AM	42	418	374	86
FM	11	118	107	22
TV	26	240	201	65
International	0	0	0	0
Experimental	0	2	2	0
Total broadcast	79	778	684	173
Common carrier	27	641	585	83
Safety and special radio	101	2,942	2,967	76
Grand total	207	4,361	4,236	332

Research and Laboratory

NEW YORK UHF–TV STUDY

This study was authorized by the Congress with a $2 million appropriation for the fiscal years 1961 and 1962. Use of these funds has since been extended to the middle of fiscal 1963. The project is to study the technical and economic feasibility of using UHF channels in a large canyon-type city, with the result that New York City is the scene of the test.

A high-powered UHF transmitter is operating on the Empire State Building using the same tower as the local TV stations. Early in the fiscal year, operations were conducted on a temporary directional horn antenna which alternately radiated circular and horizontal polarization for comparison purposes. Starting in December of 1961 operations have been on the regular antenna.

Data has been collected at over 2,500 selected locations within 25 miles of the Empire State Building. More data is being obtained to assure sufficiency of information. Most of these findings are being processed by automatic machine so as to extract as much information as possible in the allotted time.

These data are being taken by a private contractor and allow comparison of the picture quality as well as of signal strength between the UHF channel (31) and two VHF channels (2 and 7) at the same receiving location. In many cases information is obtained on both indoor and outdoor antennas. At one-fifth of the locations TV receivers are installed for viewing by the occupant of the premises to obtain his reaction to the comparison between UHF and VHF.

Mobile equipment is being used to measure the signal strength received from the three TV stations out to the fringe of service. This information will supplement that being taken by the contractor, since his area of operation is within 25 miles of the stations.

A private firm has installed a translator station on the George Washington Bridge, using a channel in the higher portion of the UHF–TV band. Observations and measurements are being made at locations within range of this low-powered equipment.

Preliminary results indicate that the differences which exist between TV circular and horizontal polarization are insufficient to be satisfactorily resolved by the data collected up to now. However, early indications are that, except in exceptional circumstances, there are

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insufficient differences between the two polarizations to warrant the additional complications of circular polarization. A more extensive review of the data will be made later.

Preliminary review of a small portion of the data indicates that within the 25-mile radius of the Empire State Building there is only a small difference between the service obtained from the UHF and VHF stations there. Within this area the greatest difficulties on both UHF and VHF are with "ghosting" because of buildings and other obstructions rather than with lack of signal strength.

Mobile vehicle survey out to the fringe of service gives results consistent with previous surveys of this nature; namely, that beyond the line of sight the UHF signals decay more rapidly than VHF.

The Commission's laboratory (referred to in another section of this chapter) outfitted a station wagon with VHF and UHF field strength meters and other equipment including a 30-foot telescopic receiving mast used for the surveys in the Manhattan area. It also provided specially modified field-strength recording receivers located at Philadelphia, Pa., Princeton, N.J., and Laurel, Md., to observe signals from the TV stations atop Empire State Building. It developed and constructed other technical items used in this study and conducted many special tests.

RADIO WAVE PROPAGATION RESEARCH

Knowledge of the behavior of radio waves is a basic part of most engineering considerations by the Commission in the regulation and allocation of radio communication facilities. Very often it determines how closely stations may be spaced without interfering with one another and the range at which a signal can be received with usable quality. Practical radio wave propagation prediction techniques rely upon formulas and constants which can be derived only by experiment, research, and analyses of data obtained by adequate field-strength measurements.

Following are some examples of Commission activities in this field.

VHF and UHF Propagation

During the year, fixed-location field-strength recordings were made on five TV and FM broadcast stations in addition to those involved in the New York City UHF project. Data from these recordings, plus that from seven others previously recorded, are being analyzed for short-term, diurnal and seasonal time variability in the VHF-UHF spectrum. A report dealing with the effect of the sunspot cycle upon propagation in the FM broadcast band has been drafted and will soon be made available.

Research continued on the development of methods for predicting VHF and UHF field strength over specific terrain. However, this activity was conducted on an intermittent basis due to the urgency of higher priority assignments.

FM Interference Ratios

An initial study to determine the efficacy of the presently accepted interference ratios for the FM broadcast service was completed. It was deemed necessary because of receiving equipment design and manufacturing trends and other developments such as storecasting and stereophonic operation. The preliminary efficiency comparison emphasized the need for research on new allocation standards in addition to those presently used.

Other Propagation Research

A limited investigation was made of the possibility of radio communication blackout caused by absorption or reflection of radio waves by partially ionized flame gases. This could conceivably become an important factor in the use of radio equipment to coordinate or direct firefighting activities during a widespread conflagration. It was concluded that there is a definite need for more research in this field.

Several high-frequency radio transmission paths were examined and a limited recording program was initiated to determine the effect of high-altitude nuclear explosions upon radio communication circuits dependent upon ionospheric modes of propagation.

CONTROL OF INTERFERENCE FROM NONLICENSED APPARATUS

RFI Interference

The year's efforts to curb radiofrequency interference (RFI) from apparatus not licensed by the Commission have extended into some areas not mentioned in the chapter on "Field Engineering and Monitoring." The following are examples:

Automotive interference.—The Automobile Manufacturers Association for the past several years has been voluntarily seeking to minimize interference from automotive ignition systems and electrical generators to home TV reception. On September 15, 1961, the AMA advised the Commission that its member manufacturers would suppress interference from 1962 model automobiles, buses, and trucks within the limits of the Society of Automotive Engineers standard. The Commission commended the AMA for this big accomplishment and suggested that attention now be given to like automotive interference to the more vulnerable mobile communication systems. Both

the AMA and SAE are cooperating with the Commission in this new effort.

Interference from TV and FM receivers.—The Commission received, from manufacturers, 511 certificates attesting that 1,079 models of FM and TV receivers are designed not to cause emissions in excess of the interference limits specified in the regulations. The Commission has jurisdiction over users of radio equipment but not over manufacturers, and this voluntary certification by manufacturers results, in part, from making industry more aware of the necessity for control.

New York World's Fair, 1964–65.—In anticipation of many electrical and electronic exhibits at this fair, its officials asked the Commission's assistance in suggesting interference safeguards. The Commission has furnished a set of "interference regulations" to be incorporated in the fair's rules which will govern all exhibitors, both foreign and domestic. In addition, the Commission measured the "radio noise level" at the proposed fair site (Flushing Meadow Park, near LaGuardia Airport), for comparison with another measurement to be made when the fair's electrical and electronic apparatus is operating. An excessive increase in radio noise will indicate the need for suppressing emissions from offending sources.

General awareness effort.—The Commission is promoting a better understanding of the interference problem through its field activities (see "Field Engineering and Monitoring"), by issuing various reports and other releases on the subject, by contributing articles to industrial and technical publications, and by discussing the subject at numerous conferences and meetings, international as well as domestic, of the interests concerned.

EQUIPMENT TYPE ACCEPTANCE

For over 6 years the Commission has fostered a program of type acceptance of equipment in order to ease the technical burdens upon licensees and to increase administrative efficiency in the various radio services. During fiscal 1962 a total of 414 equipments received type acceptance, as compared with a total of 264 equipments the year before. A comparison table follows:

Type of equipment	Number of applications granted		Increase
	1961	1962	
Television broadcast	37	53	16
AM and FM broadcast	34	142	108
Nonbroadcast	193	219	26
Total	264	414	150

EXPERIMENTAL RADIO SERVICES

The Experimental Radio Services (other than broadcast) provide for fundamental research, development of new techniques and new uses of radio, and development and testing of equipment.

Licensees in the experimental services range all the way from large research and development laboratories to ambitious young scientists in the grade schools. New ideas and revolutionary developments come from many sources. Every effort is made to provide experimental licenses for everyone who has a legitimate program of experimentation.

While experimental licenses are granted on the basis of no interference to established radio services, many cases of harmful interference, nevertheless, occur. As experimental operations expand, the amount of interference increases but, in all cases of harmful interference, the experimental operation causing it must discontinue until remedied.

With the advent of the space age, basic research and technical developments in the field of electronics and communication take on a new and greater significance. Radar sets of World War II represented the first practical use of radio echoes or reflected radio waves. Subsequently signals were bounced off the moon and later from passive satellites such as Echo I. Active satellites now circling the earth carry their own radio transmitters which respond to the commands of earth stations to transmit various forms of information and programs across the Atlantic.

The operation of the "Telstar" space station and its associated earth station was authorized under experimental licenses with call letters KE2XCK and KE2XCL. Some of the most important radio research and development work in recent times was preformed in connection with this project. By furnishing authorizations for experimental space communication, the Commission is contributing to the exciting developments of a new age.

The increasing amount of research and development work in electronics and communication adds to the Commission's experimental workload. A large percentage of the experimental applications involve urgent projects performed under contracts with the U.S. Government. During the year, 1,748 applications were processed as compared with 1,320 the previous year.

The present usable radiofrequency spectrum extends from about 10 kc to 40,000 Mc. However, no specific frequencies are allocated exclusively for experimentation, either nationally or internationally. All such operations must be performed on frequencies used by the regular radio services. The problem of clearing frequencies for even

the most urgent research work has reached the level of a major operation and in many cases experimental operations are possible only after long study and through the imposition of rigid restrictions.

In addition to "Telstar," the following were among the many experimental authorizations during the year: the Stratoscope II project, which will use a high-powered telescope under a large balloon to pick up and transmit to earth pictures of distant planets; an automatic pilot or automatic radiofrequency guidance system which will take control of an automobile when it enters a superhighway; and a radio-operated device to warn cars and schoolbuses of approaching trains.

REVISED PATENT PROCEDURES

The Commission strengthened its patent procedures to assure that the availability of broadcast equipment and radio apparatus meeting performance standards specified in its rules will not be curtailed by unreasonable royalty or licensing policies of patent holders. In view of the rapid technological advances in the communication field, the Commission began a continuing study of new developments relevant to its jurisdiction. Pertinent information is extracted from Patent Office publications and records and technical journals. Copies of relevant patents are being obtained. The Commission will ascertain the assignment or licensing arrangements for significant patents by examination of Patent Office records or by direct inquiry to the patentee, licensees, or assignees. Whenever it appears that the patent structure may be such as to obstruct the use of radio services authorized by the Commission, the Commission can be expected to take appropriate remedial action.

CONSULTATION SERVICE FOR OTHER GOVERNMENT AGENCIES

Because of the Commission's concern with the broad field of radio communication and electronics, it is frequently called upon by other Federal agencies to furnish related technical advice and other aid. As examples: Tests were made of an airplane flight recorder for the Civil Aeronautics Board in connection with the latter's investigation of an accident. A portable radio was examined at the request of the Post Office Department for possible mail-fraud action. The Federal Trade Commission asked engineering advice in a proceeding involving a dispute over radio set advertising claims. The Securities and Exchange Commission referred a problem involving the production of an indoor receiving antenna to Commission engineers to evaluate its effectiveness. A dispute regarding a bid for the purchase of a number of mobile transmitters by another agency was resolved by FCC

engineers evaluating certain claims of the manufacturer. A Commission engineer, expert in automatic data processing, aided the "Voice of America" to formulate an electronic computer program for transmitting antenna radiation patterns.

Although a drastic revision of the Commission's technical standards for radar emissions is not contemplated at this time, it is making a continuing study of the bandwidth requirements for radars and related technical characteristics. From these studies it has been able to contribute to a similar inquiry by the military services and other Government agencies aimed at improving technical standards for radars. Such standards would encourage better spectrum utilization efficiency as well as help reduce the cost of radar equipment.

LABORATORY

The Commission's laboratory is located near Laurel, Md. Here there is sufficient open space for making field-strength measurements of radio signals. At the same time, because of its distance from population centers, there is reasonable freedom from the effects of electrical noises which might interfere with these measurements.

The laboratory also tests communication systems and devices capable of causing interference. An important part of its work is to assist the Commission evaluate equipment and methods and formulate technical rules.

Studies of Systems and Devices

During the year, the laboratory participated in technical studies looking to extensions and improvements of broadcasting through measurements of the characteristics of FM and TV receivers, including radiation by these receivers of signals which could cause interference. An all-transistor TV translator, submitted by one of the manufacturers, was tested to determine whether the technical requirements for TV translators could be relaxed in the interest of user cost.

In connection with public attention given to interception of telephone conversations, the laboratory tested two commercial "bugging" devices. One was a wireless microphone which can be hidden where a conversation takes place and radio it for reception at a point up to one or two city blocks away. The other was a miniature transmitter designed to be attached to a telephone wire (or even hidden in the phone) for relaying conversations for a like distance.

Assistance to CONELRAD Programs

Considerable laboratory work was devoted to CONELRAD projects. Experiments were made to determine whether the signals of

AM broadcast stations could simultaneously be used to carry teletype messages for emergency communication purposes. One aim was to learn whether there was a significant effect on reception of the regular program. Another was to find any effect of the teletype operation on the sharing of a channel by several broadcast stations.

Field tests of the automatic CONELRAD signal sender continued in a number of radio stations in the Washington area. This device was evolved by the FCC and 20 units were built the previous fiscal year. The laboratory developed an automatic CONELRAD alert alarm adapter for use on AM or FM broadcast receivers. It is actuated only by the proper combination of interruptions of the transmissions of the station, followed by the 1,000-cycle tone. It eliminates need for relays or other mechanical assists.

The laboratory designed and constructed transformers and adjuncts for a group of Beverage antennas to be used in a CONELRAD project. It also helped establish a VHF emergency communication link, employing transmitters and receivers available at Laurel.

Calibration of Measuring Equipment

The laboratory is responsible for the repair and calibration of measuring equipment used by FCC field engineers, as well as its own equipment. During the year, 19 field-strength meters and 18 standard signal generators required this attention.

Two projects were undertaken to improve the accuracy of calibration of field-strength meters. One of these entailed an improved feeding system for the standard loop used in calibrating field-strength meters up to 25 Mc. The other involved measurements of the gains of antennas used for field-strength meters in the 1- to 10-kc range.

Equipment Type Approval

Certain types of equipment are type approved by the Commission if tests made at its laboratory indicate that requirements are met. Test is made on a prototype, and the type approval covers all identical units made by the manufacturer. Tests are made of certain devices which can potentially cause interference to communication, including ship radars, medical diathermy and ultrasonic equipment, hair removers and electronic ovens.

Type approval is also given to modulation and frequency measuring equipment used by broadcast stations and radio equipment required for safety of life at sea. The latter group includes ship telegraph transmitters, lifeboat transmitters, automatic alarm receivers, and automatic alarm senders.

Following is a summary of type approval activity during the year:

Class of equipment	Number of submissions for test	Number of type approvals granted
Medical diathermy	4	3
Medical ultrasonic	10	4
Broadcast monitor	6	3
Ship radar	9	[1] 1
Auto alarm sender	1	7
Epilator	6	6
Electronic oven	6	3

[1] This unit complies with rules as expected to be finalized.

The table reflects an increase of interest in the manufacture of electronic ovens. These devices are used for the cooking of food and the rapid thawing of frozen food, and are designed for home or commercial uses.

Tests to determine if the performance of equipment certified by manufacturers as meeting interference requirements included measurements of oscillator radiation from FM and TV receivers, and the characteristics of equipment sold for use by TV translator stations.

Consultation and comparative interference tests were made for a manufacturer interested in marketing a toy utilizing radio signals.

Frequency Allocation and Use

NATIONAL FREQUENCY ALLOCATIONS

National frequency allocation activities during the year were influenced to a major extent by ratification of the 1959 Geneva Convention on October 4, 1961, and resulting Commission actions to amend its rules and regulations accordingly. This is the first revision of the international radio regulations since the Atlantic City conferences of the International Telecommunication Union in 1947.

Changes in the national allocation structure to conform with the new Geneva regulations have included shifts in frequency bands allocated to maritime services, radionavigation, and a readjustment of some of the Government and non-Government bands above 25 Mc. Efforts continue toward relieving the shortage of frequencies available to the nonbroadcasting services in the VHF and UHF regions of the spectrum. Consideration also is being given to reducing the separation between assignable frequencies in the 25–42- and 450–470-Mc bands. Other changes have made hydrological and meteorological frequencies available to non-Government users. An inquiry was instituted to determine the radio frequency requirements of low-power communication devices.

Also under study are proposals which include multiplexing aural channels on studio link circuits in the 942–952-Mc band; assignments in the aviation service in the 135–136-Mc band; increase of power in the 420–450-Mc amateur band; possible additional use of the 1800–2000-kc band by amateurs, and an additional frequency for the Civil Air Patrol.

The Commission took three actions concerning radio astronomy. It invited comments on possible changes in the International Table of Frequency Allocations to better accommodate radio astronomy's needs; proposed amending the domestic allocation to set aside bands for radio astronomy observations in the United States; and proposed that radio astronomy observatories in this country file annual reports of their activities for notification to the ITU.

NATIONAL FREQUENCY COORDINATION

The radio spectrum above 25 Mc is divided domestically into bands allocated either for Federal use, non-Government use, or for shared use by both. The FCC licenses non-Government users and the Inter-

department Radio Advisory Committee (IRAC), acting under Presidential authority, assigns frequencies for use by Federal departments and agencies. Close coordination between the FCC and the IRAC is required in assigning frequencies below 25 Mc where all bands are shared, and in the shared bands above 25 Mc as well as in assignments made in bands allocated for the other's use. This coordination is provided by the Frequency Assignment Subcommittee of the IRAC whose members are representatives of Government users of radio, with the FCC membership representing non-Government users.

Many problems of national policy arise in connection with domestic allocation and use of frequencies. Formerly, these problems were handled jointly by the FCC, the IRAC, and the Office of Emergency Planning. However, during the year the President established the Office of Director of Telecommunications Management (DTM) with broad authority over executive branch telecommunication policy. Consequently, the Commission now coordinates policy matters with national implications with the IRAC and the DTM.

NATIONAL NON-GOVERNMENT FREQUENCY LISTS

During 1962, there was a substantial increase in the number and size of the various printed frequency lists showing non-Government assignments. Besides being used by the Government, these lists are available to industry and the general public through reprinting by a commercial firm under contract for that purpose. For the first time, the Commission was able to publish a list of ships licensed in the maritime mobile service. It consists of 4 volumes of over 1,000 pages each, representing approximately 78,000 vessels. Additionally, 36 separate frequency lists were compiled and published on a regularly scheduled basis. FCC's frequency file now consists of over 300,000 punchcards. This is about quadruple the number a decade ago.

CALL SIGNS

The Commission assigns call signs, or makes them available for assignment, to all U.S. radio stations. These must be derived from the ITU Table of Allocation of International Call Sign Series. The accuracy of the Commission's call sign records of U.S. Government radio stations is accomplished through close liaison with each of the agencies concerned. Additionally, such liaison is necessary to insure that call sign assignments made by the agencies are on a reasonably current demand basis to preclude inadvertent disuse of call signs through needless retention by an agency. Arrangements were made to integrate administratively all of the Commission's call sign assignment functions, except amateur and citizens radio where special considerations prevail.

INTERNATIONAL FREQUENCY ALLOCATIONS

Space Radiocommunication Allocations

Information about space communication frequency allocations is contained in the chapter on "Space Communication."

Radio Astronomy

Although the 1959 Geneva Conference provided for a radio astronomy service, it soon became apparent in the United States that the new service could not function efficiently if required to share frequency bands with other radio services. To remedy this difficulty, the Commission is completing a document, "Preliminary Views of the United States of America—Frequency Allocations for Radio Astronomy," in consultation with the President's Director of Telecommunication Management, as the basis for a United States proposal at a future radio conference.

Congested High-Frequency Spectrum

The 1959 Geneva Conference adopted a resolution which set up a "panel of experts" to devise ways and means of relieving severe congestion in the portion of the radio spectrum between 4 and 27.5 Mc. An interim report of the panel has been submitted to member administrations of the ITU for comment. The FCC is directly concerned with this problem and is represented on the panel's advisory committee. Preliminary review of the panel's recommendations has already resulted in thousands of domestic frequency adjustments, thus contributing toward a more realistic international frequency list.

INTERNATIONAL FREQUENCY NOTIFICATION

The international regulations currently in force which provide for the notification and recording of frequency assignments are difficult to interpret and apply in many specific instances. For this reason, substantial time is being expended to insure that all U.S. agencies and companies having occasion to apply the regulations do so in a consistent manner. Regular meetings are being held with representatives of Government and non-Government users to clarify procedures and resolve problems which have been encountered in this field.

The Commission, by arrangement with the Department of State, makes all frequency notifications on behalf of the United States to the International Frequency Registration Board (IFRB) in Geneva. This board's tasks are to determine whether radiofrequency assignments of individual administrations have been made in accordance with international regulations and whether harmful interference will

be caused to stations of other administrations operating in accordance with the regulations. The board also compiles a record of the actual use being made of the radio spectrum by all countries. An average of more than 1,700 frequency assignment notices are received by the IFRB each week, a large portion of which are from the United States. Although there has been some decrease in the number of notifications from this country during the past year, the volume of correspondence relating to those submitted has increased substantially.

The ITU, on behalf of its 113 member countries, publishes various documents on international telecommunication matters. For such publications the Commission frequently is required to contribute data such as additions, changes and cancellations as regards all U.S. assignments.

INTERNATIONAL FREQUENCY COORDINATION

The demand for more radio channels to serve radio communication growing needs requires more intensified international frequency coordination. As the high frequency spectrum affords a limited number of channels using present techniques, and as the decreasing sunspot activity drives international communication into the lower portion of that region, closer cooperation is essential.

The Commission has responsibility for this coordination because it represents its licensees in all cases involving use of internationally assigned frequencies, and must deal with any resulting interference to or by stations in the United States.

The Commission's frequency coordination program with Canada, involving mobile and fixed radio services, constitutes probably the most important part of the Commission's international frequency coordination insofar as volume of cases is concerned. The concentration of Canada's population along its southern border results in many operations in both countries being in close proximity. Thousands of new stations are activated each year so it is necessary to examine practically each proposed operation along the border prior to either country making an assignment. The success of this mutual effort is evident from the small number of interference cases (eight) occurring during the past year. It has also greatly reduced the need for expensive frequency shifts. Improvement of the already excellent detailed border coordination procedures with the Canadian Department of Transport was the subject of bilateral discussions during the fiscal year. Several new "rules of the road" are being established.

The Commission exchanged comments on several proposed assignments with other countries for the purpose of eliminating objections to new domestic frequency assignments or to avoid interference resulting from changes in frequency assignments of foreign stations.

INTERNATIONAL INTERFERENCE AND INFRACTIONS

The Commission is the U.S. agency responsible for radio matters affecting this country under the terms of the ITU convention in force. Accordingly, it is the medium for contact with foreign administrations and domestic radio licensees, as need arises, for resolving harmful international interference to or from stations in the United States. Since interference can jeopardize life and property at sea and in the air, and interfere with oversea radio communication, it is important to curb it as quickly as possible.

In the solution of international radio interference, problems develop concerning the rights of the individual stations involved, hence the action taken varies with cases. Established international interference procedures deal primarily with general considerations rather than the relative rights of stations. The latter requires evaluation in making a final determination. Consequently, international interference cases cannot be handled on a production-line basis. A mutually satisfactory solution is desirable but not always possible.

The decline in sunspots from their unprecedented high in March 1958 continues to affect circuits in the high-frequency region of the spectrum. This has resulted in more crowding into the lower portion and a resultant increase in international interference cases. In view of the number of new operations squeezed into the spectrum since the last sunspot cycle, it is inevitable that congestion of the lower frequencies will add to the interference situation.

During the past year, the Commission handled 335 cases of international interference involving its licensees and foreign stations. Approximately 300 were resolved and correspondence with foreign administrations continues on the remainder. The Commission also received 48 complaints from foreign governments involving U.S. Government stations. These were referred to the appropriate Federal agencies. The Commission collaborated in preparing replies whenever requested by the agencies concerned. Approximately 1,600 pieces of correspondence were originated by the FCC in pursuing solutions to international interference cases.

The Commission participates with other foreign administrations in the exchange of infraction reports of technical and operational deficiencies by radio stations observed during the course of monitoring. It is not possible to determine the number of cases of harmful interference which were avoided by this procedure, but there can be no doubt that a large number of foreign and domestic stations benefited. The Commission made a substantial contribution to the program during fiscal 1962, forwarding abroad some 4,700 reports of technical and operating infractions by foreign stations.

A difficulty in administering the program is the fact that members of the ITU do not all ratify its conventions and regulations at the same time. This means that each infraction report must be examined on the basis of treaties in force with the country concerned to avoid implication that foreign stations should observe radio regulations to which they are not yet a party. This is a complex technical problem, although the number of man-hours expended is not excessive.

INTERNATIONAL FREQUENCY USAGE DATA

In the international frequency monitoring program, the Commission and approximately 25 other administrations furnished the International Frequency Registration Board (IFRB) with data used in publishing a monthly summary of monitoring information for studying frequency occupancy over the range 2850 to 27,500 kc.

The IFRB summary contains data of value to the communications industry. As an example, it is useful in resolving interference problems in which determinations must be made of operation dates, times, emissions, and other facts concerning the stations involved. Also, studies of band occupancy find these data helpful in efforts to locate channels for new operations in the high-frequency region of the spectrum. The summary is also a guide for determining whether stations in the international frequency list are actually using their frequencies and at the times shown. Operating agencies find the summary useful in plotting which frequencies may be used daily during selected hours for a portion of the year or sunspot cycle.

Approximately 65,000 monitoring observations submitted by the Commission's 18 monitoring stations and 16 private monitoring stations were forwarded to the IFRB. The combined U.S. effort accounts for nearly one-fourth of all monitoring data submitted to the IFRB from the participating administrations.

INTERNATIONAL CONFERENCES

During the year, the Commission prepared for 35 international conferences, including 28 multilateral and 7 bilateral meetings, and on some of these there is continuing followup work. Normally, participation in international conferences occurs under Department of State sponsorship. However, with the concurrence of that Department, certain bilateral negotiations were initiated and carried out by Commission representatives.

Of the international activities on which preparatory effort was spent, the Commission furnished 6 delegation chairmen, 3 vice chairmen, and 56 other representatives. At the close of the fiscal year it was preparing for 31 additional international conferences, some of which are scheduled as far ahead as 1965.

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Appendix

FCC LOG HIGHLIGHTS OF 1962 FISCAL YEAR

The following capsule summary is based primarily upon releases of the Federal Communications Commission during the 1962 fiscal year—July 1, 1961, to June 30, 1962. The dates shown are largely those of the covering releases and do not necessarily indicate the dates the related actions were taken.

1961

July 6—Directs Bell System to make cost study of its overseas communication services.
Urges Western Electric Co. to reduce prices charged Bell companies.
Initial decision would make private line telephone and telegraph rate adjustments.

July 7—Proposes further rulemaking relating to the program section of broadcast application forms.

July 13—Announces policy on disparities between program proposals and actual performance by broadcast licensees.
Permits amateur maritime mobile operations in 14.00–14.35-Mc band on worldwide basis.
Testifies on space communication before House committee. (Subsequently testifies 10 more times on same subject before congressional groups.)

July 14—New York City to operate UHF–TV experimental station for FCC.

July 15—Joint UHF–TV exhibit by FCC and District of Columbia area educational group opens.

July 19—Modifies conditional class amateur examination requirements as convenience to civilian and military personnel stationed abroad.

July 21—Issues release on FAA–FCC discussions on tall tower approval procedures.

July 25—Issues progress report on New York UHF–TV project.
Urges international common carriers to speed space communications system.

July 27—Proposes multipronged program to foster UHF television.
Advises extent to which organizations may assist clients in preparing application forms.
To request antenna information from nonbroadcast applicants concerning compliance with FAA rules.
Permits frequency pairing in 952–960-Mc band; provides exclusive frequencies for traffic signal control.

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July 27——— Staff grants first construction permits for new broadcast stations under newly delegated authority.

Aug. 1——— Enables parties to apply for broadcast facilities sought to be withdrawn.
Submits progress report to Senate subcommittee on study of network practices and broadcast programing.

Aug. 15——— Amends "local notice" broadcast rule to set cutoff date for public responses.

Aug. 21——— Announces interim procedures covering airspace clearances for broadcast antenna structures.
Issues factsheet on "Educational Television."

Aug. 31——— Communications Act amended to reorganize FCC.

Sept. 5——— First prosecution for indecent language on citizens band brings loss of station operating rights for 3 years.

Sept. 7——— Amends procedural rules concerning need for holding oral arguments.
Testifies before Senate subcommittee on broadcasting of horse-race information.

Sept. 12——— Amends procedural rules to enable Office of Opinions and Review to make recommendations under FCC reorganization authority.

Sept. 13——— Limits time for filing petitions to deny broadcast applications (clarified Sept. 19).

Sept. 14——— Concludes clear-channel proceeding; opens 13 channels to secondary stations; reserves judgment on higher power. (Modified and clarified Oct. 27; petition for reconsideration pending.)

Sept. 18——— Revises standards of conduct for FCC employees.

Sept. 26——— TV network programing inquiry resumes in New York City; continues to Oct. 6.

Sept. 27——— Rules "staff instructions" not subject to petitions for reconsideration.
Clarifies AM–FM station-location rules.
Permits limited coast stations to use intership frequencies for safety of navigation purposes.

Sept. 28——— Denies petitions for AM stereophonic standards.

Oct. 2——— Issues list of tall TV towers.

Oct. 4——— Authorizes first ocean telephone cable to connect Hawaii and Japan.

Oct. 5——— Permits use of common call letters by different interests under "unique" circumstances.

Oct. 12——— Requires withdrawing broadcast applicant to publish public notice of intent.

Oct. 13——— International common carriers submit plan to FCC for satellite communication system.

Oct. 18——— Authorizes New York City to test scrambled transmissions over FCC's experimental UHF–TV station.
Orders station WPST to cease operation on TV channel 10 in Miami, Fla., on Nov. 20, and grants L. B. Wilson application for that channel pursuant to July 14, 1960, decision.

Oct. 25---------- Creates Research and Education Division in Broadcast Bureau.
Approves transfer of station WNTA–TV, Newark, N.J., to New York City educational group.

Oct. 26---------- No additional contingent aural broadcast applications to be accepted.

Nov. 1---------- Approves full acquisition of American Cable & Radio Corp. by International Telephone & Telegraph Corp.

Nov. 7---------- Reminds broadcast licensees of responsibility with respect to false, misleading, and deceptive advertising. First issue of Federal Trade Commission's "Advertising Alert" sent all FCC broadcast licensees (subsequent issues mailed by FTC direct).

Nov. 8---------- Authorizes stereophonic broadcasting by educational FM stations.
Shifts certain marine frequencies to conform to 1959 Geneva regulations (on Nov. 15 proposes additional changes).

Nov. 21---------- Looks toward broadening ban on fraudulent practices relating to commercial radio operator licenses.

Nov. 22---------- Restates policy on broadcast of horseracing information.

Nov. 27---------- Announces formal opening of FCC New York City experimental TV station WUHF.

Dec. 6---------- Announces revised patent procedures.
Adopts interim procedure for processing FM applications pending outcome of rulemaking (modified Feb. 14, 1962).
Amends procedural rules to provide for conditional TV interim operation by competing applicants.
Testifies on advertising opportunities for small business in TV and radio.
Proposes amending rules concerning presunrise AM regional station operation.
Revises depreciation rates for Bell System long lines.

Dec. 7---------- Bell System offers modified type of TV intercommunication service at reduced rates for noncommercial educational use.

Dec. 14---------- Appoints additional hearing examiners to bring total to 17.
Proposes rules for alarm signaling in public safety services.

Dec. 20---------- Congratulates amateurs for orbiting "OSCAR" satellite.

Dec. 28---------- FCC-Navy agree on joint use of Puerto Rico monitoring facilities.

1962

Jan. 3---------- Requires all licensees notified of violations to report correction action.
Extends eligibility to subsidiary corporations in certain safety and special radio services.

Jan. 4---------- Denies petition for AM single sideband use.
Inquires into future frequency needs for radio astronomy.

Jan. 8---------- Advises broadcast licensees that Subversive Activities Control Act requires Communist organization sponsorship to be identified.

Jan. 17---------- Makes frequency available for emergency vehicle control of traffic lights.

Jan. 24——— Networks begin testimony in TV programing inquiry (concludes Feb. 7).

Jan. 31——— Establishes criteria for processing applications relating to clear channel operations.

Feb. 1——— Issues "Memo to All Young People Interested in Radio."

Feb. 6——— Denies increased power from 5 to 25 kw for class III regional AM stations.
Authorizes Commercial Cable Co. to discontinue transatlantic telegraph cable system operated since 1884.
Approves changes in Bell System cost separation procedures.
Proposes additional channel splits for safety and special services.

Feb. 13——— Testifies on clear-channel bills.

Feb. 14——— Revises proposals to establish fees for licensing and regulatory services.
Combines broadcast auxiliary rules.
Denies microwave TV relay facilities to serve CATV systems, protested by local TV station, because economic impact would have adverse effect on public interest.

Feb. 16——— Testifies on proposed legislation concerning oaths, early renewals of safety and special radio licenses, and monetary forfeitures for nonbroadcast services.

Feb. 20——— Testifies on all-channel TV receiver legislation (again on Mar. 6).

Feb. 23——— Announces public inquiry into Chicago local TV programing.

Mar. 2——— Moves to procure electronic computer.

Mar. 7——— Requires single sideband transmissions in international fixed radiotelephone service after Jan. 1, 1965.

Mar. 8——— Court of Appeals affirms FCC grant of trial pay-TV authorization to WHCT, Hartford.

Mar. 9——— Warns broadcast licensees against engaging in "double billing."

Mar. 15——— Adopts rule requiring hearing on sales of broadcast stations held less than 3 years.
Authorizes test of new "Bellboy" paging system.

Mar. 16——— Submits additional views to House on effect of all-channel TV receiver legislation on deintermixture preceedings.

Mar. 19——— Commissioner Lee opens Chicago hearing on local TV programing (concluded Apr. 19).

Mar. 26——— Will not grant waivers to requirements that police radio service discontinue fire communications after Oct. 31, 1963.

Mar. 28——— Broadens ban on fraudulent practices by commercial radio operators.

Mar. 29——— Extends TV translator licenses to 3 years.
Court of Appeals upholds FCC denial of FM application for inadequate programing preparation.

Apr. 12——— Approves joint interim operation by competing TV applicants.
Orders forfeiture by AM station for "teaser" broadcasts (first case).

Apr. 17——— Testifies on bill concerning hours of operation of daytime AM stations.

Apr. 18—— Amends industrial rules to reflect 1959 Geneva frequency tolerances.

Apr. 24—— Makes public FCC organization and management survey conducted for Bureau of Budget by management consultants.
Defense Department response on reevaluation of requirement for denial of navigational aid for CONELRAD.

Apr. 25—— Time for comments in AM presunrise proceeding extended indefinitely pending further rulemaking.
Conforms commercial operator requirements to Geneva regulations.

Apr. 26—— FCC to observe effects on radio transmission by Pacific nuclear tests.

Apr. 27—— Amends rules to reflect changes in citizens application forms; Gettysburg office to process classes B, C, and D applications.
Communications Act amendments to (1) eliminate oaths or affirmation on certain documents; (2) permit renewal of safety and special radio station licenses more than 30 days before expiration; and (3) enable radio operator licensing of U.S. nationals in American Samoa, become law.

May 1—— Communications Act amendment providing matching Federal grants to aid construction of noncommercial educational TV stations becomes law.
Announces conclusion of United States-Mexico agreement on VHF–TV broadcasting.

May 2—— Adopts rules for notifying ITU of domestic radio astronomy activities.
Proposes rules for regular public air-ground radio-telephone service; extends tests on limited basis.
Proposes to permit operation of 2 transmitters over single STL channel for FM stereo broadcasting.

May 10—— Places partial freeze on new AM applications pending rules revisions.

May 11—— Communications Act amendment authorizing imposing of forfeitures for nonbroadcast licensee violators becomes law.

May 16—— Makes subsidiary corporations eligible in manufacturers radio service.

May 23—— Initiates investigation of domestic telegraph service.
Names members for proposed Review Board under FCC reorganization.
Broadens eligibility in automobile emergency service.

May 29—— Proposes new aeronautical multicom stations.

May 31—— Holds CBS TV affiliate incentive compensation plan violates rules.
Recommends legislation to permit extension of special temporary authorizations for 60 days (instead of 30) in nonbroadcast services.

June 1—— Warns broadcasters about using "teaser" spots without identifying sponsors.

June 6—— First proceeding against a broadcast station for "double billing."

June 6—— Proposes use of remote pickup broadcast services for war and other emergency.
Proposes change in broadcast operating requirements to permit automatic logging.

June 7—— Modifies Alaskan procedure for interim ship licenses, effective July 1, when Juneau suboffice will be discontinued.

June 8—— Establishes Review Board (effective Aug. 1) under reorganization authority.

June 15—— Authorizes Western Union Telegraph Co. to provide initial TELPAK service.

June 18—— Chicago TV programing report submitted by presiding Commissioner.

June 20—— Proposes revising and consolidating certain forms for noncommercial educational TV and FM stations.

June 27—— Eliminates oaths on common carrier report forms to implement act amendment.

June 29—— First public pay-TV service over air begun by WHCT, Hartford.

ADDENDUM TO LOG HIGHLIGHTS OF 1961 FISCAL YEAR

June 13—— Moves against interfering electronic heaters.

June 15—— Grants first educational TV station for Nation's Capital.
United States-Mexico bilateral agreement on AM broadcasting effective.
Reports to House Antitrust subcommittee on status of action on (1) interstate telephone rates, (2) space satellite communication, and (3) TV broadcasting industry.

June 19—— Recommends legislation to require all-channel TV receivers.
Testifies on relationship between TV crime-violence programs and juvenile delinquency.

June 20—— TV network program inquiry resumes in New York City (continues to June 29).

June 21—— Permits licensing private microwave systems on regular basis on certain frequencies; streamlines application form.
Extends maritime licenses to 5 years.

June 22—— Amends rules to reflect NARBA and United States-Mexico AM broadcast agreements.

June 29—— First broadcast application (FM) denied for inadequate programing preparation.
Moves to revise FM broadcast rules.
Proposes to curb grants of VHF translators to TV stations.
Warns against retaliation against witnesses at New York TV network inquiry hearings.
Proposes rules to standardize receiver certification seal.

June 30—— Commemorates 50th anniversary of Federal radio monitoring and field enforcement.

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