

Federal Communications Commission



30th Anniversary Report For the Fiscal Year 1964

Summarizing three decades of
electronic communication developments
and current happenings in that field

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COMMISSIONERS

Members of the Federal Communications Commission

(As of June 30, 1964)

E. WILLIAM HENRY, *Chairman*
(Term expires June 30, 1969)

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

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

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

FREDERICK W. FORD
(Term expires June 30, 1971)

KENNETH A. COX
(Term expires June 30, 1970)

LEE LOEVINGER
(Term expires June 30, 1968)

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

LETTER OF TRANSMITTAL

FEDERAL COMMUNICATIONS COMMISSION,
Washington, D.C., 20554

To the Congress of the United States:

The Federal Communications Commission herewith transmits its 30th Annual Report for the fiscal year 1964.

The report contains information required by section 4(k) of the Communications Act of 1934, as amended, and 2(b) of section 315; also section 404(c) of the Communications Satellite Act of 1962 concerning certain Commission activities in the field of satellite communication.

Marking the 30th anniversary of the Commission, the report highlights the advances made by the communications industry since 1934. Its current review notes, in particular, the new all-channel television set requirement and other furtherance of UHF development; general broadcast matters, including Commission efforts to make licensees more conscious of their obligations to the public; steps taken to deal with the accelerated growth of land mobile and other nonbroadcast radio services; continuing telephone and telegraph regulatory problems, which now extend to expanding ocean cable facilities; strengthening the Emergency Broadcast System and other national defense functions delegated to the Commission by an Executive order of 1963; and collection of additional revenue for the Government from fees established in 1964, pursuant to Federal directive, for filing applications with the Commission.

Respectfully,

E. WILLIAM HENRY, *Chairman.*

PAST AND PRESENT COMMISSIONERS

| <i>Commissioners</i> | <i>Politics</i> | <i>State</i> | <i>Terms of service</i> |
|--|----------------------|-----------------------|---|
| *Eugene O. Sykes Chairman | Dem | Miss | July 11, 1934-Apr. 5, 1939 July 11, 1934-Mar. 8, 1935 |
| *Thad H. Brown Paul A. Walker Acting Chairman Chairman | Rep. Dem | Ohio. Okla. | July 11, 1934-June 30, 1940 July 11, 1934-June 30, 1933 Nov. 3, 1947-Dec. 28, 1947 Feb. 28, 1952-Apr. 17, 1953 |
| *Norman S. Case Irvin Stewart | Rep. Dem | R. I. Tex | July 11, 1934-June 30, 1945 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 Chairman | Dem | N. Y. | Jan. 17, 1935-July 23, 1937 Mar. 9, 1935-July 23, 1937 |
| T. A. M. Craven | Dem | D. C. | Aug. 25, 1937-June 30, 1944 |
| *Frank R. McNinch Chairman | Dem | N. O. | Oct. 1, 1937-Aug. 31, 1939 Oct. 1, 1937-Aug. 31, 1939 |
| *Frederick I. Thompson James Lawrence Fly Chairman | Dem. Dem | Ala. Tex. | Apr. 13, 1939-June 30, 1941 Sept. 1, 1939-Nov. 13, 1944 Sept. 1, 1939-Nov. 13, 1944 |
| *Ray C. Wakefield Clifford J. Durr Ewell K. Jett Interim Chairman | Rep. Dem. Ind. | Calif. Ala. Md. | Mar. 22, 1941-June 30, 1948 Nov. 1, 1941-June 30, 1948 Feb. 15, 1944-Dec. 31, 1947 Nov. 16, 1944-Dec. 20, 1944 |
| Paul A. Porter Chairman | Dem | Ky. | Dec. 21, 1944-Feb. 25, 1946 Dec. 21, 1944-Feb. 25, 1946 |
| Charles R. Denny Acting Chairman Chairman | Dem | D. C. | Mar. 30, 1945-Oct. 31, 1947 Feb. 26, 1946-Dec. 3, 1946 Dec. 4, 1946-Oct. 31, 1947 |
| *William H. Wills Rosal H. Hyde Chairman Acting Chairman | Rep. Rep | Vt. Idaho | July 23, 1945-Mar. 6, 1946 Apr. 17, 1946 Apr. 18, 1953-Apr. 18, 1954 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 Chairman | Dem | Ind. | Dec. 29, 1947-Feb. 21, 1952 Dec. 29, 1947-Feb. 21, 1952 |
| George E. Sterling | Rep. | Maine. | Jan. 2, 1948-Sept. 30, 1954 |
| *Frieda B. Hemnock Robert T. Bartley | Dem. Dem | N. Y. Tex. | July 6, 1948-June 30, 1955 Mar. 6, 1952 |
| Eugene H. Merrill John C. Doester Chairman | Dem. Rep. | Utah Wis. | Oct. 14, 1952-Apr. 14, 1953 Apr. 15, 1953-Mar. 10, 1960 July 1, 1957-Mar. 10, 1960 |
| Robert E. Lee | Rep. | Ill. | Oct. 6, 1953 |
| George C. McConnaughey Chairman | Rep. | Ohio | Oct. 4, 1954-June 30, 1957 Oct. 4, 1954-June 30, 1957 |
| *Richard A. Mack T. A. M. Craven | Dem. Dem | Fla. Va. | July 7, 1955-Mar. 3, 1958 July 2, 1956-Mar. 25, 1963 |
| Frederick W. Ford Chairman | Rep. | W. Va. | Aug. 29, 1957 Mar. 15, 1960-Mar. 2, 1961 |
| John S. Cross | Dem | Ark. | May 23, 1958-Sept. 30, 1962 |
| Charles H. Krog | Rep. | Mich. | July 19, 1960-Mar. 2, 1961 |
| Newton N. Minow Chairman | Dem | Ill. | Mar. 2, 1961-June 1, 1963 Mar. 2, 1961-June 1, 1963 |
| E. William Henry Chairman | Dem | Tenn. | Oct. 2, 1962- June 2, 1963- |
| Kenneth A. Cox | Dem | Wash. | Mar. 26, 1963- |
| Lee Loevinger | Dem | Minn. | June 11, 1963- |

*Deceased.

Table of Contents

| | Page |
|---|------|
| REPORT SUMMARY..... | 1 |
| 30TH ANNIVERSARY OF FCC..... | 11 |
| COMMISSION..... | 21 |
| Organization chart..... | 20 |
| Commissioners..... | 21 |
| Commission staff..... | 21 |
| Personnel..... | 21 |
| Employee awards program..... | 22 |
| Appropriations and expenditures..... | 22 |
| Electronic data-processing system..... | 23 |
| Application filing fees..... | 23 |
| Hearing examiners..... | 23 |
| Review Board..... | 24 |
| Dockets..... | 24 |
| Authorizations..... | 27 |
| Applications..... | 27 |
| Correspondence..... | 27 |
| Releases and publications..... | 28 |
| Technical assistance to foreigners..... | 28 |
| Alien radio operation..... | 28 |
| LAW AND ENFORCEMENT..... | 30 |
| Legislation..... | 30 |
| Legislation enacted..... | 30 |
| FCC legislative program..... | 30 |
| Other bills affecting the FCC..... | 31 |
| Congressional hearings..... | 31 |
| Litigation..... | 32 |
| Court of appeals decisions of special significance..... | 32 |
| Statistics..... | 35 |
| Enforcement..... | 36 |
| NATIONAL DEFENSE..... | 37 |
| General..... | 37 |
| Emergency Broadcast System..... | 38 |
| National defense emergency authorizations..... | 39 |
| Fallout protection for AM and FM stations..... | 39 |
| FCC Industry Advisory Committees..... | 39 |
| Other emergency planning cooperation..... | 40 |
| FCC Executive Reserve unit..... | 40 |

| | Page |
|--|-------------|
| SPACE COMMUNICATION | 41 |
| General..... | 41 |
| Communications Satellite Corporation..... | 42 |
| Initial stock issue | 42 |
| Commission activity..... | 43 |
| Financing of the Corporation..... | 43 |
| Allocation of stock among authorized carriers..... | 44 |
| Safeguards against stock speculation..... | 45 |
| Procurement policies and practice | 45 |
| "Early Bird" system..... | 46 |
| International developments..... | 47 |
| Space frequency allocation considerations..... | 47 |
| Arrangements for foreign participation..... | 48 |
| Worldwide communication traffic statistics..... | 48 |
| Technical developments..... | 49 |
| Experimental programs..... | 49 |
| Relations with other agencies..... | 50 |
| BROADCAST SERVICES | 51 |
| Enforcement..... | 51 |
| Complaints and other public comment..... | 51 |
| Compliance..... | 51 |
| Sanctions..... | 52 |
| Revocation proceedings..... | 52 |
| License renewal proceedings..... | 53 |
| Forfeiture proceedings..... | 54 |
| Short-term licenses..... | 55 |
| Political broadcasts..... | 56 |
| Broadcast of controversial public issues..... | 58 |
| TV network programing inquiry..... | 60 |
| Multiple ownership..... | 61 |
| Widely held licensee corporations..... | 61 |
| Revision of program reporting form..... | 62 |
| Broadcast advertising..... | 63 |
| Excessive advertising..... | 63 |
| Loud commercials..... | 64 |
| Combination advertising rates..... | 64 |
| Double billing..... | 65 |
| Sponsorship identification..... | 65 |
| "Payola" and "Plugola" inquiry..... | 65 |
| Broadcast station sales..... | 65 |
| Broadcast of horseracing information..... | 66 |
| License renewals..... | 66 |
| Emergency operation..... | 67 |
| Call letter assignment procedure..... | 67 |
| Television (TV) broadcast service..... | 67 |
| All-channel TV receivers..... | 67 |
| Advisory committee on UHF..... | 68 |
| Revision of UHF assignments..... | 68 |
| Subscription TV..... | 69 |
| CATV..... | 70 |
| Inquiry into joint CATV-TV station ownership..... | 71 |
| Further relaxation of technical requirements..... | 72 |

BROADCAST SERVICES—Continued

| | Page |
|---|-------------|
| Television (TV) broadcast service—Continued | |
| Option time..... | 72 |
| CBS-TV affiliates compensation plan..... | 72 |
| Radio astronomy use of Channel 37..... | 72 |
| Educational TV..... | 73 |
| Instructional TV fixed service..... | 73 |
| Airborne TV operation..... | 73 |
| Frequency modulation (FM) broadcast service..... | 74 |
| FM "freeze" lifted..... | 74 |
| FM subsidiary services..... | 75 |
| Educational FM..... | 75 |
| Standard (AM) broadcast service..... | 75 |
| AM "freeze" lifted..... | 75 |
| Use of the 25 Class I-A clear channels..... | 76 |
| International broadcast stations..... | 77 |
| Miscellaneous broadcast services..... | 77 |
| Statistics..... | 77 |
| Current broadcast authorizations..... | 77 |
| Status of broadcast authorizations..... | 78 |
| Broadcasting since 1949..... | 78 |
| Broadcast applications..... | 80 |
| Broadcast industry financial data..... | 82 |
| SAFETY AND SPECIAL RADIO SERVICES..... | 88 |
| General..... | 88 |
| Regulatory developments..... | 88 |
| Frequency relief for land mobile services..... | 88 |
| Channel splitting..... | 89 |
| CATV relay..... | 89 |
| Fee effect on applications..... | 89 |
| Enforcement..... | 90 |
| Marine radio services..... | 90 |
| Safety at sea..... | 90 |
| Safety of Life at Sea Convention..... | 90 |
| Proposed legislation..... | 90 |
| General exemption of certain vessels..... | 91 |
| Individual exemptions from compulsory radio requirements..... | 91 |
| Exemption of public coast stations from listening watch..... | 91 |
| Distress studies..... | 91 |
| Bridge-to-bridge communication study..... | 92 |
| Radio Technical Commission for Marine Services (RTCM)..... | 92 |
| Marine radio communication systems..... | 92 |
| Rule amendments..... | 92 |
| Proposed rule changes..... | 92 |
| Additional coast station facilities established..... | 93 |
| Authorizations of special interest..... | 93 |
| Closure of station..... | 93 |
| Radio communication in Alaska..... | 93 |
| Aviation radio services..... | 93 |
| General..... | 93 |
| Radio Technical Commission for Aeronautics (RTCA)..... | 94 |
| International aviation..... | 94 |
| New developments and rule changes..... | 95 |

| SAFETY AND SPECIAL RADIO SERVICES—Continued | Page |
|---|-------------|
| Public safety radio services..... | 95 |
| General..... | 95 |
| New developments and rule changes..... | 95 |
| Disaster communications service..... | 96 |
| Land transportation radio services..... | 96 |
| General..... | 96 |
| New developments and rule changes..... | 96 |
| Industrial radio services..... | 97 |
| General..... | 97 |
| New developments and rule changes..... | 97 |
| Citizens radio service..... | 97 |
| General..... | 97 |
| New developments and rule changes..... | 98 |
| Amateur radio service..... | 98 |
| General..... | 98 |
| New developments and rule changes..... | 98 |
| Statistics..... | 99 |
| Stations in safety and special radio services..... | 99 |
| Transmitters in safety and special radio services..... | 100 |
| Applications in safety and special radio services..... | 101 |
| Enforcement sanctions in safety and special radio services..... | 102 |
| COMMON CARRIER SERVICES..... | 103 |
| Domestic telephone..... | 103 |
| Highlights..... | 103 |
| Telephone services and facilities..... | 104 |
| Tariff docket cases..... | 107 |
| Telpak..... | 107 |
| WATS..... | 107 |
| WADS..... | 107 |
| TWX..... | 107 |
| Private line..... | 108 |
| Thornell Barnes Co..... | 108 |
| Special construction charges..... | 108 |
| Press rates..... | 108 |
| New tariffs..... | 108 |
| Private-line tariffs..... | 108 |
| Special construction charges..... | 108 |
| United States-Japan cable tariffs..... | 109 |
| Tariff revisions..... | 109 |
| Depreciation..... | 109 |
| Other subjects..... | 109 |
| Investment tax credits..... | 109 |
| Charitable contributions..... | 110 |
| Original cost accounting..... | 110 |
| Telephone set losses..... | 110 |
| Relief and pensions..... | 110 |
| Miscellaneous accounting matters..... | 111 |

| COMMON CARRIER SERVICES—Continued | Page |
|--|------------|
| Domestic telegraph..... | 111 |
| Highlights..... | 111 |
| Telegraph services and facilities..... | 112 |
| Modernization and expansion..... | 112 |
| Expanding services..... | 113 |
| Extension of lines and curtailment of service..... | 114 |
| Speed of service..... | 114 |
| Domestic telegraph rates and tariffs..... | 115 |
| Message service..... | 115 |
| Public Telex service..... | 115 |
| Tel(T)ex service..... | 115 |
| Tariff schedules..... | 115 |
| Other regulatory matters..... | 115 |
| Investigation of domestic telegraph service..... | 116 |
| Domestic common carrier radio facilities..... | 117 |
| Domestic public land mobile radio service..... | 117 |
| Common carrier microwave radio services..... | 117 |
| Domestic common carrier application form..... | 119 |
| International telegraph and telephone..... | 119 |
| General..... | 119 |
| Financial position of industry..... | 119 |
| Western Union cable divestment..... | 120 |
| Reorganization of American Cable & Radio Corp..... | 120 |
| International rate study..... | 120 |
| Overseas leased channel cases..... | 120 |
| Ocean telephone cables..... | 121 |
| Use of telephone facilities by telegraph carriers..... | 121 |
| Use of high-frequency bands..... | 122 |
| International radio circuits..... | 122 |
| Rates for international services..... | 122 |
| Pan American complaint..... | 123 |
| Depreciation..... | 123 |
| Tariff schedules..... | 123 |
| Other regulatory matters..... | 123 |
| Statistics..... | 123 |
| General..... | 123 |
| Telephone carriers..... | 124 |
| Domestic telegraph carrier..... | 125 |
| International telegraph carriers..... | 126 |
| Overseas telegraph and telephone traffic..... | 126 |
| Common carrier radio authorizations..... | 130 |
| Common carrier applications..... | 131 |
| FIELD ENGINEERING..... | 132 |
| General..... | 132 |
| Field office enforcement..... | 132 |
| Broadcast service..... | 133 |
| Business and industry..... | 133 |

FIELD ENGINEERING—Continued

| | Page |
|---|-------------|
| Marine..... | 134 |
| Radio operator licensing..... | 134 |
| Administration of operator requirements..... | 134 |
| Interference investigation..... | 135 |
| Certification of ISM equipment..... | 136 |
| Unlicensed stations..... | 137 |
| Monitoring..... | 137 |
| Monitoring facilities..... | 138 |
| Direction finders..... | 139 |
| Network intercommunication..... | 139 |
| International radio interference..... | 139 |
| Tropical field strength recording..... | 140 |
| Search and rescue..... | 140 |
| Enforcement of class D citizens rules by monitoring..... | 140 |
| Contractual services for Federal agencies..... | 141 |
| Technical enforcement facilities..... | 141 |
| Engineering measurements cars..... | 141 |
| Investigative facilities..... | 142 |
| FM-TV enforcement units..... | 142 |
| Upper spectrum engineering measurements units..... | 142 |
| Antennas..... | 143 |
| Recruitment and training of engineering personnel..... | 143 |
| Civil defense and radiological monitoring..... | 143 |
| Field engineering offices and monitoring stations..... | 144 |
| Statistics..... | 144 |
| Inspection statistics..... | 145 |
| Investigative statistics..... | 145 |
| Monitoring statistics..... | 146 |
| Commercial radio operator licenses..... | 146 |
| Applications processed by Antenna Survey Branch..... | 147 |
| Applications referred to Federal Aviation Agency for special aeronautical study..... | 147 |
| RESEARCH AND LABORATORY..... | 148 |
| Research..... | 148 |
| Ionospheric propagation..... | 148 |
| VHF and UHF propagation..... | 149 |
| Research reports..... | 149 |
| Experimental radio services..... | 149 |
| Proposed ban on electronic eavesdropping..... | 150 |
| Nonlicensed radio frequency devices..... | 151 |
| All-channel TV receivers..... | 152 |
| Technical standards studies..... | 152 |
| Type acceptance..... | 153 |
| Laboratory..... | 153 |
| Research and development..... | 153 |
| Assistance to other Commission programs..... | 154 |
| Calibration of measuring equipment..... | 155 |
| Type approval..... | 155 |
| Tests of restricted radiation devices..... | 155 |
| Spectrum occupancy and automated monitoring..... | 155 |

| | Page |
|---|-------------|
| FREQUENCY ALLOCATION AND USE | 157 |
| General..... | 157 |
| National frequency allocations..... | 157 |
| National frequency coordination..... | 158 |
| National non-Government frequency lists..... | 158 |
| International frequency allocations..... | 159 |
| Radio astronomy..... | 159 |
| Ocean data service..... | 159 |
| "Panel of experts"..... | 160 |
| International frequency registration..... | 160 |
| International frequency coordination..... | 160 |
| International interference and infractions..... | 161 |
| International frequency usage data..... | 162 |
| International conferences..... | 162 |
| Call signs..... | 163 |
| APPENDIX | 164 |
| FCC log highlights of 1964 fiscal year..... | 164 |

Report Summary

1964 vs. 1934

With radio communication via satellite undergoing practical test and earthbound radio bursting its spectrum seams, the regulatory burdens of the Federal Communications Commission have reached unprecedented proportions. The FCC's 30th year saw nearly 1.5 million radio stations under its jurisdiction which, by a coincidence, is almost 30 times the number it started with. Also, there are nearly 2.9 million radio operator authorizations (commercial and amateur), or about 45 times as many as in 1934.

Today some 65 different types of radio services aid businesses and individuals, expedite movement of vehicles on land, further navigation on water and in the air, and contribute to the protection of life and property. In the international field, ocean telephone cables are multiplying and the era of satellite relay of telephone and telegraph communication is more imminent. Under new and expanded national defense responsibilities, the FCC must coordinate all these communication facilities with the preparedness program.

In three decades the number of applications received by the Commission has multiplied 100 times—from less than 10,000 in 1934 to almost 1 million in 1964. This does not include tariffs, pleadings, and other filings.

Further, electronic usage has reached a point where the Commission, besides having to curb interference between 5 million fixed, portable, and mobile transmitters, must also control the emissions of countless devices which, though not used for communication purposes, can, and do, interfere with authorized radio reception. The need for this is illustrated, in particular, by the constant threat of disrupting services on which safety of life and property depend.

SPACE COMMUNICATION

Satellite communication is one of the most spectacular electronic developments of all time. Besides lifting the horizon for long-distance telephone and telegraph traffic it has a particular glamor for the public because of its intercontinent live TV relay possibilities.

United States initiation of a global satellite communication system neared reality under joint effort of the Government agencies concerned. International agreement was reached on the radio frequencies to be used, and negotiations were nearly completed for an "Early Bird" system being constructed by the Communications Satellite Corporation for synchronous orbit over the North Atlantic to test voice, TV, data, and other communication with Western Europe.

Meanwhile, "Telstar", "Relay" and "Syncom" satellites provide data useful to the development of space communication. A third "Syncom" satellite was launched August 19, 1964, to hover over the Pacific for communication across that ocean. One of its first experiments was the relaying of live telecasts from the Tokyo Olympic Games.

The Communications Satellite Corporation made an initial offering of \$200 million in stock, at \$20 a share—half for communication carriers and half for the public.

Under responsibilities delegated to it by the Communications Satellite Act of 1962, the Commission authorized the Corporation to borrow \$1.9 million for initial financing before the stock issue, approved applications by communication carriers for authority to purchase stock, and adopted rules to prevent carriers from speculating in this stock, also to insure effective competition, including opportunity for small busines, in procurement requirements for satellite communication facilities.

NATIONAL DEFENSE

In compliance with a 1963 Executive Order, the Commission strengthened its Emergency Broadcast System to provide 63 origination points throughout the Nation for the President to speedily reach the public over this linkage of AM stations in event of enemy attack or other national emergency. This is to meet White House and civil defense requirements.

The system has the cooperation of the national press teletype facilities to transmit official emergency notifications. There is also participation by telephone companies in arrangements to connect unaffiliated broadcast stations to networks to receive essential messages.

National Defense Emergency Authorizations are also issued by the FCC to selected FM and TV (aural facilities only) stations to participate in supplemental FM State and regional defense networks. Many of the cooperating AM and FM stations have built fallout shelters with funds provided by the Office of Civil Defense.

In discharging these and other national defense functions assigned it by the President, the FCC is aided by its own national, regional, and State industry advisory committees. The Commission, in turn, participates in phases of national preparedness planning by other

Federal agencies which affect, in addition to broadcast, Safety and Special Radio Services, and communication common carrier operations in time of emergency.

BROADCAST

Enforcement

In enforcing the law's requirement that broadcast licensees operate in the public interest, the Commission revoked the licenses of 3 stations, denied renewals or original licenses to 5 others, fined or issued liability notices to 28 stations, put 2 stations on short-term renewals, and closed the year with 22 additional stations in license revocation or renewal proceedings.

More than 26,000 expressions of public opinion in broadcast matters were received during the year. About half of them were complaints. Of the latter, approximately 43 percent concerned advertising practices and 33 percent dealt with programing.

Advertising

The Commission terminated its proposal to adopt rules to limit commercial time but warned that it would give closer scrutiny of station promises vs. performance on a case-by-case basis. Meanwhile, the Commission is trying to resolve technical and other problems in determining what can be done about "loud" commercials. It proposed curbs on "double billing," took action against violators of the sponsorship identification requirements, and in late 1964 began an inquiry into "payola" and "plugola" practices.

Political Broadcast

It experienced no serious problems in enforcing the political broadcast (section 315) requirements during fiscal 1964, hence it did not make any recommendations to Congress on that subject. However, it is requiring stations to report their political broadcast activities in the 1964 campaigns, as in 1960 and 1962. In July 1964 it issued a supplement to its 1962 statement on "Use of Broadcast Facilities by Candidates for Public Office."

Fairness Doctrine

As a guide for the broadcaster and public both, the Commission, shortly after the close of the fiscal year, published a pamphlet on "Applicability of the Fairness Doctrine in the Handling of Controversial Issues of Public Importance," which includes reprint of its 1949 report on "Editorializing by Broadcast Licensees" and a history of the fairness doctrine.

Program Reporting Forms

Oral and written comments on proposed revised and separate program reporting forms for TV and radio applicants were under Com-

mission consideration, also results of tests of the forms made by groups of broadcasters. The revisions are intended to give the Commission more information about a station's proposed and actual programming.

Monopoly

As further curbs against monopoly, the Commission tightened its rules on overlap of commonly owned commercial stations, and in September 1964 instituted an inquiry and rulemaking to insure disclosure of ownership of publicly traded stock of corporate broadcast licensees.

Gambling

Proposed rulemaking to govern the broadcast of horseracing information was terminated, but the Commission will consider, at renewal time, certain practices by individual stations in that connection, particularly broadcasts which can aid illegal gambling activities.

Sales

The calendar year witnessed the highest prices yet paid in broadcast transactions. WIIC(TV), Pittsburgh, was sold for \$201½ million (the largest sum for a single station), and Transcontinent Television Corporation disposed of 11 stations for \$381½ million (the largest amount for a group sale).

TV Network Inquiry

The Commission is considering further recommendations by its staff study of TV network programming practices. They relate, in particular, to undue and unnecessary restraints on competition in network TV program production and procurement, and clarification of network responsibility for programming in relation to affiliates.

TV Broadcast

UHF.—The TV year was marked by the all-channel set requirement going into effect April 30, 1964. Pursuant to a 1962 law, enacted at the request of the FCC, it is intended to promote greater utilization of the UHF channels, the only avenue for TV expansion. Additionally, the Commission proposed a revision of the UHF assignment table to provide more channels for local UHF service.

CATV.—The Commission took various steps designed to protect locally originated TV service where its continuation might be jeopardized by CATV competition. These included the consideration of legislative proposals to provide authority to regulate CATV systems directly, rulemaking proceedings concerning program duplication restrictions on microwave relay of programs to the CATV systems and an inquiry into the cross-ownership of CATV systems and TV broadcast stations.

Pay-TV.—A special committee of Commissioners was appointed to study pay-TV developments by wire as well as over the air. Subscription service by cable (which is not licensed by the FCC) began in Los Angeles and San Francisco, and similar operations are proposed in Atlanta, Miami, Dallas, and Houston. A Denver TV station relinquished its FCC authorization to test toll-TV on the air, which leaves Hartford (WHCT) with the only present such broadcast operation, and no applications are pending.

Educational TV.—The Commission gave additional aid to educational TV by providing an auxiliary service (one not using TV channels) to bring instructional programs to schools. It asked for comments on a petition to make airborne ETV operation a regular service, which presents channel allocation and other technical problems. It authorized the first ETV station for the Los Angeles area, also the first state-wide educational translator system for Utah. The number of TV channels reserved for education increased to 350. Fourteen cities each had two ETV channel allocations.

Aural Broadcast

The “freezes” on applications for new and major changes in FM and AM stations were lifted. A table of FM channel assignments was adopted to insure future widespread distribution of FM facilities, and a limitation was placed on program duplication by jointly owned FM and AM stations.

About 400 FM stations are obtaining additional revenue by furnishing a subsidiary background music service to paying customers, and some 275 FM stations are engaged in stereophonic programming (dual transmission and reception for more realistic effect).

The “freeze” on international broadcast stations licensed by the FCC (now three) was continued pending action to revise the covering rules. (Most overseas broadcast from the United States is over owned or leased facilities of the “Voice of America.”)

SAFETY AND SPECIAL RADIO SERVICES

One of the most pressing problems receiving Commission priority is to find more frequencies to accommodate the mounting use of mobile operations in the safety and special services. In addition to formal proceedings looking toward relief, the Commission established a special advisory committee, representative of users and manufacturers, which is making an intensive study. In addition, and because equipment development makes it possible, the FCC has provided additional channels by splitting (halving) ones previously needed. Voluntary frequency coordination procedures by representative groups in different services aid applicants to select appropriate channels.

The fastest growing nonbroadcast service, numerically, is the Citizens Radio Service, which now holds about 700,000 authorizations. It also has the largest number of transmitters—nearly 2.2 million. As a result, the citizens group accounts for a large portion of the Commission's enforcement problems. Many individuals enjoying citizens radio privileges are unskilled in radio operation and tend to ignore the rules. It has been necessary for the Commission to review its policies and regulations concerning this service in relation to public interest requirements.

The next largest category of authorizations is amateur. Because of their knowledge of and interest in radio, the some 265,000 self-styled "hams" are able to largely police themselves.

Third in authorizations are the more than 161,000 marine stations for ship-to-ship and ship-to-shore communication.

However, the industrial services with about 125,000 authorizations to aid manufacturing, business, and kindred pursuits, have the second largest number of transmitters—over 1.1 million.

More than 107,000 authorizations in the aviation services cover the use of over 172,000 transmitters on aircraft and at ground stations serving them.

Police, fire, local government, and other public safety agencies hold almost 47,500 authorizations for the operation of about 510,000 transmitters.

Though having only about 15,000 authorizations, the land transportation services represent the use of nearly 400,000 transmitters. That is because of systems having many radio-directed vehicles, such as taxicabs, buses, trucks, etc.

COMMON CARRIER

Telephone

In line with its continuing review of telephone interstate operations, the Commission, after conferences with the American Telephone and Telegraph Co., in late 1964 announced that the company would reduce its interstate telephone rates by about \$100 million annually, the largest such reduction to date.

Reduced rates introduced in 1963 for "After 9" station-to-station telephone calls resulted in stimulation of calling and shifts in traffic to the new lower rate classifications. These developments resulted in the public paying \$79 million less for long-distance service after making allowances for certain increases in person-to-person rates.

Tariffs embodying volume rates indicate a new trend and pose certain regulatory problems.

Total operating revenues of the domestic telephone industry exceed \$11 billion, of which nearly \$10 billion is to the Bell System. The lat-

ter's total earnings reached \$1.7 billion, representing a 7.5-percent return on a net investment of \$22.1 billion.

More than 86 million telephones are in use, of which over 70 million are in the Bell System. Daily telephone conversations average nearly 330 million, including nearly 260 million over Bell lines.

More than 81 percent of Bell telephones can dial long-distance calls direct and over 98 percent can receive direct-distance dialing. Touch-tone (pushbutton) dialing has been introduced.

Picturephone service, which enables users to view each other while they converse, is now in use between New York, Chicago, and Washington at specified public stations.

Of 60 million circuit miles of Bell long-line message telephone lines, nearly 36 million are radio and 20 million are coaxial cable.

The Bell System is completing construction of its blast-proof transcontinental cable between New York City and Mojave, Calif.

Mergers and consolidations have reduced the number of independent telephone companies to less than 2,700.

Telegraph

The first phase of the Commission's inquiry, initiated in 1962, into the future of the domestic telegraph industry was completed. Hearings were held and additional data obtained which will enable a report to be made to the FCC's Telephone and Telegraph Committees which, in turn, will make recommendations to the Commission.

Despite an 8-percent decline in public message volume, the gross landline telegraph revenue of The Western Union Telegraph Co. reached a new high of nearly \$287 million. Communications earnings before Federal income tax increased to \$20.9 million in 1963 as compared with \$7.4 million in 1962.

Western Union was permitted to increase message rates to offset, in part, new wage increases for its employees. Its continued effort to effect economies is reflected in the fact that its company or agency-operated offices declined to nearly 15,000 and the number of its employees to some 28,000.

However, Western Union is proceeding with the largest modernization and plant extension program in its history. Its gross plant value increased to \$600 million.

During the year Western Union began service over its new transcontinental microwave system between New York and the west coast, and links to other eastern cities were under construction; it completed installation of the world's largest digital data communications system for the military services; will furnish the largest private-line record system for the Federal telecommunications network linking all civilian agencies of the Government; placed in service the first private-wire automatic telephone system connecting the Philadelphia, Baltimore, and

Washington stock exchanges, and expanded its teleprinter exchange services throughout the Nation.

International

Because of the increased importance of international communication, especially in view of the prospect of satellite relay (see separate reference), the Commission is reviewing present rates for telegraph and telephone services between this country and foreign points.

The Commission ruled that the United States interest in a proposed additional submarine telephone cable to Europe should be owned jointly by all U.S. oversea carriers—record and voice—which desired to participate in such ownership in proportion to investment. In addition, provision of leased circuits for the new alternate voice-record service was restricted to the record carriers, with A.T. & T. being permitted to retain its existing leases.

The fact that the high-frequency bands used for international radio communication are congested and susceptible to sunspot, seasonal, and other disturbances has revived interest in ocean cables. In consequence, submarine telephone cables laid in recent years are being augmented. During fiscal 1964 another such cable to Europe was put into operation and telephone service to Japan was opened. Additional telephone cables are planned in the Pacific and Caribbean areas. All present and future telephone cables are or will be also used for telegraph services.

Western Union's transatlantic telegraph cable system was sold to a new and different corporation which is operating it under the name of Western Union International, Inc.

Telegraph contact is now possible with practically any inhabited place on the globe, and there is telephone service to about 180 overseas points. In addition, telegraph and telephone communication is available with ships at sea all over the world.

FIELD ENGINEERING

The Commission patrols the radio spectrum with 18 interconnected monitoring stations. They monitor the airwaves to detect violations and unauthorized operations, locate areas—both at home and abroad—where interference originates, furnish bearings for ships and planes in distress, and obtain frequency occupancy and other technical data for FCC use.

FCC engineering services are performed at the "grass roots" level by 24 field and 4 suboffices. This work includes technical enforcement, such as tracking down causes of interference and locating illegal operations, inspecting all classes of radio stations, and checking antenna proposals (over 26,000 during the year) for air safety requirements.

During the year 28 unlicensed stations trying to operate in the AM broadcast band were closed down. The most prolific source of unlicensed radio operation was in the Citizens Radio Service. About 500 unlicensed stations were located, investigated, and enforcement action initiated during the year.

About 43,000 complaints of interference to radio services were received. Field offices made 1,200 major interference investigations, giving priority to those endangering communication on which safety of life and property depend. Many required use of mobile and portable equipment; some consumed as much as 5 days travel; several involved "listening in" from aircraft. In routine cases the field engineers were assisted by nearly 800 TV and other cooperative interference committees throughout the country.

RADIATION AND RESEARCH

The Commission proposed rules to ban the use of electronic eavesdropping devices. In so doing, it pointed out that "bugging" of private conversations is not only contrary to the public interest but is an added source of potential interference to radio communication services.

The overall problem of radio noise is being made more acute by the growing number of industrial and household devices which radiate energy. Since regulation at the point of manufacture appears to be the only effective control, the Commission requested such legislative authority.

During the year, it type-approved or type-accepted more than 500 models of transmitting and other equipment prior to production and use.

In order to meet increasing demands for authorizations to test new equipment and techniques, the Commission is revising its experimental radio rules. A major problem is finding frequencies for all the projects proposed.

Data obtained from the New York City UHF TV project of 1962-63 were useful in dealing with technical questions arising from the introduction of all-channel receivers and other TV matters. A special study is being made of the feasibility of operating land mobile systems on frequencies above 1000 Mc. Also underway is inquiry of co-channel interference to nighttime service of AM broadcast stations. Studies were conducted in connection with the development of standards for new communication systems and improvements in existing ones.

FREQUENCY ALLOCATION

Besides providing frequencies for satellite communication, the 1963 Geneva Conference gave further interference protection to radio-

astronomy activities throughout the world, particularly in the Western Hemisphere.

In response to United Nations request, the International Telecommunication Union proposed frequency allocations to meet oceanographic communication needs. The FCC responded by proposing to establish a domestic Ocean Data Service.

ITU recommendations for radio spectrum economy through the use of single sideband radiotelephone equipment, in lieu of double sideband, was implemented by new FCC rules pertaining, in particular, to the maritime mobile service.

The Commission terminated an inquiry into frequency allocations to the domestic radio services between 25 and 890 Mc by determining that TV needs its 82 channels and that nonbroadcast services should strive for more efficient use of the spectrum below the microwave region.

During the year, the Commission resolved 322 cases of international interference involving domestic stations and sent abroad over 5,000 reports of infractions by foreign stations.

It participated in 28 international conferences and engaged in preparatory work for 44 future sessions.

COMMISSION

There was no change in Commission membership during the year. Commissioner Ford was reappointed for a second 7-year term.

The Commission operated with a budget of about \$15.6 million and had some 1,450 regular employees.

Its electronic computer began processing citizens and amateur radio applications.

In the first 3½ months of charging fees for application filings, the Commission collected almost \$1 million.

It was a party to 87 Federal court cases. The appeals courts affirmed the Commission in 31 cases, reversed it in 6, and dismissed or otherwise disposed of 21 cases. The Supreme Court denied five petitions for certiorari.

Forty-one bills affecting the FCC were introduced in Congress, on which the Commission testified or commented.

New legislation included provision for authorizing alien amateurs to operate in this country under reciprocal arrangement.

Legislation proposed by the Commission looked to removing the excise tax on all-channel TV receivers, compulsory painting and illumination of abandoned radio towers, and authority to regulate the manufacture and sale of devices that interfere with radio communication.

30th Anniversary of FCC

June 19 marked the 30th anniversary of the Federal Communications Commission. It was on that day in 1934 that the Communications Act became law and created the FCC for unified regulation of non-Government communication by radio, wire, and cable.

Subsequent development in radio usage has been phenomenal. There has been expansion in all fields and many new services have come into existence. The number of FCC radio authorizations collectively (stations and operators) has more than multiplied by the number of its years, now being about 40 times greater than it was 30 years ago.

One of the outstanding telecommunications events of all time has been the extension of international communication into outer space by means of satellite relay.

Microwave has become the workhorse of the radio industry, being used increasingly by a variety of communication services.

Coaxial cable and microwave have largely displaced wire lines for domestic telephone and telegraph services, the operations of which are now largely automatic.

New ocean cables carry both verbal and printed communication.

The Nation is served by three types of broadcast—AM, FM, and TV (the latter including color), and pay-TV is under test. Noncommercial educational broadcast services have made great strides.

Two-way land mobile radio communications systems are having a mushroom growth both in number and purposes.

Thirty years ago the radio spectrum was limited as to usage. Development of equipment and techniques has provided more operating space but the demand for frequencies still exceeds the available supply.

The new importance of electronic communication to the Nation's defense is reflected in added responsibilities given the Commission for readying the services under its jurisdiction to deal with national emergency situations which may arise.

Some highlights of the past three decades are briefed in the following subject groupings:

SATELLITE COMMUNICATION

As early as 1957 the Commission recognized the need for world agreement in order to provide spectrum space for future global satel-

lite communication and collaborated in preparing such proposals for the 1959 Geneva Conference. This culminated in the 1963 Geneva session allocating frequencies for that purpose.

The Commission cooperated with the National Aeronautics and Space Administration to test communications satellite feasibility for space relay of telegraph and telephone communication, including TV programs.

Further, in accordance with requirements of the Satellite Act of 1962, it has taken steps to promote the early establishment of such a system which will be financed and operated by the Communications Satellite Corporation.

NATIONAL DEFENSE

Its creative act requires the Commission to harness radio and wire facilities to the national defense. Another section of that statute gives the President authority to regulate such services in a national emergency and he has, from time to time, delegated many of these functions to the FCC.

Such assigned duties were discharged by the Commission during World War II.

At the request of the Department of Defense, the Commission in 1950 established a broadcast system to alert and advise the public in a national emergency, one that would function so as to prevent it being used as a navigational guide by an enemy. Since the latter consideration is no longer needed, the present Emergency Broadcast System is a revision and augmentation of the first one.

In 1951 the emergency powers of the President were extended to the control of electromagnetic radiation, which he also delegated to the FCC. An Executive order of 1963 extended greatly the scope of the Commission's responsibilities in national defense matters concerning all types of electronic communication and apparatus.

BROADCAST

In 1934 the only broadcast service was AM operated. Both FM and TV were still in the experimental stage. Seventeen experimental TV stations were operating in 1937. The first President seen on video was Franklin D. Roosevelt when he opened the New York World's Fair in 1939. The following year saw the initial televising of major party political conventions.

Regular TV broadcast service began in 1941. Because the VHF channels were not sufficient to take care of TV's growth, the Commission, in 1952, added UHF channels. TV translator service started in 1956.

UHF development is spurred by a 1962 law, sponsored by the FCC, which requires that all new TV receivers be equipped for UHF as well as VHF reception. The changeover date was April 30, 1964.

The present color TV transmission standards were adopted in 1953.

In 1950 the Commission authorized experimental subscription-TV transmission. Two years later it proposed public trial of pay-TV over the air and, in 1959, invited commercial TV stations to apply for 3-year tests. The first such grant was made in 1961 (Hartford).

Noncommercial educational TV broadcast dates from 1952. Test of airborne educational TV operation started in 1959. A 1962 law permits matching Federal grants (by another agency) to construct new educational TV stations.

As TV has grown, so has its transmitting towers. TV antennas over 1,000 feet high are nearing the 150 mark. One (2,063 feet above ground) is, temporarily, the world's tallest manmade structure.

Regular FM broadcast service (educational as well as commercial) began in 1941. Four years later FM broadcast was moved to its present band.

FM stations began subsidiary "background music" service to business and other customers in 1955, and started "stereophonic" programming to the public in 1961.

Broadcast station growth since 1935 has been spectacular. At that time there were slightly more than 600 authorized stations (all AM). Today there are over 10 times that number of authorized AM, FM, and TV stations (exclusive of satellites and auxiliaries).

This country now has more aural broadcast receivers than people, and almost three times as many radio sets as it has automobiles. In addition there are an estimated 60 million TV receivers.

News broadcast reached a peak in the 1963 coverage of President Kennedy's assassination and its immediate aftermath, for which regular programs and commercials were canceled voluntarily.

Some major broadcast regulatory actions during the Commission's three decades were:

"Chain broadcasting" regulations, adopted in 1941 to further competition in broadcasting, required NBC to dispose of one of its then two networks.

In 1943 a ban was placed on dual ownership of like broadcast stations in the same service area and, in 1953, a limit of seven AM, seven FM, and five TV stations was placed on common ownership throughout the country as a whole. In 1954 the maximum for TV stations was raised to seven, providing at least two are UHF.

A 1949 policy permits broadcast stations to editorialize providing they offer time for airing opposing views.

A 1959 amendment to the act exempts newscasts from the political equal-time requirement but does not relieve broadcasters from affording opportunity for the discussion of conflicting views on public issues.

One of the results of an inquiry into networking practices was issuance, in 1960, of a Commission policy on programing.

The act was amended in 1960 to outlaw "payola" and "fixed quiz" shows, define sponsorship requirements; also enable the FCC to fine or give short-term licenses to violators not warranting revocation action.

Local live TV programing was the subject of Commission public inquiries in Chicago (1962) and Omaha (1963).

SAFETY AND SPECIAL RADIO SERVICES

From less than 50,000 licensees in 1934, the safety and special services now constitute the largest group of radio users, having increased approximately 28-fold.

Their more than 40 categories of services embrace protection of life and property, aiding air and water navigation, directing the movement of land vehicles, serving commerce and industry generally, expediting State and local government business, and furnishing communication facilities for individuals.

Marine radio usage—which antedates FCC—is playing an increasing role in water safety, navigation, and other communication. In 1937 Congress made radiotelegraph installations mandatory on large oceangoing vessels. Radiotelephone service on the Mississippi River started in 1941. A 1956 law requires vessels, regardless of size, carrying more than six passengers for hire in U.S. tidewaters to be radiotelephone-equipped as an added safety measure.

Police radio has developed tremendously since the days one police department pioneered with the significant call letters "KOP." Radio for firefighting is now a separate service. The local government radio service was established in 1958. Frequencies for forestry conservation were first allocated in 1939. The special emergency radio service dates from 1938.

Aviation radio got its start before the FCC was created. It now provides many ground and air aids to private as well as passenger and cargo planes. Also, passengers in aircraft can now be connected with the land telephone system.

The industrial radio services have become an economic tool to manufacturing and other business, including production, distribution and servicing. This group had its origin in a service for industry in 1949, which was joined by adjuncts for business and manufacturers in 1958.

Land transportation utilizes radio to control the movement of trains, buses, trucks, and taxicabs, also to furnish automobile emergency

assistance. The railroad radio service was activated in 1945 and the taxicab radio service began regular operation in 1949.

Personalized use of radio is reflected in the amateur and citizens services. The former, which is almost as old as radio itself, provides a hobby for young and old, also a means for obtaining experience in radio operation. Although much newer (being authorized in 1949), citizens radio has become the largest single service, being used for a great variety of short-range personal and occupational communication needs, including signaling and remote control of devices.

COMMUNICATION COMMON CARRIERS

The past 30 years have witnessed the amplification and automation of telephone and telegraph facilities, including development and widespread use of coaxial cable and microwave systems, and overseas telephony by cable as well as by radio. All segments of the industry have kept pace with electronic progress in services, equipment and operating techniques.

Perhaps the most significant happening is the advent of communication via satellites. (See separate chapter.)

In 1934 the United States had about 17 million telephones. Today the number is around 86 million, which is almost half of the world's total. Most telephones in this country are now dial operated and, in some places, there is pushbutton calling.

Telephone service extends to ships, planes, trains, and motor vehicles. The telephone coaxial cable and microwave system is also used to relay radio and TV programs and printed correspondence.

Thirty years ago radiotelephone service was possible with about 60 foreign countries; today three times that number are within voice contact with the United States.

The first transatlantic telephone cable was opened in 1956 and others have been added, are under construction, or are proposed. These cables also provide circuits for non-word traffic.

When the FCC was established there were two competing domestic wire telegraph companies—Western Union and Postal. They merged in 1943. One of the conditions of the merger was that Western Union dispose of its transatlantic telegraph cables. This was finally accomplished in 1963.

Other major telecommunications highlights of the past 30 years (excluding those of 1963–64 noted elsewhere in this report) included:

1935—First telephone call made around the world using wire and radio circuits.

1936—Direct radiotelephone circuit to Paris ended previous relaying of foreign calls from the United States through England.

- 1937—Mechanical telegraph message switching began.
- 1939—Facsimile added to telegraph service.
- 1941—Initial telephone service over coaxial cable.
- 1942—Transcontinental telephone cable opened.
- 1943—Philadelphia last large city to abandon rival telephone systems.
- 1945—First domestic public point-to-point microwave service authorized.
- 1946—Public land mobile radiotelephone and rural subscriber radiotelephone services started on experimental basis.
Telephone recording devices authorized subject to "beep" warning to users.
- 1947—Repeal of Post Roads Act ended special telegraph rates for Federal Government.
- 1949—Regular public land mobile two-way radiotelephone service and public one-way signaling (radio paging service) started.
- 1950—International teleprinter exchange service (Telex) inaugurated.
First submerged "repeatered" type submarine telephone cable installed to Cuba.
- 1951—Coast-to-coast public point-to-point microwave radio service opened with TV coverage of Japanese peace conference in San Francisco.
- 1952—Automatic telephone answering and recording devices put in service.
- 1956—First transatlantic telephone cable opened.
Rules governing domestic public radio services revised to include land mobile, rural radio, and point-to-point microwave radio services on a regular basis.
- 1957—International fixed public microwave system using tropospheric scatter opened to Cuba; capable of TV transmission.
Developmental tests authorized for domestic public air-ground radiotelephone system.
Submarine telephone cable to Hawaii opened.
- 1962—Tropospheric scatter domestic public point-to-point microwave system authorized between States of Alaska and Washington.
First transatlantic TV transmission made via Telstar satellite.

TECHNICAL PROGRESS

Many of today's radio services did not exist in 1934. Technical advances since then have made new communication facilities possible. In consequence, the United States has become the world's largest user of radio, with services actually extending "from the cradle to the grave."

As late as 1940 the Commission reported that the then dearth of frequencies precluded private radio usage (except amateurs). Apparatus then was able to utilize spectrum space only up to 300 megacycles. New and improved equipment has since extended the usable radio ceiling to 40 gigacycles (40,000 megacycles). More economical use of crowded parts of the radio spectrum is being achieved by such

technical refinements as "split channel," "single sideband," and "offset carrier" operation. However, there is still a housing shortage for certain services and channels must be shared where possible.

Many technical developments came from the experimental radio services which the Commission established in 1939. World War II needs sparked many others. Since 1947 radar and kindred devices have, in particular, aided navigation. The transistor, perfected by Bell Telephone Laboratories in 1948, made simpler and more compact transmitting and receiving equipment possible.

Interference caused by emissions from radio frequency devices prompted the Commission in 1947 to limit radiation by electronic non-communication apparatus. In 1958 it adopted rules to protect radio astronomy from interference.

In an effort to minimize interference before it starts, the Commission passes upon certain equipment prior to production and distribution. Type approval is given after tests at the FCC laboratory (established in 1945), while type acceptance is based upon test data submitted by the manufacturer.

Though three decades have elapsed, the following observation of the Commission in 1934 is as true today as it was then, but to a greater degree:

There are no fields of engineering in which new devices and inventions are being disclosed at a more rapid pace than in wire and radio communications. The arts, both in theory and practice, are extremely complex and cover a vast field. New devices and improvements, no matter in what radio or wire services developed, are as a general rule immediately reflected in potentialities for improvement and actual application in all other services.

COMMISSION

The Commission started to function on July 11, 1934, when the first seven Commissioners took office.

The Commissioners operated initially in three divisions—broadcast, telegraph, and telephone—each composed of the Chairman and two Commissioners. This divided authority was abolished in 1937 in favor of the present control by the Commissioners as a whole.

The FCC has had 37 different Commissioners, from 27 States, one of whom served 2 separated terms. Of the total number, 15 were Chairmen. The youngest Chairman (present Chairman Henry) was 34 when he assumed that office. The FCC was the first Federal regulatory agency to have a woman member (Frieda B. Hennock). Nine Commissioners had previously been on the FCC staff, including four

present Commissioners (Hyde, Bartley, Ford, and Cox). One Commissioner served nearly 19 years. Two Commissioners died in office.

Until 1950 the Commission staff was organized on a professional basis with four major bureaus—accounting, engineering, law, and secretary. Reorganization that year resulted in the present four functional bureaus—broadcast, common carrier, safety and special radio, and field engineering—in addition to various administrative offices.

Amendments to the Communications Act in 1952 changed FCC procedures in many respects. Further amendments in 1961, among other things, permitted delegating certain adjudicatory functions to panels of Commissioners and a staff board (Review Board). A major result of a management survey in 1962 was creation of a new post of Executive Director.

In compliance with Government policy to charge for certain Federal services, the Commission in 1964, for the first time in its history, began charging fees for most FCC application filings.

FIELD ENGINEERING

The field engineering arm of the FCC is older than the Commission. It dates from 1911 when the Government first began to inspect ship-radio equipment. Three men comprised the initial staff. This field operation was absorbed by the Commission when it came into being in 1934.

The FCC's field engineering work has grown to include inspection of radio stations of all types, monitoring the radio spectrum for compliance, issuing violation notices, locating ships and planes in distress, examining applicants for commercial and amateur radio operator licenses, and obtaining and analyzing technical data for Commission use.

In 1934 the Commission had 21 engineering field offices and 7 monitoring stations. Today it has 28 district and suboffices, 2 marine offices, 3 TV enforcement units, and 2 microwave enforcement units; also a monitoring system of 18 stations. In 1934 its field force numbered slightly more than 100; now there are about 400, which is approximately one-third of the Commission's total personnel.

Complaints of interferences to radio reception in the Commission's first year numbered less than 3,800. Last year the FCC monitoring network handled 2,500 major interference cases, and over 40,000 others were resolved by the field offices and monitoring stations with the assistance of nearly 800 local volunteer interference committees.

Among special tasks performed by the Commission's field technicians were tracking the pioneer Soviet "Sputnik" satellite in 1957 and locating the pirated Portuguese liner *Santa Maria* in 1961.

FREQUENCY ALLOCATION AND USE

Under Department of State auspices, the FCC has participated in hundreds of international conferences concerning frequency allocation and usage on a global basis. It is also the U.S. medium for dealing with foreign governments on infractions and other problems involving domestic stations.

The Commission makes national frequency allocations to conform with world agreement and, in assigning frequencies for non-Government use, coordinates with an interdepartmental committee which supervises channels for Federal radio operation.

THEN AND NOW

Less than 10,000 applications of all kinds were received by the Commission in its first year of operation. The annual figure now approaches one million, not counting petitions, tariffs and other filings.

The FCC's 1934 budget was nearly \$2 million; its 1964 one is slightly over \$15½ million. Its personnel has increased threefold, from about 500 to 1,500.

Thirty years ago the Commission had only 51,000 station and 57,000 operator (commercial and amateur) licensees. The number of station authorizations now nears 1½ million (representing the use of more than 5 million fixed, mobile and portable transmitters). In addition, there are nearly 2.9 million commercial and amateur radio operator permits of different grades.

A comparison of radio authorizations at the close of the FCC's first year with those at the end of fiscal 1964 follows:

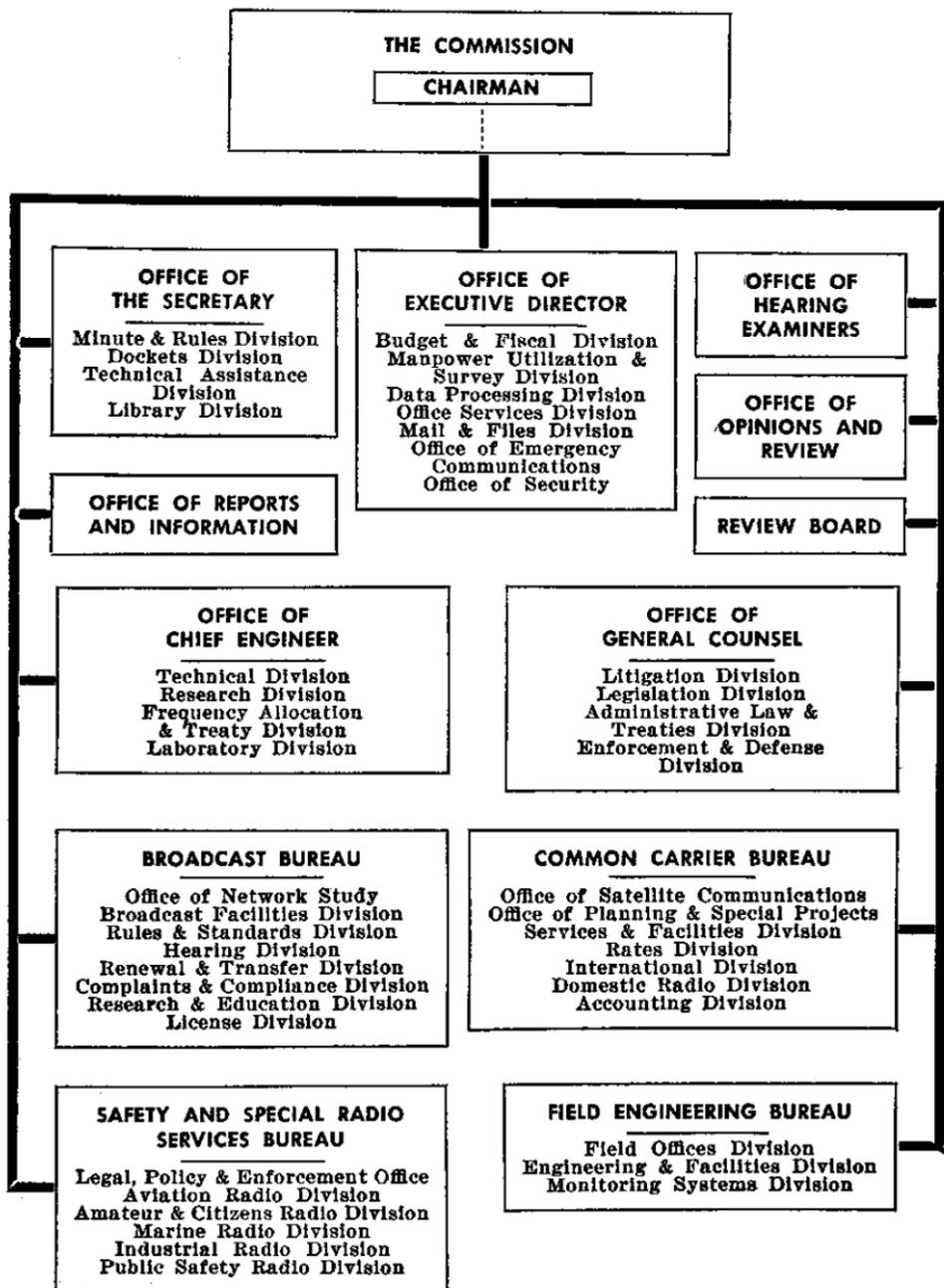
| Stations | June 30, 1935 | June 30, 1964 |
|--------------------------|---------------|---------------|
| Citizens..... | 0 | 682,307 |
| Amateur..... | 45,561 | 264,067 |
| Marine..... | 2,157 | 161,593 |
| Industrial..... | 146 | 124,347 |
| Aviation..... | 678 | 107,557 |
| Public safety..... | 298 | 47,389 |
| Broadcast..... | 623 | 17,231 |
| Land transportation..... | 0 | 14,815 |
| Common carrier..... | 565 | 8,343 |
| Other..... | 1,046 | 17,509 |
| Subtotal..... | 51,074 | 1,445,098 |
| Radio operators: | | |
| Commercial..... | 1 21,000 | 2,613,875 |
| Amateur..... | 38,525 | 250,237 |
| Subtotal..... | 57,525 | 2,870,112 |
| Grand total..... | 108,599 | 4,315,210 |

¹ Estimated.

FEDERAL COMMUNICATIONS COMMISSION 1964 REPORT

FEDERAL COMMUNICATIONS COMMISSION

Organization Chart as of June 30, 1964



Commission

COMMISSIONERS

The Federal Communications Commission is administered by seven Commissioners who are appointed by the President, by and with the consent of the Senate, one of whom the President designates as Chairman and serves as executive officer of the Commission.

There was no change in Commission membership during the fiscal year.

Commissioner Frederick W. Ford was, on May 12, 1964, reappointed by President Johnson for a second 7-year term, from the following June 30, which was confirmed by the Senate on July 8.

COMMISSION STAFF

Reorganizational and other changes made during 1962 and 1963 are reflected in the organizational chart of the Commission that accompanies this chapter.

To give the Commissioners more time for major planning and policy consideration, and to expedite the Commission's day-by-day business, staff units act on certain matters under additional delegated authority.

In substance, the Commission functions with four operating bureaus which deal, respectively, with broadcast, common carrier, safety and special radio services, and field engineering matters. Adjudicatory proceedings involve actions by the Office of Hearing Examiners and the Review Board. The Office of Opinions and Review drafts decisions for the Commission at the latter's direction. There are offices of Secretary, General Counsel, Chief Engineer, and Reports and Information. An Executive Director coordinates and expedites overall staff activities.

PERSONNEL

The Commission ended the fiscal year with 1,527 employees on its rolls. Included were 22 employed for the summer months only and 37 performing work for other agencies on a reimbursable basis. The actual average employment for the entire year for staff engaged in "regular" Commission activities was 1,449.3. This represents an increase of 67.7 over 1963. The average employment for the various organization units was:

| | Washington | Field | Total |
|---|------------|-------|---------|
| Commissioners' Offices..... | 48.0 | 0 | 48.0 |
| Review Board..... | 26.3 | 0 | 26.3 |
| Office of Opinions and Review..... | 20.0 | 0 | 20.0 |
| Office of Hearing Examiners..... | 36.1 | 0 | 36.1 |
| Office of Reports and Information..... | 5.0 | 0 | 5.0 |
| Office of Executive Director..... | 161.2 | 13.0 | 174.2 |
| Office of Secretary..... | 34.6 | 0 | 34.6 |
| Office of General Counsel..... | 44.5 | 0 | 44.5 |
| Office of Chief Engineer..... | 74.1 | 14.7 | 88.8 |
| Common Carrier Bureau..... | 135.7 | 27.0 | 162.7 |
| Safety and Special Radio Services Bureau..... | 150.0 | 16.0 | 166.0 |
| Broadcast Bureau..... | 248.2 | 0 | 248.2 |
| Field Engineering Bureau..... | 59.2 | 335.7 | 394.9 |
| Total..... | 1,042.9 | 406.4 | 1,449.3 |

EMPLOYEE AWARDS PROGRAM

Length-of-service emblems were presented to 117 Commission employees at the annual awards ceremony. Sixty-seven employees were granted one-step, within-grade salary increases during the year in an initial implementation of authority granted for this form of recognition of high-quality work performance by the Federal Salary Reform Act of 1962. Other types of superior performance of duties occasioned the award of a total of \$5,860 to 36 employees under the Government Employees' Incentive Awards Act of 1954. Payments totaling \$175 were made for eight employee suggestions to improve work procedures, and five letters of appreciation were issued for other employee suggestions adopted.

APPROPRIATIONS AND EXPENDITURES

The Commission's appropriation for fiscal 1964 was \$15.6 million. Personnel compensation plus personnel benefits accounted for 87 percent of the 1964 budget. A breakdown follows:

| | |
|---|--------------|
| Personnel compensation..... | \$12,610,013 |
| Personnel benefits..... | 918,546 |
| Travel..... | 249,233 |
| Transportation of things..... | 42,686 |
| Rents, communication, and utility services..... | 448,768 |
| Printing and reproduction..... | 182,013 |
| Other services..... | 238,539 |
| Supplies and materials..... | 228,419 |
| Equipment..... | 511,991 |
| Land and structures..... | 78,836 |
| Total amount obligated..... | 15,500,044 |

The source of these funds and the authority for expenditures thereunder is Public Law 88-215, 88th Congress. Expenditure details and their justification are set forth at length in the FCC budget presentation to Congress.

ELECTRONIC DATA PROCESSING SYSTEM

Installation of the Univac III electronic data processing system was completed by the Commission on November 15, 1963.

On February 10, 1964, the system began processing routine class B, C, and D citizens radio applications. By the end of the fiscal year the backlog in this service was reduced from about 50,000 to 5,600. The latter consisted primarily of cases requiring special handling.

On March 6, 1964, the processing of routine amateur radio applications and the printing of their authorizations were converted to the system. At the year's end the amateur application backlog had been reduced to approximately 3,700, the latter being largely cases needing individual handling.

It is anticipated that applications in other safety and special radio services will be processed electronically starting with marine radio-telephone applications in December of 1964.

APPLICATION FILING FEES

On March 17, 1964, the Commission began charging fees for application filings in most of its licensing activities. This was done in compliance with Government policy to charge for certain Federal services.

The FCC fee schedule was to have become effective January 1, 1964, but on December 31, 1963 an appeals court issued a temporary restraining order. The latter was dissolved on February 13, 1964, and on the following July 10, the court affirmed the right of the Commission to exact fees.

Commission fees range from a minimum of \$2 to a maximum of \$100 depending upon the type of application and the service concerned. The fee schedule was published in the 1963 annual report.

By June 30, 1964, the Commission had collected \$998,601 in fees for the initial 3½-month period. This money is not for its use but goes to the U.S. Treasury.

As announced when it adopted the fee schedule, the Commission is making a continuing study of the charges and procedures involved for the purpose of making adjustments when necessary. It is resolving questions in fee matters as they arise.

HEARING EXAMINERS

The Commission has a staff of 17 hearing examiners, one of them serving as Chief Hearing Examiner. In accordance with the Administrative Procedure Act, the Communications Act and the Commission's rules, the examiners preside in formal hearings and prepare and issue initial decisions based upon the evidence received in the records of these proceedings.

During fiscal 1964 the hearing examiners prepared and issued 879 orders and memorandum opinions and orders regarding interlocutory matters arising in their proceedings; conducted 141 hearing conferences; held 103 formal hearings; completed hearings and closed records in 86 proceedings, and issued 111 initial decisions disposing of 220 applications.

Additionally, the Chief Hearing Examiner, under authority delegated to him by the Commission, prepared and issued 205 orders and memorandum opinions and orders on interlocutory and other matters in adjudicatory proceedings and made final disposition (by dismissal) of 18 broadcast applications.

REVIEW BOARD

The Review Board, authorized by Congress as a part of the 1961 amendments to the Communications Act (75 Stat. 420), will be 2 years old on August 1, 1964. In fiscal year 1964, the Board issued 45 final decisions, most of which involved competing AM and FM broadcast applications. On May 6, 1964, the Commission enlarged the Board's delegated authority to include review of initial decisions in TV proceedings.

The Review Board was established to relieve the Commissioners of handling many adjudicatory cases and appeals from interlocutory rulings of hearing examiners, and to review initial decisions not retained for action by the Commissioners.

DOCKETS

Of 425 applications designated for hearing during the year, 171 were for broadcast facilities and 179 involved the safety and special services. Over half of the 558 docket cases pending at the close of the year concerned broadcast. The following docket statistics refer to individual applications in hearing status:

| | Total pending July 1, 1963 | Designated for hearing | Disposed of without hearing | | | Disposed of following hearing | | | Total pending June 30, 1964 | Initial decisions issued | Applications covered by initial decisions |
|---------------------------------------|----------------------------|------------------------|-----------------------------|-----------|---------|-------------------------------|--------|-----------|-----------------------------|--------------------------|---|
| | | | Granted | Dismissed | Removed | Granted | Denied | Dismissed | | | |
| Broadcast docket: | | | | | | | | | | | |
| AM broadcast: | | | | | | | | | | | |
| New stations..... | 146 | 32 | 4 | 15 | 4 | 37 | 26 | 12 | 80 | 40 | 57 |
| Major changes..... | 54 | 35 | | | 3 | 31 | 9 | 1 | 45 | 35 | 40 |
| Subtotal..... | 200 | 67 | 4 | 15 | 7 | 68 | 35 | 13 | 125 | 75 | 97 |
| Assignments and transfers..... | 3 | 3 | | 2 | | | 1 | | 3 | | 1 |
| Renewals..... | 15 | 3 | | | | 3 | 4 | | 11 | 3 | 8 |
| Licenses..... | 4 | 1 | 1 | | | 2 | 1 | | 1 | | |
| All others..... | 2 | 2 | | | | 1 | 1 | | 2 | 2 | 2 |
| Total AM broadcast docket..... | 224 | 76 | 5 | 17 | 7 | 74 | 42 | 13 | 142 | 80 | 108 |
| FM broadcast: | | | | | | | | | | | |
| New stations..... | 13 | 35 | | 5 | | 2 | 1 | 3 | 37 | 7 | 10 |
| Major changes..... | 3 | 7 | 2 | 1 | | | | 2 | 5 | 2 | 2 |
| Subtotal..... | 16 | 42 | 2 | 6 | | 2 | 1 | 5 | 42 | 9 | 12 |
| Assignments and transfers..... | 2 | | | | | | | | 2 | | 2 |
| Renewals..... | 2 | 1 | | | | 1 | | | 2 | | 1 |
| Licenses..... | | | | | | | | | | | |
| All others..... | | | | | | | | | | | |
| Total FM broadcast docket..... | 20 | 43 | 2 | 6 | | 3 | 1 | 5 | 46 | 9 | 15 |
| TV broadcast: | | | | | | | | | | | |
| New stations..... | 53 | 36 | 1 | 4 | 1 | 6 | 8 | 4 | 65 | 7 | 27 |
| Major changes..... | 8 | 8 | 2 | 1 | | 1 | | 2 | 10 | 1 | 2 |
| Subtotal..... | 61 | 44 | 3 | 5 | 1 | 7 | 8 | 6 | 75 | 8 | 29 |
| Assignments and transfers..... | 6 | 1 | | | | 1 | 1 | | 5 | | 3 |
| Renewals..... | 4 | 3 | | 2 | | 1 | | | 5 | | 2 |
| Licenses..... | 1 | | | | | | 1 | | | | |
| All others..... | 3 | | | | | | 1 | | 2 | 1 | |
| Total TV broadcast docket..... | 75 | 48 | 3 | 6 | 1 | 9 | 11 | 6 | 87 | 9 | 34 |

See footnotes at end of table.

| | Total pending July 1, 1963 | Designated for hearing | Disposed of without hearing | | | Disposed of following hearing | | | Total pending June 30, 1964 | Initial decisions issued | Applications covered by initial decisions |
|--|----------------------------|------------------------|-----------------------------|-----------|----------------------|-------------------------------|--------|-----------|-----------------------------|--------------------------|---|
| | | | Granted | Dismissed | Removed ¹ | Granted | Denied | Dismissed | | | |
| UHF-VHF boosters-repeaters: | | | | | | | | | | | |
| New stations..... | 11 | 2 | | 1 | | 5 | 3 | 3 | 1 | 1 | |
| Major changes..... | | | | | | | | | | | |
| Subtotal..... | 11 | 2 | | 1 | | 5 | 3 | 3 | 1 | 1 | |
| Assignments and transfers..... | | | | | | | | | | | |
| Renewals..... | | | | | | | | | | | |
| Licenses..... | | | | | | | | | | | |
| All others..... | | | | | | | | | | | |
| Total docket..... | 11 | 2 | | 1 | | 5 | 3 | 3 | 1 | 1 | |
| Other broadcast services..... | 20 | 2 | 3 | 1 | | | | | 18 | | |
| Total broadcast docket..... | 350 | 171 | 13 | 31 | 8 | 91 | 67 | 27 | 294 | 99 | |
| Other than broadcast docket: | | | | | | | | | | | |
| Field engineering..... | | 1 | | | | | | | 1 | | |
| Safety and special radio services ² | 80 | 179 | 11 | 144 | | | 3 | | 101 | | |
| Common carrier services..... | 63 | 25 | 2 | 5 | | 3 | 2 | | 76 | 11 | |
| Joint and general matters..... | 34 | 14 | 7 | 4 | | | 1 | | 36 | | |
| Total other than broadcast docket..... | 177 | 219 | 20 | 153 | | 3 | 6 | | 214 | 11 | |
| Petitions, cease and desist orders, rules, etc..... | 39 | 35 | 16 | 5 | | | 1 | 2 | 50 | 1 | |
| Total docket..... | 566 | 425 | 49 | 189 | 8 | 94 | 64 | 29 | 558 | 111 | |

¹ Removed from hearing status and returned to processing lines.

² Statistics in this service cover revocation of license as well as applications.

AUTHORIZATIONS

More than 4.3 million radio authorizations of all kinds were outstanding at the close of the year. A correction in computing the figures for commercial radio operators necessitated change in that total appearing in the 1963 annual report. Yearend figures for fiscal 1964 in comparison with corrected figures for 1963 follow:

| Class | June 30, 1963 | June 30, 1964 | Increase or (decrease) |
|--|---------------|---------------|---------------------------|
| Broadcast services..... | 15,829 | 17,231 | 1,402 |
| Safety and special radio services..... | 1,131,910 | 1,418,826 | 286,916 |
| Common carrier services..... | 6,599 | 8,343 | 1,744 |
| Experimental..... | 730 | 698 | (32) |
| Commercial radio operators..... | 2,446,939 | 2,613,875 | 166,936 |
| Amateur radio operators..... | 247,603 | 256,237 | 8,634 |
| Total..... | 3,849,610 | 4,315,210 | 465,600 |

Because some radio stations use numerous transmitters, their collective authorizations represent the use of more than 5 million fixed, mobile, and portable transmitters.

APPLICATIONS

Nearly 1 million applications of all kinds (but excluding petitions and tariff filings) were received during fiscal 1964. This was nearly 122,000 more than the previous year. Comparative figures are:

| Class | June 30, 1963 | June 30, 1964 | Increase |
|--|------------------|------------------|----------|
| Broadcast services..... | 14,519 | 15,727 | 1,208 |
| Safety and special radio services..... | 489,224 | 582,511 | 93,287 |
| Common carrier services..... | 8,040 | 9,583 | 1,543 |
| Experimental..... | 1,610 | 1,559 | 49 |
| Commercial radio operators..... | 325,923 | 351,661 | 25,738 |
| Total..... | 830,216 | 961,041 | 121,825 |

Applications for amateur radio operators are included in the total for the safety and special radio services.

CORRESPONDENCE

During the fiscal year the Commission's Washington office (exclusive of its Field Engineering Bureau) handled more than 4.6 million pieces of mail, of which over 3 million were incoming and 1.5 million outgoing. This is about the same volume as last year.

RELEASES AND PUBLICATIONS

Commission releases comprise public notices of its actions, certain filings with it, and documents covering its formal decisions and orders.

The Commission does not maintain mailing lists for this issue. However, the texts of its major decisions appear in weekly pamphlets which can be subscribed to at the Government Printing Office.

All Commission hearing orders and rulemaking—the latter both proposed and as adopted—are given official promulgation in the Federal Register, and copies of FCC rules and regulations are sold, also on a subscription basis, by the Government Printing Office. Other FCC printed publications can be purchased from that source. They include the Communications Act, annual and other reports, statistics of communications common carriers, etc. A list will be furnished by the Commission on request.

The Commission's own offset reproduction for release and internal use during fiscal 1964 required 80,510 plates (master copies) and 33.2 million prints, which consumed 26.1 million sheets of paper (nearly 2 million sheets more than in 1963).

TECHNICAL ASSISTANCE TO FOREIGNERS

In continuing participation in the foreign technical assistance program, the Commission provided technical training to 46 persons from 18 foreign countries during the year. Additionally, 75 visitors from 21 other nations were given technical assistance. The FCC monitoring station at Laurel, Md., provides on-the-job training in radio frequency monitoring and direction finding to those foreign visitors interested in that particular communication activity.

This joint program of the Department of State, the Agency for International Development, and the International Telecommunication Union affords opportunity for foreign communication keymen to study and observe communication systems in the United States, also visit equipment manufacturers and suppliers, institutions for technical training, and Federal, State, and local government agencies.

ALIEN RADIO OPERATION

In general, the Communications Act limits Commission licensing of radio stations and transmitter operators to citizens of the United States. Further, the license privilege is denied to corporations in which any officer or director is an alien or of which more than one-fifth of the capital stock is owned by aliens or foreign interests. However, there are several exceptions:

On May 28, 1964, the President signed a new law (Public Law 88-313) to permit authorizing amateurs of other countries to engage in

amateur radio operation while in the United States. A 1952 convention between the United States and Canada enabled amateurs of those countries to do such across-the-border operation.

In the interest of air safety, a 1958 law (Public Law 85-817) permits the licensing of certain alien pilots who fly aircraft in the United States.

Under a 1962 law (Public Law 87-795), the President can authorize foreign governments represented in the United States to, on a reciprocal basis, operate radio stations in Washington to communicate with their home administrations.

Law and Enforcement

LEGISLATION

Legislation Enacted

During those parts of the 1st and 2d sessions of the 88th Congress which made up the fiscal year 1964, only 3 laws were enacted amending the Communications Act of 1934.

Included were two proposals submitted by the Commission as part of its legislative program for the 88th Congress. They were enacted into law in the second session as follows:

An amendment to paragraph (2)(G) of subsection 309(c) giving the Commission additional authority to grant special temporary authorizations for 60 days for certain nonbroadcast operations. It was signed into law on May 14, 1964 (Public Law 88-307).

An amendment to subsection 309(e) which requires that petitions for intervention be filed not more than 30 days after publication of the hearing issues in the Federal Register. It became law on May 14, 1964 (Public Law 88-306).

In addition:

Public Law 88-313, signed by the President on May 28, 1964, amended sections 303 and 310 to provide that the FCC may authorize, but not license, alien amateur radio operators to operate their amateur radio stations in the United States, its possessions and Puerto Rico, provided there is in effect a bilateral agreement between the United States and the alien's government for such operation by U.S. amateurs on a reciprocal basis.

FCC Legislative Program

Commission proposals to amend the Communications Act introduced in the 88th Congress and pending at the end of the fiscal year were:

An amendment to exempt from the conflict-of-interest provisions of section 4(b) persons serving in the FCC unit of the National Defense Executive Reserve who are not otherwise employed by the Commission (S. 1504, H.R. 6019).

An amendment to section 4(b) to exempt "Special Government Employees" from the conflict-of-interest provisions thereof (S. 2319, H.R. 9155).

An amendment to section 310(b) to give the Commission discretion to adopt new procedures to govern applications for the transfer or assignment of a construction permit or license for a broadcast station (H.R. 7477). (Commissioner Bartley submitted a separate proposal which was introduced as H.R. 7478.)

An amendment to section 203 to require a connecting carrier to file a tariff covering communications subject to the Commission's jurisdiction where there is no fully subject carrier obliged under the statute to file a tariff (S. 1503, H.R. 6018).

An amendment to section 204 to extend from three to nine months the period during which the Commission may suspend any new or revised charge, classification, regulation or practice of a communication common carrier pending hearing and decision under section 204, and to place the burden of proof on the carrier to justify all new or revised schedules (S. 2051, H.R. 8013).

To add a new section 223 to Title II giving the Commission regulatory authority over the charges and other terms and conditions in arrangements between communication common carriers for the interchange of their communication facilities or the furnishing of facilities or services by one carrier to another (S. 2624, H.R. 10270).

To add a new section 302 to Title III giving the Commission authority to prescribe regulations for the manufacture, import, sale, shipment or use of devices which cause harmful interference to radio reception (S. 2684, H.R. 10589).

A Commission legislative proposal to amend section 4(b) to remove inequities imposed by conflict-of-interest provisions on Commissioners and employees was cleared by the Bureau of the Budget on June 29, 1964. It was transmitted to the Congress at the beginning of fiscal year 1965.

Commission legislative proposals awaiting clearance by the Bureau of the Budget at the close of the year were:

An amendment to section 303(q) to give the Commission jurisdiction to require the painting and illumination of abandoned radio towers and to require dismantlement when they constitute a menace to air navigation.

An amendment to the Internal Revenue Code of 1954 to suspend for a specified period the manufacturers' excise tax on all-channel TV receivers.

Other Bills Affecting the FCC

During that period of the 88th Congress covered by the fiscal year, 41 bills were introduced which affected the Commission's functions. Requests for comments were received on most of these bills.

Congressional Hearings

During fiscal 1964 the Commission appeared and testified before congressional committees on such matters as:

Independent Offices Appropriation bills.

Editorializing by broadcast licensees (H.R. 7072).

Amendment of section 308 with respect to construction permits and broadcast license applications involving members of Congress (S. 708).

Special temporary authorizations (S. 1005).

Petitions for intervention in Commission proceedings (S. 1193).

Allen amateurs (S. 920).

Broadcast commercials (H.R. 8316).

Small business procurement regulations for the Communications Satellite Corporation.

Radiotelegraph equipment on ships (H.R. 8508).

Assessment of fees (H.R. 6697).

Review of FCC activities in the field of satellite communications.

Common carrier matters described under heading "FCC Legislative Program" (H.R. 6018, H.R. 8013, and H.R. 10270).

LITIGATION

The Commission was a party to a number of court cases which enunciated principles of administrative law having an immediate and significant effect upon the Commission's procedures and its administration of the Communications Act.

Court of Appeals Decisions of Special Significance

The following decisions (in the Court of Appeals for the District of Columbia Circuit except where otherwise noted) are of particular interest:

On February 17, 1964, the U.S. Court of Appeals for the Ninth Circuit decided the case of *Federal Communications Commission v. Taft B. Schreiber and MCA, Inc.*, 329 F. 2d 517. This was an appeal by the Commission from certain procedural conditions which the U.S. District Court for the Southern District of California had attached to its order enforcing a Commission subpoena and orders issued in the FCC investigation of the TV broadcast industry (FCC docket 12782). The subpoena and orders, which had been directed to MCA, Inc., and its vice president, Taft B. Schreiber, called for the disclosure of all network TV programs which MCA had either produced or "packaged" or in which MCA had a financial interest. MCA, through its spokesman Schreiber, refused to provide the data requested with respect to "packaging" in a public Commission proceeding on the ground that information in the nature of trade secrets might be disclosed. He declined to amplify the reasons for the refusal unless his counsel were given the right to object on the record to all questions put to Schreiber by FCC counsel while Schreiber was on the witness stand. Counsel for MCA contended that section 6(a) of the Administrative Procedure Act granted such a right to counsel. The Commission denied MCA's contentions on both the "right to counsel" and confidentiality points, and, when MCA persisted in its refusal to comply with the subpoena, the Commission sought judicial enforcement.

The district court found ample legal authority for the enforcement of the subpoena, but agreed with MCA's position on the "right to counsel" and confidentiality points and, accordingly, attached conditions to its enforcement order, whereupon the Commission appealed.

The appeals court held in the subject decision that the district court did not abuse its discretion in requiring that all further testimony be taken from MCA and Schreiber in nonpublic sessions, after which it would be incumbent upon the Commission to persuade the district court that public disclosure was warranted. The appeals court, however, reversed the district court on the "right to counsel" point and held that counsel for Schreiber could advise him while he was on the witness stand, but that further participation by counsel in the investigative proceeding would be a matter for Commission discretion. The appeals court also overruled MCA's contention that the Commission had failed to promulgate ground rules governing the proceeding. The Commission's petition for rehearing on the confidentiality issue was denied by the appeals court on May 4, 1964.

In *Immaculate Conception Church of Los Angeles v. Federal Communications Commission*, 116 U.S. App. D.C. 73, 320 F. 2d, 795, cert. den. 375 U.S. 904, the court affirmed the Commission's denial of the application for renewal of license for AM broadcast station KRLA, Los Angeles. The Commission denied renewal on the grounds that the station had broadcast deceptive contests, and that the owner had failed to maintain effective control of the station, and had attempted to mislead the Commission with respect to the station's programming operations. In affirming, the court held that the Commission's findings were within the scope of the hearing issues and were supported by substantial evidence of record. The court held further that the Commission properly refused to consider the public service programming efforts of the station which were made after the owner learned that his license was in jeopardy.

In *E. G. Robinson v. Federal Communications Commission*, — U.S. App. D.C. —, — F. 2d —, decided March 19, 1964, rehearing denied May 7, 1964, the court affirmed the Commission's denial of the application for renewal of license for AM station WDKD, Kingstree, S.C. The Commission denied the renewal because the station had made a practice of carrying programs which were vulgar and patently offensive under any standard, and because the licensee had misrepresented his knowledge of such programs to the Commission.

In affirming, the court did not pass upon whether the Commission was justified in denying the application because of the programs broadcast by the station. The court held that the Commission had the right to seek information concerning the station's broadcasts and that the Commission was fully warranted in denying renewal because of the applicant's misrepresentations concerning his knowledge of such broadcasts. In a separate opinion, Judge Wilbur K. Miller stated that he believed that the court's opinion did not go far enough. According to Judge Miller, the Commission's denial of the application on programming grounds was proper, since the programs in question were clearly in violation of the statute prohibiting obscene and indecent broadcasts.

In *Springfield Television Broadcasting Corp. v. Federal Communications Commission*. — U.S. App. D.C. —, 328 F. 2d 186, the court upheld the Commission's authority to require that objections to a grant of a broadcast application be submitted in a pre-grant petition to deny. The Commission dismissed a petition for reconsideration of a grant with-

out hearing of an application for a TV translator station on the ground that the petitioner had not filed a petition to deny prior to the grant, and had not shown good cause for its failure to do so. In affirming, the court held that, while the Communications Act does not provide for a mandatory pre-grant procedure, the Congress "fully anticipated that * * * this would be the normal procedure, and that when a party for the first time appears in the proceeding with a petition for reconsideration he should show why he had withheld the facts, or was unable in season to obtain the facts, on which he relies." The court also found that the Commission had not abused its discretion in deciding that no public interest questions were presented which were of such importance as to require reconsideration despite the failure to make objection prior to the grant.

In *Kessler v. Federal Communications Commission*, — U.S. App. D.C. —, 326 F. 2d 673, the court upheld the Commission's power to impose a "freeze" without advance notice on the acceptance of applications for new AM broadcast stations pending adoption of new rules. Rejecting the contention that the "freeze" order constituted a substantive rather than a procedural rule change, the court found that the Commission's order did not require the advance notice and public participation specified by section 4 of the Administrative Procedure Act. The court also held that the Commission could reasonably proceed to process applications already on file, and that the Commission was acting within its discretion and expertise in establishing the following exceptions to the "freeze": (a) applications which would bring service to areas without service and which would cause no interference to existing stations; (b) applications for new Class II-A facilities (since the Commission had already determined in the clear channel proceeding that these new assignments would serve the public interest); and (c) most applications for Class IV power increases. The court also sustained the "freeze" as to applicants with actual notice of the "freeze" order who submitted their applications prior to the date of publication of the order in the Federal Register.

With respect, however, to the cases of certain applicants who claimed that their applications would be mutually exclusive with applications already on file and available for processing, the court found that the refusal to accept these applications would deprive these applicants of their rights to comparative hearings under *Ashbacker Radio Corp. v. Federal Communications Commission*, 326 U.S. 327 (1945) and, accordingly, remanded these cases for Commission consideration of whether mutual exclusivity existed in the case of each applicant claiming it, and whether the Commission wished to waive the "freeze" on acceptance of applications from applicants claiming mutual exclusivity, or withhold action on the previously pending applications pending conclusion of the rulemaking.

In *Capitol Broadcasting Company v. Federal Communications Commission*, 116 U.S. App. D.C. 370, 324 F. 2d 402, the court sustained the Commission's grant without hearing of the application of a TV station on Channel 12 in New Orleans for a modification of its construction permit to change its transmitter site. The change was to a point which was less than the minimum mileage separation under the Commission's rules

from another objecting party on the same channel in another city. The court sustained the Commission's holding that the change of transmitter site did not constitute a modification of the license of the objecting co-channel station, where the grantee was required to modify its signal so as not to cause any more interference under the modified permit that it would have caused if its station had been constructed and operated in accordance with the standard transmitter spacing requirements. The court also held that no substantial and material questions of fact were presented by the pleadings before the Commission, and that the factual issues raised were adequately appraised by the Commission.

In *KWK Radio, Inc. v. Federal Communications Commission*, —U.S. App. D.C.—, — F. 2d—, the court sustained the Commission's order revoking the license of AM broadcast station KWK, St. Louis. The Commission based the revocation on findings that KWK, under the direction of one of its corporate officers, had conducted two treasure hunts in a manner which constituted deliberate fraud upon the public. The court upheld the Commission's view that KWK was not entitled to a warning prior to the institution of revocation proceedings since section 9(b) of the Administrative Procedure Act eliminates this requirement where revocation is based on willful conduct. The court also held that the Commission's determination that revocation was the appropriate sanction in this case was not unreasonable.

Statistics

During the fiscal year the Commission was a party to 87 cases in the Federal courts. Forty-five new appeals were instituted during that period—6 on petition for writ of certiorari in the Supreme Court; 33 in the Court of Appeals for the District of Columbia Circuit; 2 in the Court of Appeals for the Seventh Circuit; 2 in the Court of Appeals for the Second Circuit; 1 in the District Court for the Northern District of Illinois; and 1 in the District Court for the District of Columbia. At the beginning of the fiscal year, 42 cases were pending in the Federal courts. Forty of these cases were in the Court of Appeals for the District of Columbia Circuit; 1 was in the Court of Appeals for the Second Circuit; and 1 was in the District Court for the Northern District of Ohio.

Five of the six petitions for certiorari filed during the fiscal year were denied by the Supreme Court. In the courts of appeals, the Commission was affirmed in 31 cases and reversed in 6; 21 cases were dismissed on either jurisdictional grounds or by agreement, or remanded without a decision on the merits.

At the fiscal yearend 20 cases were pending in the Court of Appeals for the District of Columbia Circuit. Seven of these cases have been orally argued and await decision on the merits. One case is pending in the Supreme Court; two cases are pending in the Court of Appeals for the Seventh Circuit, and 1 is pending in the District Court for the Northern District of Ohio.

A tabulation of cases decided and pending in the courts for fiscal 1964 follows:

| | Supreme Court | Court of Appeals for the District of Columbia Circuit | | | Other courts of appeals | District courts | Total |
|---|---------------|---|---------|------------------------------|-------------------------|-----------------|-------|
| | | 402 (a) | 402 (b) | 402 (a) ¹ and (b) | | | |
| Total | 6 | 9 | 52 | 12 | 5 | 3 | 87 |
| Decisions affirming the Commission | | 4 | 22 | 5 | | | 31 |
| Decisions reversing the Commission | | | 3 | 3 | | | 6 |
| Cases dismissed on jurisdictional grounds, by agreement, or remanded without decision | | 1 | 13 | 2 | 3 | 2 | 21 |
| Denial of certiorari | 5 | | | | | | 5 |
| Cases pending June 30, 1964 ² | 1 | 4 | 14 | 2 | 2 | 1 | 24 |

¹ Cases under "402(a) and (b)" were cases where the same party sought review of the same Commission order under both sections 402(a) and 402(b) of the statute.

² Cases which have been adjudicated on the merits, but in which 1 of the parties has sought a rehearing, have not been included in this category.

ENFORCEMENT

The practical effectiveness of the Commission's authority to impose monetary forfeitures on broadcast licensees should be determined to a large extent in four civil actions filed in April 1964, in the United States District Court for the District of Minnesota. The cases place in issue for the first time before the courts the meaning of the words "willfully or repeatedly" as used by Congress in section 503 of the Communications Act. The licensees are four Twin Cities TV stations. On October 30, 1963, they were ordered by the Commission to each forfeit \$500 for failure to identify a group of local merchants as the sponsor of broadcasts supporting a Sunday closing ordinance. When they declined to pay the forfeiture, the cases were referred to the Department of Justice for collection.

Many forfeitures imposed under section 510 of the act were collected administratively, but three cases were referred to the Department of Justice for collection. It is expected that such referrals will increase in the next fiscal year.

During fiscal 1964 8 criminal cases were referred to the Department of Justice, and at the end of the year 10 criminal cases were pending, 2 of which are appeals from convictions. One of these convictions was that of a diskjockey for broadcasting obscene language. Also noteworthy was conviction, before the U.S. District Court for the District of Columbia, of three individuals for operating an unlicensed radio transmitter in violation of the Communications Act and the Commission's rules. The court sentenced each of the defendants to imprisonment for 1 year and a fine of \$500. The violations took place at the Mayflower Hotel in Washington, D.C., during April 1962, and involved the operation of a miniature radio transmitter commonly known as a "bug" or eavesdropping device.

National Defense

GENERAL

“For the purpose of the national defense” is one of the major objectives of the Federal Communications Commission as stated in the Communications Act of 1934 which created it. Under the war emergency powers given him by that statute, the President can, and does, delegate to the Commission various functions concerning regulation of non-Government radio, wire, and cable communication facilities in time of national crisis.

Defense activities of the Commission during the year were geared to implementing Executive Order 11092 of 1963 which gave the FCC new and unprecedented responsibilities in mobilizing the communication industries for the national defense program.

The scope of these FCC activities are summed up in section 1 of the Executive order as follows:

The Federal Communications Commission * * * shall, subject to the policy guidance of the Director of the Office of Emergency Planning, prepare national emergency plans and develop preparedness programs covering provisions of service by common carriers, broadcasting facilities, and the safety and special radio services; assignment of radio frequencies to Commission licensees; and the protection, reduction of vulnerability, maintenance, and restoration of facilities operated by its licensees in an emergency. These plans and programs shall be designed to develop a state of readiness in these areas with respect to all conditions of national emergency including attack upon the United States, and will take into account the possibility of Government preference or priority with common carriers or of exclusive Government use or control of communications services or facilities, when authorized by law.

In coordinating broadcast, common carrier, and other of its licensed communication services to the defense effort, the Commission is assigned specific functions. These include controlling electromagnetic radiation of apparatus not used for communication purposes; furnishing advice and guidance for protecting essential communication facilities; making damage assessments; stimulating plans for conservation and salvage of communications equipment; restoring service after attack; establishing priority systems for emergency communications;

and fostering or conducting research in the emergency matters for which it is responsible.

In being given the initiative for the development of such plans and programs, the Commission maintains close cooperation with the industries and the Federal agencies concerned, including the Department of Defense in connection with the latter's civil defense program.

The Commission's preparedness activities are directed by Defense Commissioner Bartley, with Commissioners Lee and Cox as Alternate Defense Commissioners. An FCC Office of Emergency Communications began functioning on July 1, 1963.

EMERGENCY BROADCAST SYSTEM

Of prime importance is the Commission's maintenance and strengthening of an Emergency Broadcast System (EBS). Established by the FCC on December 4, 1963, in concurrence with the Department of Defense and the Office of Emergency Planning, this system replaced an interim EBS.

In accordance with Executive Order 11092, the Emergency Broadcast System was devised to provide the President and other Federal officials, as well as State and local authorities, with a means of speedily reaching the general public through broadcast stations in the emergency network preceding, during and following an enemy attack or other national emergency.

The plan for the Emergency Broadcast System is based upon both White House and Office of Civil Defense requirements. The President requires a 5-minute capability, regardless of his whereabouts, to address the Nation following an Emergency Action Notification. Pursuant to this need, the Commission on June 25, 1964 announced that it was establishing 63 Presidential Program Origination Points throughout the United States.

The White House Communications Agency, acting for the President, will deliver presidential communications to control centers selected for the origination of presidential messages and national emergency programing and news.

The Office of Civil Defense primary requirement is the capability of the emergency network to disseminate civil defense information to the public on a nationwide, regional, State, or local basis. This is achieved by the use of regional, State, and local interconnections of certain facilities licensed by the FCC.

The Emergency Broadcast System has the cooperation of the national press services (the Associated Press and United Press International) in using their teletype facilities to transmit official Emergency Action Notifications. Also, provision is made for telephone companies to participate, likewise without charging, in connecting

unaffiliated stations with networks in order for the latter to receive the emergency programing.

In establishing the Emergency Broadcast System, the Commission made special provision for the continued use of emergency networks to broadcast warnings of serious storm threats to life and property, with the cooperation of the U.S. Weather Bureau.

About 1,500 stations are now authorized to participate in the Emergency Broadcast System.

NATIONAL DEFENSE EMERGENCY AUTHORIZATIONS

In order to provide for the development of optimum interference-free emergency relay capability, selected FM and TV (aural facilities only) stations are issued National Defense Emergency Authorizations to participate in State Defense Networks (FM), Regional Defense Networks (FM) and Local Programing Control. Approximately 215 such authorizations were outstanding at the close of the fiscal year. Only such authorized FM and TV stations will continue on the air after an Emergency Action Notification is issued; all others must cease operation during the emergency.

FALLOUT PROTECTION FOR AM AND FM STATIONS

By the close of the fiscal year more than 300 AM and FM broadcast stations holding National Defense Emergency Authorizations had been provided with fallout shelters under the civil defense program. An equal number of additional stations is expected to be so equipped in the new year, and the ultimate goal is 1,500 to 1,800 stations.

Initiated in fiscal 1962 as the Radio Station Fallout Shelter Program, the project is now known as the Broadcast Station Protection Program. The Office of Civil Defense, Department of the Army, provides the funds. In addition to furnishing shelters protected from nuclear fallout, the program includes emergency power generating and other equipment.

Participating stations are selected by the Office of Civil Defense on the basis of their relation to the Emergency Broadcast System. Recommendation is made by the FCC State Industry Advisory Committees subject to approval, in turn, by the FCC National Industry Advisory Committee and the FCC.

FCC INDUSTRY ADVISORY COMMITTEES

On December 4, 1963, the Commission determined that the continued functioning of FCC National, Regional and State Industry Advisory Committees is necessary in discharging its national

defense obligations. In addition to the national committee, 8 regional and 50 State committees are now operating.

The National Industry Advisory Committee was created by the Commission to advise and assist it in defense communication planning. Subject to concurrence of the FCC and other Federal agencies concerned, various NIAC units study and make recommendations concerning the Emergency Broadcast System and backup circuits and communications systems and arrangements for emergency use.

On June 26, 1964, the Commission adopted certain NIAC recommendations and amended the Emergency Broadcast System plan in various particulars. One provides that, should normal broadcast network facilities at the Nation's capital be disrupted by enemy attack, the American Telephone & Telegraph Co. would use the facilities of the four major networks to form one composite network.

Regional Industry Advisory Committees, one in each of the eight defense areas, are composed of representatives of State Industry Advisory Committees. State Industry Advisory Committees act as liaison between civil defense officials and FCC licensees in their respective States. Also, subcommittees of the State groups perform the same service locally.

OTHER EMERGENCY PLANNING COOPERATION

The Commission participates in various phases of national emergency planning with five Federal interagency groups—the Interagency Civil Defense Committee of the Office of Civil Defense; the Interagency Emergency Planning Committee of the Office of Emergency Planning; the Federal Agency Representatives at the Office of Emergency Planning's National Government Relocation Site; the Interagency Committee of the National Defense Executive Reserve; and the National Resources Evaluation Center.

The Commission maintains its own emergency relocation site in a state of readiness.

FCC EXECUTIVE RESERVE UNIT

Members of the Commission's unit of the National Defense Executive Reserve are selected from all branches of the communications industry as well as former FCC and other Government executives. Two-day training sessions were held twice during the year. More than half of the FCC reservists are engaged in Industry Advisory Committee work.

Space Communication

GENERAL

This section of the report is pursuant to section 404(c) of the Communications Satellite Act of 1962 which requires the Commission to report annually to Congress on its role in such activities.

The coordinated efforts of the Commission, other interested departments and agencies of the Government, the Communications Satellite Corporation and private industry have moved the national communication satellite program toward practical realization. The past year was marked with solid and significant achievements despite the complex organizational, technical, administrative, and international problems connected with the establishment of global commercial communication via satellites.

For example, international agreement has been reached on the allocation of radio frequencies for space communication services. The Corporation, pursuant to Commission authorization, has commenced construction of an early capability satellite system—the so-called “Early Bird” system. Negotiations for international participation in the system have progressed to a point where satisfactory arrangements were completed with the initialing, on July 24, 1964, by 14 nations of the interim agreement. By November 1 thereafter 18 nations had signed the documents. The public and authorized communications common carriers have fully subscribed to the initial stock issue of the Corporation in the aggregate amount of \$200 million. Private industry has responded vigorously to invitations of the Corporation for system design proposals and related contracts, under procedures established by the Commission which are designed to afford all concerns, including small business, equitable opportunity to compete for procurement requirements of the system.

In short, the national policy to establish a worldwide commercial communication satellite system as expeditiously as practicable has been aggressively and responsibly pursued. The accomplishments to date attest to the soundness of that policy and the dedication and resourcefulness of those in Government and industry who are engaged in its implementation.

COMMUNICATIONS SATELLITE CORPORATION

The Communications Satellite Act of 1962 provides that the U.S. portion of the global satellite system be owned and operated by a private corporation—the Communications Satellite Corporation—organized in accordance with the statute and subject to Federal regulation.

As reported in the FCC's 1963 annual report, this Corporation was formally incorporated under the laws of the District of Columbia on February 1, 1963, following approval by the President of the articles of incorporation.

It was recognized that the Corporation would not be fully established until the initial stock offering had been arranged and the new stockholders had elected their directors. The act provides that it is the responsibility of the incorporators now acting as the first board of directors to arrange for this stock offering and to take such other actions as are necessary to establish the Corporation.

As a prerequisite to effectuating the stock offering, the articles of incorporation were amended, principally to allow for an increase in authorized capital stock to 10 million 100 shares. The President, after consultation with the Commission and other Federal agencies, approved the articles as amended.

Initial Stock Issue

On May 6, 1964, the Corporation filed the registration statement relating to the initial offering of voting stock with the Securities and Exchange Commission. Later that month, the Corporation sent to all the authorized carriers invitations to subscribe for the shares of stock reserved for sale to these carriers.

The Corporation had determined that the offering price of the stock would be \$20 per share and that the entire issue would be 10 million shares at that price. Consequently, in accordance with the provisions of the act, one-half of the entire issue of \$200 million (5 million shares) were reserved for sale to the carriers. An allocation formula had been arrived at by the Commission and the Corporation to be used in the event the carriers as a group subscribed for more than the \$100 million allocation of stock among authorized carriers.

On May 26 the subscriptions were opened and were accepted on June 2, after the registration statement became effective, and stock went on sale to the public on that day.

The act requires the Corporation to sell the shares of the initial offering “* * * in a manner to encourage the widest distribution to the American public”. After determining that the stock should be distributed in the normal manner using the services of underwriters, the Corporation selected a managing group of 11 underwriting firms.

These firms in turn selected a distributing group of some 385 additional underwriters, possibly the largest underwriting group for a single issue of stock.

The underwriters and the stockbrokers distributing shares of this issue were required to agree that they would not sell in allotments of more than 50 shares to each customer. This could be increased to 100 shares if the seller could not otherwise dispose of his shares.

Public demand for the stock was extremely heavy and it is reported that the shares were allocated in lots considerably smaller than 50 shares.

Now that the initial offering has been made, the Corporation expects to hold the stockholders' meeting for election of new directors in September 1964. At that time, the carrier-owners will elect six directors, the public stockholders another six and the President will appoint three members by and with the advice and consent of the Senate.

COMMISSION ACTIVITY

As noted in its 1963 annual report, the Commission established an Office of Satellite Communications to assist it in meeting its responsibilities under the Satellite Act. A brief summary of these activities follows:

Financing of the Corporation

Following incorporation, the Corporation needed interim financing for its operations until stock could be issued to the general public and authorized carriers as required by the provisions of the Satellite Act. To meet this need, the Commission, pursuant to section 201(c)(8), authorized the Corporation to enter into a \$5 million line-of-credit agreement with 10 banking institutions throughout the country and to draw an initial amount of \$500,000. Commission approval of this transaction was conditioned so as to require that any additional borrowing be made only upon specific authorization.

In July 1963 the Corporation asked authority for an additional \$600,000 borrowing. In approving this request the Commission urged the Corporation to formulate definite plans to proceed with the initial offering of voting stock to the public and to the authorized communications common carriers. The Commission stated that unless the Corporation could show what steps were being taken to insure the issue of the capital stock at the earliest practicable date, the FCC would be unable, in passing upon future authorizations to borrow money, to make the required finding that the activities of the Corporation are consistent with carrying out the purposes and objectives of the act.

After receiving such assurances, the Commission approved an additional borrowing of \$800,000, thus having authorized the Corpora-

tion to borrow a total of \$1.9 million. These later borrowings, however, contained a condition that the funds obtained thereby could not be used for operating expenses beyond a certain date without specific approval of the Commission. This date, upon request of the Corporation, was extended several times as the Commission was informed of the Corporation's progress toward the initial offering of stock.

The terms of the \$5 million line of credit stipulated a termination date for the agreement and maturity date for the loans made under it of February 28, 1964. The Corporation submitted for the Commission's consideration a supplemental agreement which in effect extended the termination and maturity date to June 30, 1964. On February 19, 1964, the Commission approved this supplemental agreement.

Allocation of Stock Among Authorized Carriers

The Satellite Act provides that only those communication common carriers authorized by the Commission may own voting stock of the corporation and such ownership may not exceed in the aggregate 50 percent of such stock issued and outstanding.

The Commission, pursuant to rules adopted in December 1962, authorized, as of July 1, 1964, 219 communication common carriers to own such stock.

The authorizations issued to the carriers provide, among other things, that in the event of an oversubscription of the stock reserved for sale to the carriers the Commission may allocate such stock among the authorized carriers.

In order to implement this provision, in such a manner as not to impede the sale of stock, the Commission and the Corporation cooperated to achieve a workable and equitable formula. This formula, adopted by the Commission on April 29, 1964, essentially provided for the reduction of any subscription for more than \$50 million of stock (50 percent of the amount reserved for sale to the carriers) until either the oversubscription was eliminated or until the subscription was reduced to the \$50 million figure. Thereafter, all the subscriptions would be reduced pro rata. However, in order to protect the right of the small carriers to subscribe for a sizable amount of the issue, the allocation formula further provided that in no event would any subscription be reduced below 5,000 shares, thus assuring every carrier the right to buy at least \$100,000 of stock of the \$100 million which was reserved for sale to the carriers.

The carriers, however, subscribed for \$127 million of stock, or \$27 million more than they could purchase. Applying the allocation formula, it was necessary to reduce the subscription of only one carrier, which had subscribed for \$85 million. Every other carrier was able to purchase all of the shares it subscribed for.

The major purchases by carriers are as follows :

| | |
|---|----------------|
| American Telephone & Telegraph Co..... | \$57, 915, 000 |
| International Telephone & Telegraph Co..... | 21, 000, 000 |
| General Telephone & Electronics Corp..... | 7, 000, 000 |
| RCA Communications, Inc..... | 5, 000, 000 |
| Telephones, Inc..... | 2, 000, 000 |
| Time, Inc..... | 1, 500, 000 |
| Hawaiian Telephone Co..... | 1, 000, 000 |
| Western Union International..... | 1, 000, 000 |

Safeguards Against Stock Speculation

On June 3, 1964, the Commission proposed (docket 15495) to amend part 25 of its rules and regulations so as to curb any undesirable speculation in carrier-owned Corporation stock. The amendment, adopted July 15, requires any carrier desiring to transfer, sell, pledge or otherwise dispose of such stock to an entity other than another authorized carrier to secure Commission approval prior to such transaction. A collateral provision prohibits the Corporation from transferring on its books any stock involved in a transaction requiring the Commission's approval without an FCC order approving the transaction in question. These rules remain in effect until June 1, 1965.

Procurement Policies and Practice

Section 201(e) (1) of the Satellite Act requires that the Commission insure effective competition, including the use of competitive bidding where appropriate, in the procurement by the Corporation and by communication common carriers of apparatus, equipment and services required for the establishment and operation of the satellite system and its terminal stations. The Commission implemented its responsibilities by promulgating rules and regulations which became effective on February 24, 1964. The rules were adopted after consideration of the views of interested segments of industry and consultation with the Small Business Administration (SBA) and other interested Government agencies. They are designed to afford all concerns, including small business, equitable opportunity to compete for procurement requirements of the system.

The Commission has held discussions with a number of prospective contractors and subcontractors with respect to application of the rules under given situations. Private industry has welcomed this approach and such discussions have proved mutually beneficial. In particular, and pursuant to Satellite Act directions, the Commission has worked closely with the SBA in developing a continuing liaison with a view toward enlarging the scope of small business procurement participation to the extent practicable.

Under procedures established by the FCC rules, the Corporation and its prime contractors have entered into a number of procurement

contracts including such matters as multiple-access studies, synchronous satellites for any early capability system, and engineering design studies for the basic global communication satellite system.

"Early Bird" System

On April 15, 1964, the Commission granted application by the Corporation for authority to construct a communications satellite system for synchronous orbit with the earth. It is planned to position this satellite 23,300 miles above the North Atlantic for use on an experimental/operational basis between the United States, Canada, and Western Europe in order to determine the suitability of synchronous satellites for voice and record telecommunications. In the event the facilities function satisfactorily under test operations, the Corporation intends to use the system for transmitting commercial traffic.

The facilities authorized to be constructed consist of 2 satellites with a capability of approximately 240 2-way 4 kc voice channels to be positioned in nearly equatorial orbit over the Atlantic Ocean.

The launching is scheduled to occur in the early part of 1965 by means of facilities and services provided by the National Aeronautics and Space Administration (NASA), on a reimbursable basis, under the terms of an agreement to be entered into between NASA and the Corporation. The proposed launch vehicle is the thrust augmented Thor-Delta and the launch site is to be the John F. Kennedy Space Center in Florida.

By the terms of a Commission order, the system cannot be placed in orbit until the Corporation has requested and obtained specific authorization from the FCC to engage in experimental operations and until the latter has authorized a ground station in the United States to be used in connection with the system. The order also requires the Corporation to obtain specific authority before engaging in commercial service via the system. On July 29, 1964, the Commission authorized the use of the existing earth station at Andover, Maine, under the terms of a lease agreement between the Corporation and A.T. & T.

While the Commission's action represents a significant step in the development of an operable system, it should be emphasized that a number of technical and other questions must be solved before a global system as contemplated by the Satellite Act can be established. Accordingly, it is expected that the Corporation will continue to pursue a program of study, research and development of multiple-access techniques, satellite attitude and stabilization devices, modulation methods, various orbital configurations, and other relevant technical areas of communication space technology.

INTERNATIONAL DEVELOPMENTS

Space Frequency Allocation Considerations

The International Telecommunication Union (ITU) held a frequency allocation conference (Extraordinary Administrative Radio Conference to consider frequency allocations for space radio communication purposes and radio astronomy) in Geneva, October 7 through November 8, 1963. The U.S. delegation to this Conference included Commission representatives, together with those of other interested Federal agencies and of industry. The Conference dealt with a number of specialized requirements, e.g., space research, meteorological satellites, radionavigation satellites. Frequency allocations for the communication satellite service were of particular interest to the Commission due to its statutory responsibilities under the Satellite Act.

The conference attempted to allocate sufficient spectrum space to satisfy anticipated communication satellite service requirements up to about 1975. For this purpose it designated approximately 2800 Mc of spectrum space in the frequency range 1000–10,000 Mc, 2000 Mc of which is immediately useful to the United States. Existing incompatible terrestrial operations (high-power radar, for example) in this part of the world make use of the remaining 800 Mc for space communication purposes quite difficult. All except 100 Mc of the 2800 Mc of spectrum space must be shared with terrestrial radio services, principally line-of-sight radio relay networks. The 100 Mc which is exclusively for the communication satellite service is intended primarily to accommodate mobile earth stations and satellites having higher powered transmitters than can be permitted in the shared bands.

In the United States, the final acts of the space conference have been handled as a treaty rather than as an executive agreement. The Senate gave its advice and consent to ratification on February 25, 1964, and the instrument of ratification was deposited with the Secretary General of the ITU on April 3, 1964. The treaty comes into force internationally on January 1, 1965, as between the parties thereto.

The Commission has been participating in the interagency activity necessary to implement the space frequency allocations domestically. Necessary changes in the Commission's rules are expected to be completed before the treaty comes into force.

Internationally, considerable work remains before the spectrum space designated for satellite communication purposes can be used most effectively. Agreement is necessary on how the allocated bands will be subdivided for use by particular space systems or subsystems. Also, the highly technical criteria for sharing of frequencies between the communication satellite service and terrestrial radio services are only provisional. Preparatory work, therefore, is going forward in

this area, in connection with international meetings scheduled to be held in 1965 and 1966 by the International Radio Consultative Committee (CCIR) of the ITU.

Arrangements for Foreign Participation

The accelerated pace of developments in this country greatly stimulated interest in participation in the system among other nations.

In response to this interest and pursuant to the national policy to establish the system in cooperation with other countries, a series of international discussions were held over the past several months. The Commission, together with representatives of the Department of State, the Communications Satellite Corporation and the communications common carrier industry, participated in a conference with representatives of the European Conference on Posts and Telecommunications in Karlsruhe, Germany, in January of 1964. This meeting was followed by an exploratory discussion held in Rome, Italy, in February with representatives of the European Conference on Satellite Communications and Canada. Further exploratory discussions and drafting sessions in which the Commission participated along with the Department of State and the Corporation took place in London, England, during April and May, as well as a meeting of traffic experts in Montreal, Canada, in April.

These sessions led to a negotiating conference in London in June for the purpose of working out, in detail, arrangements with foreign governments and their respective telecommunication entities for participation in the establishment and operation of the system as contemplated by the Satellite Act. In attendance were representatives of the United States, the European Conference on Satellite Communications, Australia, Canada, and Japan. As in other meetings, the FCC assisted in the preparation of position papers. This conference produced documents which were satisfactory to all interests and represent a significant stride toward realization of a global satellite communication system. Further meetings were held in Washington on July 21-23, 1964. At these sessions two separate agreements, one intergovernmental and one to be signed by designated communication carriers, were concluded. Ten countries signed in Washington on August 20, 1964, and other interested countries have a period of 6 months to sign.

Worldwide Communication Traffic Statistics

The Commission's representatives participated at a conference of the Satellite Communications Ad Hoc Group on Traffic at Montreal, Canada, April 27-29, 1964. The meeting was attended by a group of 27 experts from several European countries, Australia, Japan, and Canada. It was convened for the special purpose of providing worldwide communication traffic statistics both current and forecast to 1968.

At the conclusion of the conference the agreed-upon statistics were forwarded to the European conference and to appropriate officials in Australia, Japan, and Canada to serve as background material for subsequent international meetings relating to foreign participation in the system.

TECHNICAL DEVELOPMENTS

Experimental Programs

The experimental programs of the "Telstar", "Relay", and "Syncom" satellites have continued to provide useful data essential to the establishment of a technically feasible global satellite system. On May 7, 1963, "Telstar II" was launched and continues to operate on a daily basis.

Two "Relay" satellites, developed by the Radio Corporation of America under contract with NASA, are presently in orbit and functioning although "Relay I" has recently shown some deterioration. "Syncom II", developed by Hughes Aircraft Co. under contract with NASA, was successfully placed in near synchronous orbit over the South Atlantic in July 1963, and since that time has continued to operate in a satisfactory manner.

"Syncom II" was launched by NASA on August 19, 1964, into a nearly perfect synchronous equatorial orbit over the Pacific. One of its first tests was relaying live telecasts of the Olympic Games from Tokyo to the United States in October. The U.S. terminal for this experiment was operated by the Corporation at a southern California site pursuant to an FCC authorization of July 22, 1964.

By using these several communication satellites it has been possible to conduct numerous experimental transmissions between ground stations in the United States and abroad. These experiments have been conducted through the joint efforts of the United States and certain foreign governments and communications entities whose cooperation was obtained through coordinated efforts of the Commission, the Department of State, NASA, and private industry. Through such cooperation, ground stations have been established in England, France, West Germany, Italy, Brazil, and Japan. The coordination so far effected has laid the groundwork for continued joint endeavor necessary to the establishment of a truly global system of satellite communications as envisaged by the Satellite Act.

The Commission, through its participation in the CCIR, is studying criteria for the sharing of frequencies without undue interference. Such studies, among other things, involve determinations of minimum separation distances between stations on the ground and the maximum power (in terms of flux density reaching the earth) that can be transmitted by satellite ground stations.

Relations with Other Agencies

In the Spring of 1963 the President established an interagency Ad Hoc Group on Satellite Communications, which provides a forum for the various departments and agencies charged with responsibilities in this field to coordinate policies and to exchange views on developments of common concern.

Broadcast Services

ENFORCEMENT

During the fiscal year the Commission maintained its policy of vigorous enforcement of the act and of its own rules and regulations in the broadcast services to the end that licensees should fulfill their obligation to serve the public interest, convenience and necessity.

The staff received and processed a large volume of complaints and other comments from the public, and inquired into a larger number of cases than ever before. Many of these inquiries revealed no substantial basis for imposition of sanctions. However, the licenses of 3 stations were revoked, license renewals were denied to 3 stations and original licenses of 2 other stations, and at the end of the fiscal year 22 other stations were in license revocation or renewal proceedings. Notices of apparent liability for money forfeitures were issued to 13 stations and orders for forfeitures were issued to 15 others. Two stations were granted license renewals for less than the usual 3-year period.

COMPLAINTS AND OTHER PUBLIC COMMENT

More than 26,000 expressions of public opinion on broadcast matters were received in fiscal 1964, compared to about 20,000 the previous year. Approximately one-half of the 1964 total were complaints about broadcasting. The remainder were expressions (pro and con) on the Commission's regulatory policies or were laudatory of stations or programs, or were in essence requests, inquiries, etc. The largest single category of complaints (43 percent) concerned advertising practices. Complaints about programing, previously the largest category, ranked second, with 33 percent.

Of all the public expressions, 1,767 were in response to the renewal announcement which stations are required to make (compared to 2,197 in fiscal 1963). Of these, 1,409 were generally favorable to the stations commented on, and 358 were unfavorable.

COMPLIANCE

Field investigations of stations were conducted in 28 States during fiscal 1964. The subjects of inquiry included payola, rigged contests,

obscenity, horserace broadcasts believed to have been made for the purpose of assisting illegal gambling, double billing of advertisers, failure to operate in conformance with the fairness doctrine, improper use of audience ratings, violation of network rules, improper sponsor identification, unauthorized rebroadcast, unauthorized transfer of control, violation of multiple ownership rules, and various technical violations.

SANCTIONS

The Commission's inquiries into alleged violations of statutes and rules resulted in the following enforcement actions during the fiscal year (stations listed together are commonly owned).

Revocation Proceedings

Final action was taken to revoke one AM and two FM station licenses:

WPFA, Pensacola, Fla.; falsification of logs of commonly owned station, and misrepresentations (Jan. 29, 1964); stayed March 18, 1964; FCC reconsideration denied June 3, 1964; in court (see related WMOZ, Mobile, Ala., license renewal proceeding);

WELF-FM, Glen Ellyn, Ill., and WELG-FM, Elgin, Ill.; silent without permission, station abandonment, and other rules violations (Mar. 11, 1964). Did not appear at hearing.

In addition, on September 27, 1964, the Commission revoked the license of WCLM (FM), Chicago, Ill. A petition for reconsideration is pending. Grounds for revocation included abdication of license control; operation in a manner completely different from that proposed in renewal application; refusal to supply information, and other violations.

On September 11, 1963, the Commission reconsidered its previous March 6 revocation proceedings against WALA AM-TV, Mobile, Ala., and terminated the proceedings.

In another case, the Commission, on April 1, 1964, affirmed its January 30, 1963 order which revoked and deleted the call letters for WLOV (FM), Cranston, R.I. (which had been silent since July 1961).

Four stations (2 AM and 2 FM) were subject to revocation proceedings initiated during the year:

WKYN and WFQM (FM), San Juan, and WORA-FM, Mayaguez, P.R.; misrepresentations and rebroadcasting in violation of section 325(a) of the Communications Act; or, in lieu of revocation, liable to forfeitures; awaiting initial decision;

WTIF, Tifton, Ga.; character qualifications of licensee, and unauthorized transfer (see related WDMG, Douglas, Ga., and WMEN, Tallahassee, Fla., license renewal proceedings); in hearing status.

Another revocation proceeding, initiated prior to fiscal 1964, was awaiting final decision:

WIZR, Johnstown, N.Y.; character qualifications, hidden ownership, and misrepresentations; an initial decision of August 9, 1963 looked toward revoking (see related WSPN, Saratoga Springs, N.Y., license renewal proceeding).

License Renewal Proceedings

The Commission refused license renewals to three AM stations and original licenses to another AM and one TV station:

WIXI, Irondale, Ala., original license; unauthorized transfer and misrepresentation (Sept. 11, 1963); in court;

WMOZ, Mobile, Ala.; falsification of log entries and other misrepresentations (Jan. 29, 1964); stayed March 18, 1964; FCC reconsideration denied June 3, 1964; in court (see related WPFA, Pensacola, Fla., revocation proceedings);

WWIZ, Lorain, Ohio; unauthorized transfer; also, original license of TV station WXTV, Youngstown, Ohio; failure to introduce necessary evidence (Mar. 31, 1964);

WGMA, Hollywood, Fla.; character qualifications of licensee principals who were involved in "fixed" network TV shows (Apr. 17, 1964).

On petition for reconsideration, the Commission, on September 11, 1963, granted without hearing the application for original license of WIXX, Oakland Park, Fla., in view of revised programing proposals.

After hearings, it granted renewal of licenses of WAXE, Vero Beach, Fla. (Aug. 2, 1963); WFAR, Farrell, Pa. (Mar. 25, 1964), and KMAC and KISS(FM), San Antonio, Tex. (Mar. 31, 1964).

WSPN, Saratoga Springs, N.Y., surrendered its operating authority on March 3, 1964, prior to final decision: an August 9, 1963 initial decision looked toward denying (see related WIZR revocation proceedings).

Proceedings to determine whether the licenses of the following stations should be renewed were pending at the close of fiscal 1964:

WXFM (FM), Elmwood Park, Ill.; unauthorized transfer, misrepresentation, financial qualifications; in further hearing status;

WHEY, Millington, Tenn., and WKBL, Covington, Tenn.; character qualifications and unauthorized transfer of WHEY; an initial decision of July 15, 1963, looked to deny; on July 15, 1964, the Commission granted the WKBL renewal and denied that of WHEY.

KSHO-TV, Las Vegas, Nev.; unauthorized transfer and undetermined ownership; awaiting initial decision;

KCHY, Cheyenne, Wyo., and KDAC, Fort Bragg, Calif.; character qualifications, etc.; initial decision of January 9, 1964, proposed short-term renewals; on July 24, 1964, the stations were granted 1-year renewals.

WDMG, Douglas, Ga., and WMEN, Tallahassee, Fla.; character qualifications; in hearing status (see related WTIF, Tifton, Ga., revocation proceeding);

WILD, Boston, Mass.; misrepresentations, lack of candor, violations of act and rules; awaiting initial decision.

In addition, four renewal applications were the subject of hearings along with competing mutually exclusive applications—WCKT(TV) and WLBW-TV, Miami, Fla.; WHDH-TV, Boston Mass., and WSMD(FM), Waldorf, Md.; the first three requesting regular renewals were original short-term licensees.

On July 29, 1964, the Commission acted on applications for renewal of National Broadcasting Co.'s licenses for station WRCV and WRCV-TV, Philadelphia, and of RKO General, Inc., for WNAC, Boston. These proceedings concerned antitrust matters relating to NBC and its parent Radio Corporation of America, and character qualifications of RKO. The licenses were renewed but NBC was directed to assign its licenses to Westinghouse Broadcasting Co. in exchange for that licensee's Cleveland properties (KYW and KYW-TV). The Commission found that NBC had in effect forced Westinghouse, formerly a Philadelphia radio and TV licensee, to exchange its Philadelphia properties for NBC's Cleveland properties by improper use of its power as a major TV network to grant or withhold affiliations. RKO appealed both to the Commission and the court.

Forfeiture Proceedings

Sections 503 and 504 of the Communications Act authorize the Commission to hold broadcast licensees liable for monetary forfeitures up to \$10,000 for certain violations which do not justify revocation of license. Such forfeitures are payable to the U.S. Treasury.

During the fiscal year notices of apparent liability were issued to 13 stations, as compared to 20 such notices during fiscal 1963. The notices issued during fiscal 1964 were:

WVAL, Sauk Rapids, Minn., August 1, 1963, \$100 for unauthorized transfer;

KATT(FM), Woodland, Calif., September 18, 1963, \$2,500 for unauthorized assignments and transfers;

WAIL, Baton Rouge, La., November 13, 1963, \$500 for violation of operating log requirements;

WPYB, Benson, N.C., December 27, 1963, \$250 for failure to make sponsorship identification of paid-for advertising;

WNJR, Newark, N.J., January 22, 1964, \$1,000 for failure to file time-broker contract;

KFYR-TV, Bismarck, N. Dak., February 5, 1964, \$1,000 for broadcasts of "rigged" contest;

WDOC, Prestonsburg, Ky., February 5, 1964, \$250 for failure to give sponsorship identification of "teaser" announcements;

WMSL-TV, Decatur, Ala., April 1, 1964, \$500 for violations of log-keeping requirements;

WIII, Homestead, Fla., April 1, 1964, \$500 for operating beyond authorized hours;

WWIL-FM and WFLM-FM, Fort Lauderdale, Fla., April 15, 1964, \$250 and \$500, respectively, for failure to maintain modulation levels within prescribed limits;

WBTS, Bridgeport, Ala., May 13, 1964, \$250 for failure to identify program sponsor (also admonished for "bait and switch" technique); and

KALN, Iola, Kans., May 27, 1964, \$500 for violation of first-class operator requirements.

Forfeitures were ordered for 15 stations which had responded to previous notices of apparent liability:

KLFY-TV, Lafayette, La., July 3, 1963, \$1,000 for failure to identify sponsorship;

KPEL, Lafayette, La., July 3, 1963, \$250 for failure to identify sponsorship;

KRSD, Rapid City, S. Dak., October 30, 1963, \$1,000 for equipment and other rule violations;

WCCO-TV, KSTP-TV, WTCN-TV and KMSP-TV, all Minneapolis, Minn., October 30, 1963, \$500 each for failure to identify sponsorship; in court;

WVAR, Richwood, W. Va., November 20, 1963, \$3,500 for violation of operator requirement rule;

WOL-FM, Washington, D.C., December 18, 1963, \$1,000 for violation of operating rule requirements;

KVOC, Casper, Wyo., December 18, 1963, \$1,500 for violation of operating rule requirements;

KATT(FM), Woodland, Calif., February 5, 1964, \$500 for series of unauthorized assignments of licenses and transfers of control (reduced from \$2,500 specified in Sept. 18, 1963, notice of apparent liability);

WAIL, Baton Rouge, La., February 26, 1964, \$500 for violations of logging requirement rules;

WPYB, Benson, N.C., March 4, 1964, \$250 for failure to make sponsorship identification of paid-for advertising;

WMSL-TV, Decatur, Ala., June 10, 1964, \$500 for violations of log-keeping requirements; and

WIII, Homestead, Fla., June 10, 1964, \$500 for violation of operating hours.

Other actions concerning forfeitures:

Further reduced from \$500 to \$50 forfeiture ordered May 1, 1963, to WRVB-FM, Madison, Wis., for unauthorized assignment of license, July 3, 1963; affirmed forfeitures previously ordered KLFY-TV and KPEL, Lafayette, La. (Oct. 9, 1963) and WVAR, Richwood, W. Va. (Feb. 4, 1964).

Short-Term Licenses

Because of violation records indicating the need for closer supervision, stations KAFE-FM, San Francisco, Calif., and WMLP, Milton, Pa., were given license renewals for shorter periods than the normal 3-year term.

POLITICAL BROADCASTS

In amending section 315(a) of the Communications 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, Congress requires the Commission to include in each annual report "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."

The Commission gives section 315 matters priority consideration. 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. These Commission notices are by telegram, letter or telephone, depending on the immediacy of the election. When a determination is made, both the complainant and the licensee are similarly notified.

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 typical case, the Commission inquires 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 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 candidate requesting equal time.

During fiscal 1964, the Commission received and handled approximately 175 complaints relating to section 315. It did not experience any serious problems in applying the 1959 amendments to section 315 in cases before it during that period. Accordingly, it did not make any recommendations on that subject to Congress.

On October 3, 1962, the Commission issued a revised public notice on "Use of Broadcast Facilities by Candidates for Public Office." This is a compilation of the Commission's prior interpretative rulings under section 315 and related rules. On July 31, 1964, the Commission issued a supplement containing subsequent significant rulings. The supplement also contains a statement of procedure to be followed

by candidates and licensees in connection with the filing of complaints under section 315.

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

1. On February 10, 1964, the president and part-owner of five stations and also a candidate for U.S. Senator in the Texas Democratic primary wrote his rival in the primary, the incumbent, that commencing on that date each of his five stations would be running, once each hour, from 12 p.m. (midnight) to 6 p.m., political announcements of roughly 1-minute duration on behalf of the station owner's candidacy. The letter advised the incumbent that he was "entitled to equal time, at no charge," and urged him to contact the station owner or his specified agent to take advantage of the free broadcast time; also, the letter stated that "FCC rules on the use of political time are somewhat difficult to assess with exactitude," and that if the incumbent had any questions with respect to the handling of the matter he should call the station owner.

On February 27, 1964, the incumbent's campaign manager replied to the station owner's letter, thanking the station owner for advising the incumbent "of the accumulation of time at the rate of 18 minutes per day" on each of the five stations, from February 10, 1964, and advising the station owner that he would be notified when the incumbent decided to start using the accumulated time. The station owner-candidate did not respond specifically to the February 27 letter from the incumbent's campaign manager.

By registered airmail letters, the stations, following receipt of the February 27 letter, kept the incumbent advised of the "section 315 use" being made by the station owner-candidate. The stations sent (on February 18 and 26, March 12, 26 and 31, April 10 and 20) the text of the station owner's "use" and information as to when it would appear on each of the stations. In these seven communications, the incumbent was advised of his right to equal free time.

On April 10, the incumbent opened his campaign and, on April 14, his campaign manager wrote to his opponent's stations and forwarded to them radio tapes to be run on the incumbent's behalf. The stations advised the incumbent that the Commission's 7-day rule (sections 73.120(e); 73.290(e)) was applicable and thereby precluded any requests for "equal opportunities" for any broadcasts prior to April 7, 1964.

The Commission held that in the circumstances of this case the licensee had improperly relied upon the 7-day rule. The Commission noted that the licensee, although professing to be doing its best "to be completely fair" and although it communicated with the incumbent several times after the receipt of the February 27 letter, never informed the incumbent of the licensee's views that the 7-day rule applied. The Commission stressed that where the licensee, or a principal of the licensee, was also the candidate, there is a special obligation upon the licensee to insure fair dealings in such circumstances and held that the licensee was therefore estopped from relying upon the 7-day rule for the period after February 27, 1964. The second ground for the Commission's holding moved the critical date back to February 20. Since, on February 27 the rival informed the stations of his "section 315" plans—namely that he wished to make use of the 18 minutes per day (from February 10) at some future time (which he would communicate to the stations), the Commission ruled that the licensee knew, as to all uses since February 20 (the prior 7-day period) and all subsequent uses along the same fixed and continuing pattern it had specified, that equal opportunities were requested, and that it could have, if it had wished, made reasonable scheduling plans. After again considering the special obligation of the licensee

where he or a principal is also the candidate, the Commission held that the letter of February 27 reasonably constituted the notification required under the rules and that the incumbent was entitled to "equal opportunities" from February 20 on.

2. The Commission was advised that a station adopted and maintained a policy under which commissions were not paid in connection with commercial advertising although it did pay such commissions in connection with political advertising. Further, in the case of commercial advertisers who did not use advertising agencies, the station performed those functions which the advertising agency would normally perform, but in the case of political advertisers, the station performed no such services. An agency which had placed political advertising over the station in a recent election made a demand of the station for payment of the agency commission.

The Commission held that such a policy violated both section 315(b) of the act and section 73.120(c) of the rules; that the benefits accruing to a candidate from the use of an advertising agency were neither remote, intangible nor insubstantial; and that, while under the station's policy a commercial advertiser would, in addition to broadcast time, receive the services of an advertising agency merely by paying the station's established card rate, the political advertiser, in return for payment of the same card rate, would receive only broadcast time. The Commission concluded that such a resultant inequality in treatment vis-a-vis commercial advertisers is clearly prohibited by the act and the rules.

3. The Commission received a complaint from the campaign headquarters for A. B. Chandler, a candidate for Governor of Kentucky, which alleged that station WHAS-TV, Louisville, had broadcast a program entitled "The Chandler Years in Review" which criticized Chandler's prior governorship and which although, in fact, sponsored by Chandler's opponent, Edward T. Breathitt, was not so identified by the station as required by section 317 of the act and section 73.654 of the rules. After obtaining information from the station, the Commission on May 22, 1963, issued a notice of apparent forfeiture in the amount of \$1,000 for an apparent willful violation. The Commission found that the program was announced as sponsored by the "Committee for Good Government" but written documents of the advertising agency for the committee indicated that the committee was, in fact, acting on behalf of Breathitt.

The Commission, after reviewing a response from the licensee to the liability notice, upheld the \$1,000 forfeiture, after pointing out that acceptance of the licensee's construction of the act and the rules would subvert the basic purpose and intent of the sponsorship identification requirements in this most vital area. For it would mean that a candidate could organize a purportedly nonpartisan group with no apparent connection with his campaign organization and then use it to support his candidacy, and that a licensee with actual knowledge of this arrangement, as is the case here, could broadcast programs furnished to him by such an organization without identifying the candidate as the true sponsor. Such a proposition is contrary to section 317 and the Commission's implementing rules.

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 for the broadcast of

opposing viewpoints. This principle, sometimes referred to as the "fairness doctrine," became Commission policy and subsequently was reflected in section 315 (a) of the Communications Act.

Resultant complaints to the Commission alleged such abuses 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, where necessary, 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.

The number of questions concerning treatment of controversial issues and editorializing over broadcast stations increased sharply in fiscal 1964. The Commission received and handled over 5,000 inquiries relating to the "fairness doctrine" and it is expected that as more broadcast stations undertake to editorialize and to present controversial programming the number of inquiries will increase.

The following significant "fairness doctrine" matters came before the Commission during the year:

1. Several stations broadcast a daily commentary program 6 days a week, in three of which views were expressed critical of the proposed nuclear weapons test-ban treaty. On one of the stations the program was sponsored 6 days a week, and on the other 1 day a week. A national committee in favor of the proposed treaty requested that the stations afford free time to present a tape of a program containing viewpoints opposed to those in the sponsored commentary program. The stations contended that their obligation under the "fairness doctrine" extended only to a local group or its spokesman and inquired whether they were required to give free time to a group wishing to present viewpoints opposed to those aired on a sponsored program.

The Commission stated that where the licensee has achieved a balanced presentation of contrasting views, either by affording time to a particular group or person of its own choice or through its own programming, the licensee's obligation under the "fairness doctrine"—to inform the public—will have been met. But, it made clear that the public's paramount right to hear opposing views on controversial issues of public importance cannot be nullified by either the inability of the licensee to obtain paid sponsorship of the broadcast time or the licensee's refusal to consider requests for time to present a conflicting viewpoint from an organization on the sole ground that the organization has no local chapter. In short, where the licensee has chosen to broadcast a sponsored program which for the first time presents one side of a controversial issue, has not presented (or does not plan to present) contrasting viewpoints in other programming, and has been unable to obtain paid sponsorship for the appropriate presentation of the opposing viewpoint or viewpoints, he cannot reject a presentation otherwise suitable to the licensee—and thus leave the public uninformed—on the ground that he cannot obtain paid sponsorship for that presentation.

2. On September 19, 1963, in response to an inquiry from the General Counsel of the National Association of Broadcasters, the Commission pointed out that the personal attack policy under its "fairness doctrine" was not limited to those situations where the licensee was personally involved in the broadcast of the attack; that the policy (which requires the person or group attacked to be noti-

fied of the attack, furnished a transcript of the pertinent continuity, and afforded an opportunity to reply) applies whenever a personal attack is broadcast. The Commission also pointed out that while it is obviously desirable to have a script or tape of a program which is controversial in nature, where a personal attack is made and no script or tape is available, good sense and fairness dictate that the licensee send as accurate a summary as possible of the substance of the attack to the person or group involved.

3. On December 27, 1963, the Commission replied to the president of the NACCA Bar Association which had complained that the Columbia Broadcasting System's "Smash Up" program, broadcast as part of the Armstrong Circle Theatre series, was instigated by the insurance industry and unfairly portrayed lawyers prosecuting personal injury cases. NACCA asked the Commission to take some action to prohibit similar type shows in the future. The Commission stated that it could find no basis for concluding that the program was instigated by the insurance industry and that, with certain statutory exceptions, the Commission has no authority to prohibit the broadcast of program material.

On July 1, 1964, the Commission issued a public notice on "Applicability of the Fairness Doctrine in the Handling of Controversial Issues of Public Importance," in which it recounted related past rulings. This, together with a legislative history on the subject and a reprint of the 1949 "Report on Editorializing by Broadcast Licensees," was published in the Federal Register July 25 thereafter (pt. II, vol. 29, No. 145).

TV NETWORK PROGRAMING INQUIRY

During the previous fiscal year the Office of Network Study filed with the Commission a detailed report on the legal-economic phase of TV network program production. That report contained recommendations for action by the Commission directed toward elimination of undue and unnecessary restraints on competition in network program production and procurement; also to require networks to file data designed to clarify their responsibility for programing in relationship with their affiliates as well as to enable the Commission to determine from time to time whether competitive conditions exist in TV broadcasting at a level requisite to the maintenance of a national broadcast structure in the public interest. During the present fiscal year those recommendations were presented to the Commission in greater detail and are presently under consideration. A request was made of all TV networks for additional information regarding the economics of program procurement needed to bring to date some of the information on which the original recommendations were based.

Other pertinent matters involving the relationships between various components of the TV industry and the networks raised in the Commission's program inquiry (docket 12782) were under staff consideration during the year. Much analytical and exploratory work has been done looking toward the presentation of additional reports and recom-

mendations to the Commission in these areas. In addition, FCC liaison has been maintained with the Department of Justice regarding matters raised in the Commission's inquiry.

MULTIPLE OWNERSHIP

The Commission, on May 20, 1964, amended the rules for each of the broadcast services concerning the prohibited overlap between commonly owned, operated, or controlled commercial stations. The new, more stringent rules (in which general language was eliminated and more clearly defined standards were substituted) apply to applicants for new stations, major changes in existing stations and assignments and transfers of stations. Although the new rules do not require divestiture by a licensee of existing facilities in the same service because of overlap prohibited under the new rules, a licensee may not assign or transfer more than one such station to a single assignee or transferee.

The criteria of the new rules are the 1 mv/m field strength contour for AM and FM, and the grade B contour in TV. These contours would be determined on the basis now provided by the rules. The new rules exempt increases in power of class IV-AM stations and TV operations that are "primarily satellite" in nature.

In reaching this decision, the Commission abandoned its traditional *ad hoc* approach to this problem in favor of a fixed and precise rule. The chief reasons for this were that in individual cases the "duopoly" consideration is only one of a number of factors, and this important and fundamental principle tends to become obscured; and that case-by-case consideration, with the substantial burden involved, does not justify the effort if a more efficient approach can be used which is equally in the public interest. It was stated that a review of all "duopoly" case decisions showed that the pattern of resulting grants does not represent a desirable realization of national multiple-ownership policy. It was also pointed out that substantial benefits are inherent in a fixed standard, such as affording a firm guide by which potential applicants can plan their actions.

WIDELY HELD LICENSEE CORPORATIONS

Certain problem areas were discovered in applying and enforcing the Commission's multiple-ownership rules. With respect to corporate licensees whose stock is publicly traded, it appears that some licensees, in filing required ownership information, have not disclosed the beneficial owners of some stock, in violation of section 1.615 of the rules. This is stock held by banks and brokerage houses in "street names" for the benefit of mutual funds, trusts, and trading customers.

Often, such stock ownership is reported to the Commission only in terms of the "street name" owner of record, without disclosing the beneficial owner. As announced December 27, 1963, the Commission contemplated, through inquiry and rulemaking proceedings, to insure that full and complete ownership data is filed, so that a true picture may be obtained of the ownership and control of publicly held licensee stock and adequate enforcement policies and procedures may be adopted.

The problem areas are the "1 percent" rule and the Commission's duopoly policy. Because in a widely held corporation relatively smaller individual holdings may mean a substantial voice in control and management, the FCC rules provide that holdings of 1 percent or more of the stock of a corporate licensee with 50 or more stockholders is the standard to be used in applying the multiple ownership rules. The Commission's duopoly policy is concerned with ownership or more than one station in the same service in the same area. It recently found that certain parties (particularly mutual funds) are beneficial owners of 1-percent-plus of the stock of two or more licensees having, between them, more than the maximum number of stations permitted to be commonly owned or controlled in any broadcast service. Also, such parties are sometimes beneficial stockholders in two licensees with stations in the same service reaching substantially the same area. Thus the multiple-ownership rules are violated.

On September 16, 1964, the Commission instituted a joint inquiry and rulemaking proceeding (docket 15627) on means to deal with problems presented by mutual funds and other investment groups holding stock in broadcast stations to a degree contrary to the multiple-ownership rules. Pending final determination, the Commission has consented to station assignments and transfers provided the bank or brokerage house agrees not to vote stock that places the beneficial owner in violation of the rules.

REVISION OF PROGRAM REPORTING FORM

The Commission has pending a proceeding concerning revision and modernization of the program reporting form used with renewal applications in the AM, FM, and TV broadcast services (docket 13961). In December 1963 and January 1964, the Commission issued proposed further rulemaking contemplating new TV and radio program forms and scheduled an oral proceeding in addition to inviting written comments. Subsequently, ad hoc committees representing broadcasters, the communications bar, and the FCC, were formed to review the proposed forms and see if improvements could be made. Based on the committees' proposals and the Commission's earlier proposal, the Commission proposed four new program forms—for TV renewal, other

TV applications, AM and FM renewal, and other AM and FM applications. Oral hearings were held in June 1964; lengthy written comments were also filed by broadcasters and others. Groups of TV and radio broadcasters used the proposed forms on a test basis during the summer of 1964 and their reports are being studied.

The proposed forms differ from the present form in various respects. In both radio and TV, information would be required as to the renewal applicant's efforts to ascertain the needs and interests of his community for broadcast service, amount of commercial matter (in sponsored programs in addition to "spot announcements"), and individual programs of certain types. The TV forms would also require information as to the number of interruptions of programs by commercial messages and, for renewal applicants, information based on the composite week for each of the past 3 years of the license period (instead of the last year's composite week as presently required). Two concepts of the present form—division of broadcast time into "commercial" and "sustaining," and use of 14½-minute segments for commercial analysis, would be eliminated.

A related proceeding (docket 14187) concerns revision of the program logging rules. On October 3, 1963, rules were adopted permitting automatic program logging under certain conditions. The other aspects of program logging rules and procedures will be decided after new program forms are adopted.

BROADCAST ADVERTISING

Excessive Advertising

Following oral argument, the Commission on January 15, 1964, terminated the "overcommercialization" proceeding (docket 15083), in which it had proposed to adopt rules limiting the amount of time which TV and radio stations may devote to advertising matter. The Commission emphasized, however, that it would continue to give close attention to excessive commercialization by stations on a case-by-case basis.

The Commission rejected the arguments as to unconstitutionality and that the proposed rule was in excess of its authority. Rather, it concluded that sufficient information from which a sound set of standards of wide applicability could be evolved (both as to the total time to be consumed by broadcast advertising and the extent to which such advertising should be permitted to interrupt programming) is not presently available. It was pointed out that new program logs and forms, and studies of the problems may supply such information.

Applicants will continue to be required to state their policies as to number and frequency of commercial spot announcements as well as to furnish information about past performance. This showing will

be considered with respect to overall evaluation of performance, particularly where performance varies substantially from stated policy.

Loud Commercials

On December 18, 1962, the Commission initiated an inquiry into the subject of the loudness of commercial announcements (docket 14904), a matter about which complaints have been numerous and increasing in recent years. This is not a simple matter, involving as it does subjective differences in the reactions of individual listeners, contrast between the loudness of the commercial and preceding program material, the method of delivery of the announcement and other factors. Various audio techniques, such as volume compression and limiting, are also involved.

As yet the Commission has not decided on the most appropriate way of dealing with this problem. Possible approaches include: Stricter control-room procedures with respect to audio levels; a limitation on the degree of compression which may be used (especially where the announcement is prerecorded); and a general requirement that the broadcaster take whatever steps are necessary to avoid presentation of commercials which are "loud" in relation to surrounding material as far as the typical listener's reaction is concerned. A study is underway to determine which of these approaches would most effectively deal with the problem, and further developments are expected shortly.

Combination Advertising Rates

In January 1963 the Commission issued a public notice concerning combination advertising rates offered advertisers by independently owned stations serving substantially the same area. It stated that such arrangements raise serious antitrust questions and are contrary to Commission policy and the public interest.

Since then the Commission has reviewed one specific plan, that of FM Group Sales, Inc., which represents groups of FM licensees in various metropolitan areas. On February 20, 1964, a letter to that organization stated that the Commission has no objection to the group plan—to offer advertisers any two or more of the stations at a rate equal to the combined rates of the stations desired by the advertiser—but with two reservations: (1) It appeared that, while each member station set its own rates independently of the others, some stations had lower rates for time bought through the group than for time bought outside the group, and (2) one official and substantial shareholder of FM Group Sales was the licensee of a member station and might be involved with the rates of other members.

FM Group Sales agreed to take steps to eliminate the second reservation, but urged that the practice first referred to is not contrary to

the public interest, taking into account the difficulties faced by FM stations in selling time. On further consideration, the Commission, by letter released July 30, 1964, stated that it does not contemplate further action with respect to the FM Group Sales operation.

Double Billing

On March 25, 1964, the Commission proposed rules to regulate the practice of "double billing", because some broadcasters are continuing the practice despite the Commission's 1962 warning that it is contrary to the public interest and that appropriate proceedings would be instituted where evidence of that practice by licensees is found to exist.

As defined, "double billing" is giving a local advertiser two bills, one for the actual amount charged for advertising and the other for a larger sum which the advertiser uses to support a claim for reimbursement under a cooperative advertising agreement with the manufacturer or national advertiser.

Sponsorship Identification

Forfeitures were imposed on a number of stations for failure to make proper identification of the parties (sponsors) responsible for the presentation of broadcast material. The violations involved fell into two areas: (1) "Teaser" commercial announcements, promotional material on behalf of a product or service without identifying the product or service, and (2) failure to identify those furnishing material on controversial issues. Applicability of the sponsorship identification rules was set forth in detail in a public notice of May 6, 1963.

"Payola" and "Plugola" Inquiry

On November 27, 1964, the Commission instituted an inquiry into complaints of continued "payola" and "plugola" (hidden advertising) practices in broadcasting in violation of Sections 317 and 508 of the Communications Act.

BROADCAST STATION SALES

On March 15, 1962, the Commission adopted a rule providing, with certain exceptions, that applications for the sale of broadcast facilities filed within 3 years of their acquisition by the seller will be designated for hearing. By June 30, 1964, the Commission had considered 161 applications involving this rule. Of this number, 155 were granted and 6 were, in effect, denied in that the parties dismissed their applications when advised that a hearing would be necessary. The grants

were made on the basis of compliance with the exceptions contained in the rule or on a waiver of the rule. While no figures are available, it is believed that a number of transactions involving station sales were not consummated where the parties clearly had no reason to expect a grant under the exceptions to or a waiver of the 3-year rule.

Increases in the consideration paid for broadcast stations were evident. A record price for a single station was when WIIC(TV), Pittsburgh, was sold in late 1964 for \$20½ million. The largest group sale price on record was realized when Transcontinent Television Corp. disposed of 11 stations in early 1964 for \$38,539,310.

BROADCAST OF HORSERACING INFORMATION

In April 1963 the Commission proposed rules (docket 15040) to identify, more precisely, practices with respect to broadcast of horseracing information which can aid illegal gambling. An essential purpose of the proposed rules was to eliminate broadcaster uncertainty as to what information might be of use to gamblers. On June 17, 1964, the Commission terminated that proceeding since it appeared that detailed rules could not be formulated without running a risk of impeding the broadcast of legitimate horseracing news.

However, the Commission emphasized its continuing concern with the problem, particularly since recent legislation barring illegal gambling interests from access to interstate wire communication facilities may make the broadcast services of more significance to such activities. It warned that the past records of stations will be questioned when they have made a practice of regularly broadcasting certain types of horseracing information, including results of an entire day's card immediately or shortly after each race is run, actual "off-times" (as opposed to "post-times"), and late pre-race information, such as post positions, jockeys, probable odds, and scratches. The Commission also declared its intention to explore the possibility of establishing additional logging requirements designed to supply meaningful information in this area to aid its investigatory processes.

LICENSE RENEWALS

During the year the Commission examined 1,809 applications of AM, FM, and TV stations for renewal of licenses, also 424 renewal applications by TV translator stations. This included check, and correspondence in many instances, of significant variances between the station's previous programing proposals and its current practices.

EMERGENCY OPERATION

Rules were adopted governing broadcast operation during emergencies (docket 14703). Daytime AM stations may operate beyond licensed hours, on a noncommercial basis, if essential to the safety of life and property during actual or threatened weather or other emergency when unlimited time AM stations (if any) in the area are inoperative, do not serve the same area, or do not cover the emergency. Unlimited time AM stations may operate during nighttime hours with their authorized daytime facilities, subject to the same general conditions.

Announcement of school closings and changes in schoolbus schedules resulting from inclement weather is now permitted if adequate advance warning cannot be given during licensed hours. With respect to AM, FM, and TV stations generally, the new rules permit transmission of messages to specific individuals during an emergency. Emergency operation may consist only of information concerning the emergency and intervening music; there can be no commercials. Emergency operations are to be reported to the Commission as soon as possible after their commencement and termination.

CALL LETTER ASSIGNMENT PROCEDURE

The Commission, on March 4, 1964, proposed changing the procedure for assignment of call letters to broadcasting stations (docket 15363). Specifically, problems have arisen when a permittee has requested a call sign to which another station objects (because of alleged similarity in spelling or sound). To obviate such difficulties, the Commission proposed that (a) public notice be given of any request for call letter assignment; (b) the applicant for a new or changed call sign must advise other broadcasting stations within a delineated area (transmitter located within 35 miles of the applicant's transmitter); and (c) action on the request be deferred for at least 30 days after the notice.

TELEVISION (TV) BROADCAST SERVICE

All-Channel TV Receivers

The all-channel TV receiver requirement, decreed by Congress in 1962, became effective under the Commission's implementing rules (docket 14769) on April 30, 1964. TV sets manufactured after that date and shipped in interstate commerce (or imported) must be capable of receiving UHF as well as VHF channels.

This amendment to the Communications Act was requested by the Commission as part of its program for extending TV service by furthering UHF operation. Since the present 12 VHF channels are in-

sufficient for TV expansion, the only way it can grow is by utilizing the 70 UHF channels which the Commission has also provided for visual broadcast. A particular obstacle was the dearth of TV sets capable of receiving UHF stations.

All-channel sets should encourage the building of more commercial and educational UHF stations, thus bringing more programs to the public. The new law does not require any person to purchase a new TV receiver. The VHF sets now in use can be operated as long as they give service, and VHF sets made before April 30, 1964, may continue to be purchased until the present stock is exhausted.

Advisory Committee on UHF

The Committee for the Full Development of All-Channel Broadcasting, which was formed on March 12, 1963, has been active in supplying the Commission with information which will be useful in rule-making and in its reports.

The committee has advised with respect to the ratio of the aural and video powers which TV stations should use. It also made recommendations regarding the interrelationship of CATV systems and the broadcast service.

Currently under consideration for submission to the Commission are committee reports on transmitting antenna design and test procedures, recommended revisions of the rules respecting service delineation and reports on the progress in UHF tuner development. Also available for the first time are reports covering the characteristics of all types of UHF receiving antennas.

The committee was responsible for the preparation of an 8-page folder titled "What You Should Know About All-Channel TV" which was published jointly by the FCC, the Electronic Industries Association and the National Better Business Bureau. It briefs consumers, salesmen, and service technicians and others interested in the essentials of UHF reception.

In addition, the FCC produced for dissemination by this committee a program titled "UHF Story on Slides" which has been viewed by an estimated 200,000 persons.

Revision of UHF Assignments

The Commission, on October 24, 1963, proposed a revised allocation plan for UHF channels (docket 14229); subsequently, it was decided that a new approach should be explored before commitment to any final assignment plan. Meanwhile, it accepted as a comment in the proceeding a National Association of Educational Broadcasters' nationwide assignment plan based on digital computation.

Among the matters to be considered during this reexamination of allocation philosophy and objectives are: Selection of communities for

assignment and, in particular, the problems of adverse impact of multiple stations in major cities on the opportunities for local stations in small communities; and whether there is a need for a local service class of TV station similar to class A FM stations.

In the meantime, in order to permit UHF to develop as rapidly as possible, the Commission made assignments in 14 markets and indicated that others would follow where no adverse comments were filed and such action was deemed warranted (i.e., a showing of demand for the channel and an expressed intention to apply for it in the near future). The communities thus far selected are: Wildwood, N.J.; Charlottesville, Va.; Boston, Mass.; Melbourne, Fla.; Concord and Linville, N.C.; Huntsville, Ala.; Tampa-St. Petersburg, Fla.; Tucson, Ariz.; Yakima, Wash.; Santa Barbara, Calif.; Olney, Ill.; Austin, Tex., and Hanover, N.H. The Commission, however, indicated that such assignments are subject to deletion or substitution during further allocation proceedings if they were not applied for, or if construction has not reached a stage where a channel change would add substantially to the cost.

In the early part of 1963 the Commission endorsed a request by the National Association of Educational Broadcasters for funds from the Department of Health, Education, and Welfare with which to conduct a study of electronic computer techniques in the development of a TV channel assignment plan. The knowledge gained from this study showed that while there were limitations in the ability of the computer to make complex judgments, the rapidity with which it could examine an assignment plan, as compared to a manual operation, outweighed its limitations. The study also revealed several flaws in the original approach which could be corrected in future programs.

Therefore, the Commission negotiated a contract with the Univac Division of Sperry-Rand Corp. to develop a computer program suitable for use on the FCC's Univac III computer, containing the refinements suggested by the earlier study. This program will be delivered to the Commission in the early part of October and will immediately be put to use in connection with the proceedings in docket 14229. It is expected that this program will not only result in the development of an efficient assignment plan for UHF TV channels but also will enable the Commission to make future modifications in the plan as unforeseen needs arise, with greater speed and efficiency.

Subscription TV

The Commission, in 1950, authorized pay-TV technical tests conducted without public participation. In 1959 it invited applications for 3-year trial operations over TV stations.

RKO General Phonevision Co. began the first such trial over station WHCT, Channel 18, Hartford, Conn., on June 29, 1962. It now

has about 5,000 subscribers and transmits about 30 hours of toll programs per week (in addition to its regular free programs). Its toll-TV programming consists of sports events, educational and cultural offerings, variety shows, and feature films. In this trial, both visual and audio signals are transmitted "scrambled" over the air and are unscrambled by a decoder attached to the subscriber's set.

Channel 2 Corp., which had been authorized by the Commission to conduct a like trial over station KCTO, channel 2, Denver, Colo., let its authorization lapse on May 1, 1964. As originally authorized, this project (unlike Hartford) would have transmitted the picture over the air without scrambling but without sound, the sound being received by way of telephone lines between the studio and homes of subscribers. No air operation was started.

In addition to over-the-air pay-TV like that being tested at Hartford, there is wire or cable pay-TV. The Commission does not license or directly regulate such operations, but is closely following developments in this area.

On November 13, 1963, the Commission announced the formation of a Subscription Television Committee consisting of three Commissioners, the function of which is to follow closely and evaluate developments in the field of pay-TV (both over-the-air and by wire or cable) and inform the Commission on the subject.

Subscription Television, Inc., began serving Los Angeles and San Francisco with a cable pay-TV system in the summer of 1964 with a reported 2,000 customers in each city. However, in the 1964 elections, California voted to ban wired pay-TV operation in that State.

The trade press reported that plans are afoot for the commencement in the fall of 1965 of cable pay-TV operations in Atlanta, Dallas, Houston, and Miami, and similar systems planned in other cities.

CATV

Community antenna TV (CATV) systems do not transmit over the air; they pick up programs of regular TV stations and send them by cable to the homes of subscribers. The Commission does not license these cable operations, although it can require such systems to remedy any interference they may cause to licensed radio communication.

However, because of the growth and extension of CATV systems and their potential impact on TV broadcast service, the Commission has asked Congress for authority to regulate the former to some degree. Meanwhile, it has taken steps to insure the continuation of locally originated TV service where it might be jeopardized by destructive competition from CATV systems, without deterring the growth of CATV.

One such step is a proposal that grants of microwave facilities in the Business Radio Service and the common carrier Domestic Public

Point-to-Point Radio Service for relaying TV signals to CATV systems contain conditions to protect the local TV stations (dockets 14895 and 15233, respectively). These conditions are that if the CATV system renders service within the predicted grade A contour of a TV station, the CATV system shall, on the request of the TV station, carry the signals of that station without material degradation of quality; and on request of the station, the CATV system shall not duplicate programs carried by the TV station during a period 15 days before to 15 days after the broadcast on the station.

Pending the outcome of these proceedings, applications for microwave facilities in these services to relay TV signals to CATV systems are not being acted on unless the applicant agrees to the conditions mentioned.

Since the large majority of CATV systems do not use microwave facilities, and many of those that do are not rendering service within the grade A contour of any TV station, both the proposals in the proceeding and the interim procedure are not applicable to most CATV systems.

On July 29, 1964, the Commission proposed (docket 15586) to place noncommon carrier microwave relay facilities serving CATV systems in a new class of service known as "Community Antenna Relay Service," to be administered by the Broadcast Bureau. At the same time, it proposed new rules for like service by common carriers, and frequency allocations for both types of operation. The contemplated rules are intended to accommodate the growth of CATV systems by providing more efficient use of the spectrum space allocated for related microwave relay.

In July 1964 the Commission established a special unit to undertake an intensive factfinding study of CATV. Each of the significant dimensions of CATV operations—techniques, costs, consumer demand, franchises, program services, relations with broadcasters—will be analyzed in an effort to provide an overall evaluation of CATV and its role in a nationwide broadcast service.

Inquiry Into Joint CATV-TV Station Ownership

The Commission, on April 15, 1964, initiated an inquiry (docket 15415) into certain aspects of the relationship of CATV systems to TV broadcasting and, more particularly, whether the multiple ownership rules are being violated by a TV multiple owner having extensive CATV holdings.

This question has been brought into sharp focus by a number of multiple TV owners seeking authority to acquire CATV interests. Such acquisition may have an adverse effect on the public interest. One pending application, for example, would put under common control one of the largest TV station owners and the largest CATV group.

The inquiry is also to consider the question of common ownership of a CATV system and a TV station serving the same area.

To help resolve these issues, the Commission proposed definitive questions to which comment in the proceeding is to be directed. Pending conclusion of this inquiry, it will withhold action on certain pending applications for transfer.

Further Relaxation of Technical Requirements

In docket 15208 the Commission conformed the aural/visual power ratio for VHF stations to that adopted last year for UHF, i.e., to permit a station to operate with an aural-to-visual power ratio of 10 to 70 percent of the peak visual power. At the same time, the Commission instituted a further proceeding (docket 15405) to consider limiting the maximum aural power to 20 percent and the minimum power to 10 percent of the peak radiated power of the visual transmitter for both UHF and VHF. This should simplify design problems of TV set manufacturers.

Option Time

On May 28, 1963, section 73.658(d), the rule concerning "option time" arrangements between TV stations and networks, was amended to prohibit option time or any arrangement having a similar restraining effect. Petitions for reconsideration were denied on September 4, 1963, and the new rule became effective September 10, 1963.

CBS TV Affiliates Compensation Plan

In 1961, Columbia Broadcasting System put into effect with some of its affiliates a new plan of compensation, by which the amount the station received for carrying each unit of CBS programming varied sharply with the total number of CBS programs carried. In 1962, the Commission held that this plan violated section 73.658(a) of the rules in that it tended to restrain CBS affiliates from carrying the programs of other networks. CBS then submitted a revised plan, and the Commission in May 1963 concluded that the revised plan violated other sections of the rules—73.658(e), which is designed to preserve to stations the right to reject network programs, and 73.658(d), which, as amended in May 1963, prohibits television option time or any arrangement having a similar restraining effect. A petition for reconsideration was denied on November 20, 1963. CBS carried the matter to the U.S. Circuit Court of Appeals, but, by stipulation, it was dismissed.

Radio Astronomy Use of Channel 37

The Commission, on October 4, 1963 (docket 15022), made TV channel 37 available for the exclusive use of radio astronomy for a period of 10 years. This means that while channel 37 is not being

withdrawn from the TV table of assignments it will not be assigned for broadcast purposes during the 10-year period in order to aid and protect radio astronomy. To implement such use, the Commission proposed a replacement for this channel at Paterson, N.J., and added another channel assignment at Melbourne, Fla., in both of which channel 37 had been assigned for TV use and applications for its use were pending.

Educational TV

During the year the number of TV channels reserved for noncommercial educational operation increased to 350, which is 108 more than originally set aside for this purpose.

On June 10, 1964, the Commission authorized the first statewide educational translator system by granting applications of the University of Utah to construct 18 new UHF translator stations to re-broadcast programs of station KUED (ETV channel 7), Salt Lake City. A January 1964 grant paved the way for the first ETV station in the Los Angeles area. Fourteen cities had two educational TV channel reservations.

Instructional TV fixed service.—In docket 14744 the Commission, as of September 1963, established an Instructional Television Fixed Service in the 2500–2690-Mc range to provide multiple channels for the simultaneous transmission of instructional material to students enrolled in schools, colleges, and universities. This service provides a useful tool for visual and aural instruction without occupying TV broadcast channels. Initial development is centered in the New York metropolitan area.

The Commission also adopted a proposal to assign channels to a licensee in the same area with a 6-Mc separation instead of a 30-Mc separation as originally proposed (docket 15181). It was felt that this would result in a cost saving by permitting the use of a single receiver for reception of several channels.

Airborne TV operation.—The Commission, on petition of the Midwest Program for Airborne Television Instruction, Inc. (MPATI), instituted rulemaking (docket 15201) on October 24, 1963, to consider regular operation by airborne educational TV stations with channels reserved for that purpose. This proposal, if adopted, would make permanent (and enlarge) what is now an experimental operation to provide educational programming to schools and colleges within a 200-mile radius of Montpelier, Ind., which the Commission first authorized Purdue University to conduct. MPATI, which is an association of schools and higher institutions of learning, later took over the project.

The experiment involves the broadcast of videotape from a plane on UHF channels 72 and 76: the plane's path is a 10-mile circle at 23,000 feet over central Indiana. Some translator stations of 100 watts have been authorized in Chicago, Detroit, and Cleveland because high buildings make direct reception from the aircraft unsatisfactory. In this manner, about 1,125 schools, with a total enrollment of some 465,000 students in a 140,000 square mile area covering parts of Indiana, Ohio, Kentucky, Illinois, Michigan, and Wisconsin have supplemented their regular curricula.

MPATI's proposal contemplates the use of channels 74, 78, 80, and 82 in addition to 72 and 76. Opposing groups include the Association of Maximum Service Telecasters, National Association of Educational Broadcasters, and National Education Association.

The particular questions to be decided in this proceeding are whether there is a need for airborne television operation and whether there are sufficient channels for both airborne and ground stations. A number of technical questions must also be resolved, such as engineering standards relating to service and interference for the airborne channels, a matter which is further complicated by the need to negotiate with Canada.

At the request of MPATI, and because of the importance of this matter, oral argument was held on October 9, 1964.

FREQUENCY MODULATION (FM) BROADCAST SERVICE

FM "Freeze" Lifted

On July 25, 1963, the Commission adopted a table of assignments for FM broadcast stations in which 2,830 channels are assigned to cities throughout the continental United States (docket 14185). The previous table of FM assignments, abandoned by the Commission in 1958, provided only for the assignment of the 60 class B channels whereas the new table assigns all 80 commercial channels, including the class A channels.

Existing stations were included in the table although many did not meet the mileage spacings of the rules. Some were ordered to change channels where it was advantageous to do so. The Commission determined that a table of assignments was the best way to insure efficiency of channel use, provide for future needs, and insure an equitable distribution of facilities.

This action brought to an end the FM "freeze," established by the Commission in December 1962, except on applications for Puerto Rico and the Virgin Islands. Fifty-seven applications for new stations and 36 applications for changes in existing stations, all of which had been filed prior to the "freeze," were dismissed because of nonconform-

ance with the new table of assignments. (See also reference to FM program duplication in new AM rules.)

Many FM stations which received grants under the old rules did not meet the new mileage spacings. They were not permitted to increase their facilities or to change location if an existing short spacing would be worsened. In January 1964, in a further proposed rulemaking in docket 14185, the Commission proposed rules which would permit these stations, or most of them, to increase facilities to the maximum for their class or to some lesser, but usually substantial, level. Also proposed were tables of FM assignments for Alaska, Hawaii, Guam, Puerto Rico, and the Virgin Islands.

FM stations are now authorized in every State. FM set sales have continued to increase in recent years. According to trade figures, FM sets manufactured totaled 2,861,000 in calendar 1963, compared to 2,241,000 in 1962, 1,299,000 in 1961, and 764,000 in 1958.

FM Subsidiary Services

On June 4, 1964, the Commission ordered the simplex method of furnishing background music and other subscription services by FM stations to cease by December 31 thereafter (docket 15028). Only 4 stations were still engaged in simplexing; the other approximately 400 stations providing such supplemental service were doing it by multiplexing. This subsidiary operation was authorized by the Commission in 1955 to enable the then struggling FM stations to obtain additional revenue.

In 1961 the Commission gave blanket authorization to FM stations to engage in stereophonic broadcasting on a multiplex basis. This involves dual transmission and reception of programs for more realistic effect. At the close of the year about 275 FM stations were so engaged.

Educational FM

The number of noncommercial educational FM stations continues to grow slowly, gaining 19 during the year to make a 257 total. Such stations are now authorized in 41 of the 50 States, the District of Columbia, and Puerto Rico.

Powers of stations in this service range from a low of 10 watts to a high of 523 kilowatts, the latter power being authorized to WIPR-FM, San Juan, P.R.

STANDARD (AM) BROADCAST SERVICE

AM "Freeze" Lifted

The Commission, on July 1, 1964 (docket 15084), substantially altered the standards for assignment of AM broadcast stations. These

revised rules, effective August 13 thereafter, lifted the "AM freeze" imposed in May 1962. The Commission also placed a limitation on the amount of duplicated program service that a jointly owned FM station could broadcast, to go into effect 1 year from the August 1964 date.

The new AM assignment plan—applicable generally to grants for new facilities or major changes—is a so-called "go-no-go" procedure (defining whether an application is acceptable or not), the principal determinative factor of which is prohibited overlap of specified signal co-channel and adjacent-channel (first, second, and third) contours. There are exemptions when defined public interest considerations are involved, such as the first local or only existing station in a community and a station which would provide service in a 25-percent-or-greater "white area" within the 0.5-mv/m contour. Nor do these overlap prohibitions apply to class IV power increases or to applications for new class II-A facilities. Also eliminated was the 1:30-second adjacent-channel interference ratio.

The new nighttime operation rules bar applications unless (1) no interference would be caused any other station, (2) a first primary service would be provided for at least 25 percent of the proposed interference-free service area, and (3) all principal city coverage requirements are met.

The reason for the AM-FM nonduplication rule is that the broadcast of a single program by two channels is inefficient. The 50-percent nonduplication requirement is restricted to FM stations in cities over 100,000 population. The Commission feels that this is a significant move toward the time when AM and FM will be regarded as component parts of a total aural service for assignment purposes. The nonduplication rule, it is hoped, will also give new impetus to FM developments.

Use of the 25 Class I-A Clear Channels

In the 1961 clear channel decision the Commission decided that of the 25 class I-A clear channels which are designed for wide-area coverage by the 25 class I-A stations on them, 13 should be "duplicated" by the assignment of 1 additional full-time station on each channel. Most of the 13 new assignments were for new full-time class II-A stations to provide badly needed primary service in under-served areas of the West, each assignment to be used in a specified State or States. Implementation of this decision was delayed by petitions for reconsideration, a Congressional resolution asking a year's delay, and court appeals (finally decided in favor of the Commission in October 1963). In July 1964 the first of the applications

for new class II-A stations was granted; others are being processed. One criterion for these new class II-A stations is that 25 percent of their nighttime primary service area must be area receiving no other nighttime primary service.

Decision as to future use of the remaining 12 I-A clear channels has not yet been reached. One possibility is authorizing "higher power" for the class I-A stations on these channels, or some of them, in the order of 500 or 750 kw compared to the present maximum of 50 kw. A number of "experimental" applications have been filed by these stations for such facilities. Most of these present problems as to interference to stations on adjacent channels, and studies are underway to see if these problems can be resolved. Consideration can then be given to the general "higher power" question, which has long been a subject of controversy.

INTERNATIONAL BROADCAST STATIONS

The number of international broadcast stations licensed by the Commission decreased from four to three. The Crosley Broadcasting Corp. relinquished its authorization for an experimental station at Cincinnati, Ohio, which provided a continuous signal for propagation studies by the National Bureau of Standards. Those remaining send programs overseas. They are WRUL, Scituate, Mass.; KGEI, Belmont, Calif., and WINB, Red Lion, Pa.

The Commission continued its "freeze" on applications for new international broadcast stations, and extended operating hours for existing ones, pending institution of a proceeding to revise the covering rules.

Most international broadcasting from the United States is over owned or leased facilities of the U.S. Information Agency for its "Voice of America" programs.

MISCELLANEOUS BROADCAST SERVICES

There are more than 8,800 auxiliary broadcast stations. Over 7,000 of these are used for remote pickup purposes; others link studios and transmitters; and still others provide facilities for broadcast experimentation and development.

STATISTICS

Current Broadcast Authorizations

The 17,231 broadcast authorizations outstanding at the close of fiscal 1964 represented a net gain of 1,402 for the year.

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

| Class | June 30, 1963 | June 30, 1964 | Increase or (decrease) |
|-----------------------------------|---------------|---------------|------------------------|
| Commercial AM..... | 3,997 | 4,061 | 64 |
| Commercial TV..... | 666 | 668 | 2 |
| TV translators and boosters..... | 1,716 | 1,913 | 197 |
| Educational TV..... | 91 | 107 | 16 |
| Instructional TV fixed..... | 0 | 4 | 4 |
| Auxiliary..... | 1,415 | 1,559 | 144 |
| Experimental TV..... | 30 | 28 | (2) |
| Commercial FM..... | 1,207 | 1,371 | 164 |
| Educational FM..... | 238 | 257 | 19 |
| International..... | 4 | 3 | (1) |
| Remote pickup..... | 6,257 | 7,020 | 763 |
| Studio-transmitter-link..... | 110 | 121 | 11 |
| Developmental..... | 5 | 6 | 1 |
| Low-power auxiliary (cueing)..... | 93 | 113 | 20 |
| Total..... | 15,829 | 17,231 | 1,402 |

Status of Broadcast Authorizations

There were 8,377 AM, TV, and FM broadcast stations authorized at the close of fiscal 1964, of which 7,476 had operating permits and 901 others held construction permits. A breakdown follows:

| Class | Operating authorizations | Construction permits |
|---------------------|--------------------------|----------------------|
| Commercial AM..... | 3,976 | 85 |
| Commercial TV..... | 582 | 86 |
| TV translators..... | 1,415 | 498 |
| Educational TV..... | 79 | 28 |
| Commercial FM..... | 1,181 | 190 |
| Educational FM..... | 243 | 14 |
| Total..... | 7,476 | 901 |

One commercial TV station was engaged in its third year of trial subscription television operation.

Four educational institutions held station authorization in the Instructional Television Fixed Service.

Also, 399 commercial FM and 5 educational FM stations held subsidiary communications authorizations to furnish functional (background) music and other multiplexed service. About 275 FM stations were engaged in stereophonic broadcasting on a multiplex basis.

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 16 years; also, the number of stations deleted during those years:

| Year | Grants | Dele- tions | Pending applica- tions | Licensed | CPs on air | Total on air | CPs not on air | Total author- ized |
|----------------------|--------|----------------|------------------------------|----------|---------------|-----------------|-------------------|--------------------------|
| 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 | 150 | 3,228 |
| 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 |
| 1963 | 129 | 18 | 356 | 3,809 | 51 | 3,860 | 137 | 3,997 |
| 1964 | 80 | 16 | 235 | 3,912 | 64 | 3,976 | 85 | 4,061 |

| 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 | 497 | 56 | 553 | 97 | 650 |
| 1962 | 24 | 20 | 114 | 494 | 77 | 571 | 83 | 654 |
| 1963 | 30 | 18 | 120 | 525 | 56 | 581 | 85 | 666 |
| 1964 | 15 | 10 | 136 | 526 | 56 | 582 | 86 | 668 |

TV TRANSLATORS AND BOOSTERS

| | | | | | | | | |
|------|-----|----|-----|-------|----|-------|-----|-------|
| 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 | 238 | 0 | 238 | 69 | 302 |
| 1961 | 421 | 19 | 686 | 279 | 0 | 279 | 425 | 704 |
| 1962 | 797 | 18 | 262 | 487 | 0 | 487 | 996 | 1,483 |
| 1963 | 268 | 35 | 251 | 923 | 0 | 923 | 793 | 1,716 |
| 1964 | 262 | 65 | 219 | 1,415 | 0 | 1,415 | 498 | 1,913 |

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 | 43 | 16 | 59 | 20 | 79 |
| 1963 | 12 | 1 | 16 | 57 | 13 | 70 | 21 | 91 |
| 1964 | 13 | 0 | 30 | 72 | 7 | 79 | 28 | 107 |

| Year | Grants | Deletions | Pending applications | Licensed | CPs on air | Total on air | CPs not on air | Total authorized |
|---------------|--------|-----------|----------------------|----------|------------|--------------|----------------|------------------|
| 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 | 29 | 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 |
| 1963 | 42 | 26 | 191 | 1,090 | 30 | 1,120 | 87 | 1,207 |
| 1964 | 183 | 18 | 258 | 1,141 | 40 | 1,181 | 190 | 1,371 |

| 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 |
| 1963 | 30 | 1 | 4 | 213 | 8 | 221 | 17 | 238 |
| 1964 | 20 | 1 | 11 | 231 | 12 | 243 | 14 | 257 |

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." "Construction permits" indicate building status.

Broadcast Applications

Broadcast applications collectively (including adjuncts) received during the year totaled over 15,700, about 1,200 more than the previous year. TV applications showed a net gain of 58, but, largely because of the "freeze" on new AM and FM stations which continued during the year, there was a slight decrease in filings for aural facilities. TV translator applications also diminished.

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, 1963 | Incoming workload | | | Disposed | | | Pending June 30 1964 |
|---|----------------------|-------------------|------------------------|-----------------|----------|--|-----------------------------------|----------------------|
| | | New | Returned to processing | | Granted | Dis- missed, denied, returned | Desig- nated for hearing | |
| | | | Hear- ing | Non- hearing | | | | |
| STANDARD BROADCAST (AM) | | | | | | | | |
| New stations..... | 210 | 68 | 3 | 1 | 44 | 58 | 25 | 155 |
| Major changes..... | 254 | 104 | 2 | 4 | 109 | 40 | 31 | 184 |
| Subtotal..... | 464 | 172 | 5 | 5 | 153 | 98 | 56 | 339 |
| Assignments and transfers..... | 196 | 597 | ----- | 2 | 591 | 52 | 3 | 149 |
| Renewals..... | 611 | 1,773 | ----- | 6 | 1,524 | 19 | 3 | 844 |
| Licenses..... | 271 | 504 | ----- | ----- | 488 | 24 | 1 | 262 |
| All others..... | 201 | 1,090 | ----- | 1 | 979 | 97 | 2 | 214 |
| Total applications..... | 1,743 | 4,136 | 5 | 14 | 3,735 | 290 | 65 | 1,808 |
| FREQUENCY MODULATION (FM) ¹ | | | | | | | | |
| New stations..... | 182 | 403 | ----- | 2 | 201 | 119 | 35 | 232 |
| Major changes..... | 94 | 211 | ----- | ----- | 163 | 84 | 7 | 61 |
| Subtotal..... | 276 | 614 | ----- | 2 | 354 | 203 | 42 | 293 |
| Assignments and transfers..... | 62 | 210 | ----- | ----- | 182 | 25 | ----- | 65 |
| Renewals..... | 278 | 509 | ----- | ----- | 493 | 9 | 1 | 284 |
| Licenses..... | 76 | 218 | ----- | 2 | 191 | 6 | ----- | 99 |
| All others..... | 69 | 448 | ----- | 1 | 396 | 31 | ----- | 91 |
| Total applications..... | 761 | 1,999 | ----- | 5 | 1,616 | 274 | 43 | 832 |
| TELEVISION (TV) ¹ | | | | | | | | |
| New stations..... | 83 | 95 | 1 | ----- | 24 | 20 | 34 | 101 |
| Major changes..... | 48 | 114 | ----- | 3 | 107 | 2 | 8 | 48 |
| Subtotal..... | 131 | 209 | 1 | 3 | 131 | 22 | 42 | 149 |
| Assignments and transfers..... | 21 | 100 | ----- | 2 | 97 | 2 | 1 | 23 |
| Renewals..... | 96 | 224 | ----- | 1 | 183 | 5 | 4 | 129 |
| Licenses..... | 181 | 104 | ----- | ----- | 107 | 5 | ----- | 173 |
| All others..... | 81 | 207 | ----- | ----- | 178 | 15 | ----- | 95 |
| Total applications..... | 510 | 844 | 1 | 6 | 696 | 49 | 47 | 569 |
| TV TRANSLATOR | | | | | | | | |
| New stations..... | 240 | 307 | ----- | ----- | 258 | 69 | 2 | 218 |
| Major changes..... | 73 | 156 | ----- | ----- | 128 | 32 | ----- | 69 |
| Subtotal..... | 313 | 463 | ----- | ----- | 386 | 101 | 2 | 287 |
| Assignments and transfers..... | 16 | 33 | ----- | ----- | 44 | ----- | ----- | 5 |
| Renewals..... | 117 | 489 | ----- | ----- | 414 | 34 | ----- | 158 |
| Licenses..... | 447 | 353 | ----- | 1 | 558 | 10 | ----- | 233 |
| All others..... | 33 | 169 | ----- | ----- | 154 | 23 | ----- | 25 |
| Total applications..... | 928 | 1,507 | ----- | 1 | 1,556 | 168 | 2 | 708 |
| ALL OTHER ² | | | | | | | | |
| New stations..... | 192 | 1,630 | ----- | ----- | 1,375 | 154 | ----- | 293 |
| Major changes..... | 66 | 734 | ----- | ----- | 651 | 39 | ----- | 110 |
| Subtotal..... | 258 | 2,364 | ----- | ----- | 2,026 | 193 | ----- | 403 |
| Assignments and transfers..... | 55 | 306 | ----- | ----- | 246 | 5 | 2 | 108 |
| Renewals..... | 644 | 2,555 | ----- | 2 | 2,060 | 62 | ----- | 1,079 |
| Licenses..... | 488 | 1,945 | ----- | ----- | 1,575 | 65 | ----- | 793 |
| All others..... | 17 | 71 | ----- | ----- | 70 | 3 | ----- | 15 |
| Total applications..... | 1,462 | 7,241 | ----- | 2 | 5,977 | 328 | 2 | 2,398 |
| Total nonhearing applica- tions..... | 5,402 | 15,727 | 6 | 28 | 13,580 | 1,109 | 159 | 6,315 |

¹ Includes noncommercial educational.

² 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 1963 reported total broadcast revenues of \$2,278.3 million.

Radio revenues increased 7.1 percent to \$681.1 million and television revenues increased 7.5 percent to \$1,597.2 million.

Total radio and television profits (before Federal Income Tax) were \$398.1 million, a 12.1 percent increase from 1962.

Broadcast revenues, expenses and income of networks and stations of radio¹ and television broadcast services, 1962-63

[\$ millions]

| Service | 1962 | 1963 | Percent Increase |
|--|---------|---------|------------------|
| Total broadcast revenues | | | |
| Radio..... | \$636.1 | \$681.1 | 7.1 |
| Television..... | 1,486.2 | 1,597.2 | 7.5 |
| Industry total..... | 2,122.3 | 2,278.3 | 7.4 |
| Total broadcast expenses | | | |
| Radio..... | \$592.6 | \$626.2 | 5.7 |
| Television..... | 1,174.6 | 1,254.0 | 6.8 |
| Industry total..... | 1,767.2 | 1,880.2 | 6.4 |
| Broadcast income (before Federal income tax) | | | |
| Radio..... | \$43.5 | \$54.9 | 26.2 |
| Television..... | 311.6 | 343.2 | 10.1 |
| Industry total..... | 355.1 | 398.1 | 12.1 |

¹ Includes AM and FM broadcasting.

NOTE: 1963 radio data cover the operations of 4 nationwide networks, 3,832 AM and AM-FM and 294 independent FM stations. Excluded are 72 AM and AM-FM stations and 29 independent FM stations whose reports were filed too late for tabulation. 1962 data are for 4 nationwide networks, 3,698 AM and AM-FM and 279 independent FM stations. 1962 TV data cover the operations of 3 networks and 554 stations. 1963 TV data cover the operations of 3 networks and 565 stations.

Nationwide networks only, 1962-63

[Including owned and operated stations]

| Item | 1962 (\$ millions) | 1963 (\$ millions) | Percent increase |
|---|-----------------------|-----------------------|---------------------|
| Total broadcast revenues..... | \$818.2 | \$889.3 | 8.7 |
| Radio..... | 64.0 | 69.0 | 7.8 |
| Television..... | 754.2 | 820.3 | 8.8 |
| Total broadcast expenses..... | 704.6 | 747.2 | 6.0 |
| Radio..... | 61.8 | 63.1 | 2.1 |
| Television..... | 642.8 | 684.1 | 6.4 |
| Total broadcast income (before Federal income tax)..... | 113.6 | 142.1 | 25.1 |
| Radio..... | 2.2 | 5.9 | 168.2 |
| Television..... | 111.4 | 136.2 | 22.3 |

NOTE 1: Radio data include the operations of 19 nationwide network-owned AM stations in both 1963 and 1962.

NOTE 2: Television data include the operations of 15 network-owned stations in both 1963 and 1962.

Investment in tangible broadcast property of 4 nationwide radio networks, their 19 owned and operated stations and 3,813 other AM and AM-FM radio stations, 1963

[\$ thousands]

| Item | Investment in tangible broadcast property | |
|---|--|---------------------|
| | Original cost | Depreciated cost |
| 4 nationwide radio networks..... | \$8,004 | \$4,157 |
| 19 network owned and operated stations..... | 10,253 | 5,102 |
| 3,813 other stations..... | 461,256 | 246,420 |
| | 479,513 | 255,679 |

Broadcast expenses of 4 nationwide radio networks, their 19 owned and operated stations and 3,813 other AM and AM-FM stations, 1963

[\$ thousands]

| Type of expense | 4 nation- wide net- works | 19 network owned and operated stations | 3,813 other AM stations | Total |
|---------------------------------|---------------------------------|---|-------------------------------|----------|
| Technical..... | \$2,015 | \$4,805 | \$68,717 | \$75,537 |
| Program..... | 21,423 | 12,330 | 169,445 | 203,198 |
| Selling..... | 4,002 | 5,560 | 101,410 | 111,872 |
| General and administrative..... | 5,369 | 6,636 | 208,996 | 221,001 |
| Total broadcast expenses..... | 33,709 | 29,331 | 548,568 | 611,608 |

Comparative Financial Data of 4 Nationwide AM Radio Networks and 3,832 AM and AM-FM Stations, 1962-63

[\$ thousands]

| Item | 4 nation- wide net- works | 19 owned and op- erated stations | 3,813 other stations | Total 4 nation- wide net- works and 3,832 stations | Percent of in- crease |
|---|------------------------------------|---|----------------------------|--|-----------------------------|
| Revenues from the sale of time: | | | | | |
| Network time sales: | | | | | |
| Sale of major network time to advertisers..... | \$39,581 | \$1,462 | ¹ \$8,031 | | |
| Sale of other network time..... | | | 1,731 | | |
| Total network time sales..... | 39,581 | 1,462 | 9,762 | | |
| Deductions from networks' revenue from sale of time to advertiser: | | | | | |
| Paid to owned and operated stations..... | 1,462 | | | | |
| Paid to affiliated stations..... | ¹ 7,546 | | | | |
| Total participation by others (excluding commissions) in revenue from sale of net- work time..... | 9,008 | | | | |
| Total retentions from sale of network time..... | 30,573 | 1,462 | 9,762 | \$41,797 | 12.0 |
| Nonnetwork time sales: | | | | | |
| National and regional advertisers..... | | 21,932 | 198,295 | 220,227 | 5.6 |
| Local advertisers..... | | 15,562 | * 434,155 | 449,717 | 7.2 |
| Total nonnetwork time sales..... | | 37,494 | 632,450 | 669,944 | 6.7 |
| Total time sales..... | 30,573 | 38,956 | 642,212 | 711,741 | 7.0 |
| Deduct—Commissions to agencies, representa- tives, etc..... | 5,915 | 6,977 | 64,096 | 76,988 | 7.2 |
| Net time sales..... | 24,658 | 31,979 | 578,116 | 634,753 | 7.0 |
| Revenues from incidental broadcast activities: | | | | | |
| Talent..... | 8,698 | 1,918 | 9,367 | 19,983 | 5.2 |
| Sundry broadcast revenues..... | 1,282 | 401 | 13,265 | 14,948 | 4.4 |
| Total incidental broadcast activities..... | 9,980 | 2,319 | 22,632 | 34,931 | 4.8 |
| Total Broadcast Revenues..... | 34,638 | 34,298 | 600,748 | 669,684 | 6.8 |
| Total Broadcast Expenses..... | 33,709 | 29,331 | 548,568 | 611,608 | 5.4 |
| Broadcast Income (before Federal income tax)..... | 929 | 4,967 | 52,180 | 58,076 | 24.4 |

¹ Amounts differ slightly because of variations in accounting practices.² Some small amount of network and national nonnetwork time sales may be included here since stations with less than \$25,000 time sales for the year do not report detailed revenue breakdown.

NOTE: Data for 1962 cover the operations of 4 nationwide networks, their 19 owned and operated stations, and 3,679 other stations.

Broadcast revenues, expenses, income, investment in tangible broadcast property of frequency modulation (FM) stations operated by non-AM licensees, 1962-63

| Item | 1962 number of stations | Amount (\$ millions) | 1963 number of stations | Amount (\$ millions) |
|--|-------------------------------|-------------------------|-------------------------------|-------------------------|
| Total FM broadcast revenues | | | | |
| FM stations operated by: | | | | |
| AM licensees: | | | | |
| Reporting FM revenues..... | 408 | \$4.6 | 405 | \$4.9 |
| Non-AM licensees..... | 279 | 9.3 | 294 | 11.4 |
| Total FM stations reporting revenues..... | 687 | 13.9 | 699 | 16.3 |
| FM broadcast expenses | | | | |
| FM Stations operated by: | | | | |
| Non-AM licensees..... | 279 | \$12.5 | 294 | \$14.6 |
| Industry total..... | | (?) | | (?) |
| FM broadcast income (before Federal income tax) | | | | |
| FM stations operated by: | | | | |
| Non-AM licensees..... | 279 | (\$3.2) | 294 | (\$3.2) |
| Industry total..... | | (?) | | (?) |

Investment in tangible broadcast property, 1963

[\$ millions]

| Original cost | Depreciated cost |
|---------------|------------------|
| \$13.2 | \$9.1 |

¹ Of this amount \$1.3 million was reported as incidental broadcast revenues including revenues from providing functional music or other special services.

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.

Broadcast Financial Data of 3 National Television Networks and 565 TV Stations, 1963

[\$ millions]

| Item | Networks | 15 owned and operated TV stations | 550 other TV stations | Total 3 networks and 565 stations | Percent change from previous year |
|---|----------|-----------------------------------|-----------------------|-----------------------------------|-----------------------------------|
| Revenues from the sale of time: | | | | | |
| Network time sales: | | | | | |
| Sale of network time to advertisers..... | \$537.0 | | | | |
| Deductions from networks' revenue from sale of time to advertisers: | | | | | |
| Paid to owned and operated stations..... | 34.9 | | | | |
| Paid to affiliated stations..... | 166.9 | | | | |
| Total participation by others (excluding commissions) in revenue from sale of network time..... | 201.8 | | | | |
| Total retentions from sale of network time..... | 335.2 | \$34.9 | \$167.8 | \$537.9 | 3.1 |
| Nonnetwork time sales: | | | | | |
| National and regional advertisers..... | | 131.8 | 468.9 | 600.7 | 11.3 |
| Local advertisers..... | | 42.2 | 213.9 | 256.1 | 5.6 |
| Total nonnetwork time sales..... | | 174.0 | 682.8 | 856.8 | 9.0 |
| Total time sales..... | 335.2 | 208.9 | 850.6 | 1,394.7 | 7.0 |
| Deduct—Commissions to agencies, representatives, etc..... | 80.6 | 32.7 | 123.0 | 236.3 | 7.4 |
| Net time sales..... | 254.6 | 176.2 | 727.6 | 1,158.4 | 6.9 |
| Revenues from incidental broadcast activities: | | | | | |
| Talent and programs..... | 345.8 | 3.0 | 8.4 | 357.2 | 10.8 |
| Sundry broadcast revenues..... | 35.4 | 5.3 | 40.9 | 81.6 | 1.6 |
| Total incidental broadcast activities..... | 381.2 | 8.3 | 49.3 | 438.8 | 8.9 |
| Total Broadcast Revenues..... | 635.8 | 184.5 | 776.9 | 1,597.2 | 7.5 |
| Total Broadcast Expenses..... | 579.4 | 104.7 | 569.9 | 1,254.0 | 6.8 |
| Broadcast Income (before Federal income tax)..... | 56.4 | 79.8 | 207.0 | 343.2 | 10.1 |

¹ Total retentions from sale of network time of 167.8 million by 550 other TV stations include 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, 1963

| Items | Number of stations | Investment in tangible broadcast property (\$ thousands) | |
|---|--------------------|--|------------------|
| | | Original cost | Depreciated cost |
| 3 networks and their owned and operated stations..... | 15 | \$155,831 | \$83,692 |
| Other TV stations: | | | |
| VHF..... | 464 | 522,240 | 254,178 |
| UHF..... | 86 | 45,051 | 20,930 |
| Total..... | 565 | 723,122 | 358,800 |

Broadcast expenses of 3 networks and 565 TV stations, 1963

[\$ thousands]

| Type of expenses | Networks | 15 network owned and operated TV stations | 550 other TV stations | Total 3 networks and 565 TV stations |
|---------------------------------|----------|--|--------------------------|---|
| Technical..... | \$28,665 | \$16,211 | \$90,123 | \$134,999 |
| Program..... | 487,239 | 55,754 | 234,761 | 777,754 |
| Selling..... | 22,167 | 12,232 | 68,253 | 102,652 |
| General and administrative..... | 41,372 | 20,462 | 176,724 | 238,558 |
| Total broadcast expenses..... | 579,443 | 104,659 | 569,861 | 1,253,963 |

Safety and Special Radio Services

GENERAL

The number of radio stations in the Safety and Special Radio Services continued to increase during fiscal year 1964, emphasizing the ever-growing role played by radio in the daily life of the Nation. The yearend total of nearly 5 million transmitters, operated for the protection of life and property and for a wide variety of business and personal uses by more than 1.4 million licensees, illustrates the significance of these services. These figures are in contrast to the 3.9 million transmitters and slightly more than 1.1 million station licenses at the start of the fiscal year.

REGULATORY DEVELOPMENTS

Frequency Relief for Land Mobile Services

One of the most pressing problems faced by the Commission is to find frequency relief for the Public Safety, Industrial, and Land Transportation Radio Services. These land mobile radio operations have grown rapidly in the past few years and frequency shortage has become acute in many geographic areas. This problem was considered by the Commission in an inquiry concerning frequency needs by the various services in the 25-890-Mc band (docket 11997). The Commission recognized this need but concluded that additional spectrum space cannot now be made available and that other avenues of possible relief should be explored. For this purpose, an Advisory Committee for Land Mobile Services was established and two related public proceedings were instituted in the latter part of fiscal 1964.

This committee was created to conduct studies and to make recommendations to the Commission looking toward better, more efficient, and more effective use of the frequency space now available to the land mobile services. The committee represents manufacturers and users of land mobile radio in all parts of the country. FCC Commissioner Cox is the Chairman, and the Chief of the Safety and Special Radio Services Bureau is the Vice Chairman. The committee began its work early in fiscal 1965.

The Commission also instituted an inquiry (docket 15398) to obtain technical information on the possibility of shared use of VHF broadcast frequencies by land mobile users in areas where the TV frequencies are not occupied. There has been considerable interest in the possibility. For example, a petition of the Committee on Radio Communications of the National Association of Manufacturers is pending before the Commission to permit the shared use by the land mobile services of TV channels 14 and 15 in the Los Angeles area. In this docket the Commission also seeks technical information about the optimum frequency spacing in the land mobile services.

In another proceeding (docket 15399), the Commission proposed a limited test in California to explore the possibility of borrowing, on a secondary basis, unused or lightly used frequencies by users in some land mobile services from other land mobile services.

Channel Splitting

In the past 6 years, additional frequencies were made available to the land mobile services by "splitting" the channels (frequencies) allocated to them in the 25-50- and 150-170-Mc area. In docket 14503, concluded early in fiscal 1964, the additional frequencies derived by halving channels in the 25-42-Mc region were allocated to the various services. Also in fiscal 1964, channels available to the land mobile services in the 72-76-Mc band were split (from 40 to 20 kc). From the additional frequencies so derived, 30 were earmarked for use by manufacturers for stations inside plant areas using "flea (1-watt) power." (See Industrial Radio Services.)

CATV Relay

The Commission continued to consider the matter of authorizing microwave facilities in the Business Radio Service for relaying TV programs to CATV systems. A further notice in docket 14895 proposed that a CATV system using microwave relay would not duplicate the program of the local TV station simultaneously or within 15 days before and after the broadcast, rather than 30 days before or after as originally proposed. The proposed condition that the CATV system would carry the program of the local station upon its request would remain. By the end of the year, 22 microwave relay systems in the Business Radio Service were authorized to CATV operators. All were subject to the proposed conditions based on voluntary agreement by the applicants. (See further reference to CATV relay in the Broadcast and Common Carrier chapters.)

Fee Effect on Applications

Coincident with the Commission's adoption of fees was a drop in the number of applications filed in the Citizens Radio Service for class D radio stations. In the 15-month period prior to the institution of fees,

an average of 24,493 applications were filed per month. After fees became effective, the number dropped to 18,934 in April and to 12,927 in May, but rose to 13,692 in June. No significant change was noted in the number of applications filed in other safety and special services.

ENFORCEMENT

The number of violation cases involving licensees in the Safety and Special Radio Services continues to increase, based, in part, on the steady growth in number of stations. The largest source of violations continues to be citizens radio users. A high majority of violation cases are handled by citation notices, warning and informational letters issued either by the various field and monitoring stations or by the headquarters in Washington.

Enforcement sanctions instituted to achieve compliance or to eliminate willful or chronic violations also continued upward. However, the total enforcement sanctions imposed is very small in relation to the number of licensees. (See table at conclusion of this chapter.)

MARINE RADIO SERVICES

Safety at Sea

The Communications Act, the Safety of Life at Sea Convention, and the Great Lakes Agreement require certain vessels to carry radio installations for safety purposes.

Safety of Life at Sea Convention.—Minimum safety radio requirements for vessels navigated on international voyages are established by this convention. The 1960 convention, which will replace the 1948 one now in force, will become effective May 26, 1965. In docket 15034, the Commission's rules were amended, effective December 9, 1963, in partial implementation of the radio provisions of the new convention. Further amendments will be necessary. The Commission will propose amendments to title III, part II of the Communications Act to align the radio safety requirements for oceangoing vessels not engaged on international voyages with those applicable to vessels on international voyages.

Proposed legislation.—Identical bills (H.R. 8508, 8542, 8591, 8602, and 8779) would amend section 356 of the act to permit cargo ships on voyages between Hawaiian ports to carry radiotelephone in lieu of the current compulsory radiotelegraph requirement. These bills were introduced following the Commission's denial of exemption for a Matson Navigation Co. automated-cargo ship, under construction for service among the Hawaiian Islands. At a hearing on February 19, 1964, before the House Committee on Interstate and Foreign Commerce, the Commission recommended against exempting ships oper-

ating in Hawaiian waters from the present requirements and urged that, prior to any change, there should be an inquiry as to the adequacy of radiotelephony for the safety of vessels on all coastwise voyages.

General exemption of certain vessels.—The Commission, on April 22, 1964, granted general exemption from the compulsory radio requirements of title III, part III to all subject U.S. vessels of less than 50 gross tons which are navigated not more than 1,000 feet from the nearest land at mean low tide. Experience demonstrated that all applications for exemption within these limitations were properly grantable; thus, the general exemption is beneficial to both the vessel operators and the Commission.

Individual exemptions from compulsory radio requirements.—The Commission received 63 requests pursuant to section 352(b) of the act and regulation 3, chapter IV of the 1948 safety convention for exemption from compulsory radio requirements. The disposition of these requests is shown in the following table:

| | Received | Granted | Denied | Pending |
|---------------------------------------|----------|---------|--------|---------|
| From radiotelegraph requirements..... | 1 48 | 45 | 3 | 0 |
| From radiotelephone requirements..... | 2 15 | 12 | 1 | 2 |

¹ Not included are 12 applications for temporary radiotelegraph exemptions, all of which were granted.

² Not included are 18 applications for temporary radiotelephone exemptions, all of which were granted.

Exemption of public coast stations from listening watch.—Public coast radiotelephone stations operating in the 2000–3000 kc band are required to maintain continuous listening on the distress frequency 2182 kc unless an exemption has been granted. On March 4, 1964, public coast station WOU at Boston, Mass., owned by the New England Telephone & Telegraph Co., was exempted from this requirement for a trial period of 12 months. On April 1, 1964, public coast station KOU at Los Angeles, Calif., owned by the Pacific Telephone & Telegraph Co., was granted similar exemption. These actions were taken with the concurrence of the U.S. Coast Guard on the basis that the 2182-kc distress watch in those areas is adequately covered either by Coast Guard facilities alone or in combination with telephone company facilities, the latter being made continuously available for Coast Guard use.

Distress studies.—A continuing study of ship distress communications is made by the Commission and used as a basis for promoting safety of life and property at sea by the use of radio. The radiotelegraph distress signal (SOS) was used in behalf of 273 vessels and aircraft during the year. Of these calls, 38 were transmitted directly from the vessel in distress, and 235 were relayed by high-power coast stations. They were intercepted by 725 vessels and coast stations, in

addition to Coast Guard ships and stations. There were reports of 133 radiotelegraph auto alarms being activated to alert off-duty radio officers, some of these alarms being actuated as much as 1,400 miles from the station transmitting the alarm signal.

During the fiscal year common carrier telephone companies operating coast radiotelephone stations reported intercepting or participating in 217 cases of distress or other emergency. In 67 of these cases the coast stations alerted the Coast Guard. Of these calls for assistance, 125 were transmitted on the distress and calling frequency 2182 kc, and 84 were handled directly on working frequencies. The Coast Guard handled 124 of the cases directly without participation by telephone companies.

Bridge-to-bridge communication study.—A joint ad hoc group consisting of Coast Guard and FCC representatives is studying ship bridge-to-bridge radiotelephone communication with the view of furthering its use for navigation safety.

Radio Technical Commission for Marine Services (RTCM)

The RTCM is an organization in which Government and industry cooperate in studying existing and proposed systems of maritime telecommunication. In addition to the Commission, there are seven other participating Federal agencies. Private industry is represented by more than 100 organizations concerned. FCC Commissioner Bartley is Chairman of the RTCM, an FCC staff member acts as Executive Secretary, and office space is provided by the Commission.

During the fiscal year technical study was begun concerning "Minimum Performance Standards and Specifications for Shipborne Radar Equipment." Like studies are continuing on the following subjects: "Future Communications Requirements for Voluntarily-Equipped Non-Commercial Vessels"; "A Program for the Development of Maritime Telecommunications"; "Selective Calling Devices for Use in International Maritime Mobile Services"; and "Maritime Mobile VHF-FM Usage in the United States".

Marine Radio Communication Systems

Rule amendments.—Rule amendment in docket 15224 made the frequency pair 2538 kc (coast) and 2142 kc (ship) available for public ship-shore use in the Corpus Christi, Tex., area on a 24-hour basis. In docket 15277 the rules were amended to provide the frequency pair 2442 kc (coast) and 2406 kc (ship) for like use at Miami, Fla., but on a day-only basis. The frequencies were added to afford relief of severe congested conditions in those areas.

Proposed rule changes.—Comments were received and studied in docket 15068 wherein it was proposed to establish technical and operational particulars for single-sideband voice communication in the

marine services and for Alaska public fixed stations. Covering rules were adopted shortly after the close of fiscal 1964.

Additional coast station facilities established.—The Pacific Inland Navigation Co. constructed a public coast station in the 2-Mc band at Vancouver, Wash., to provide service between Vancouver on the Columbia River and ships navigating between Portland and Umatilla, Oreg.

C. William Kinzeler of Cincinnati, Ohio, was authorized to establish a public class III-B (VHF) coast station at Latonia, Ky., to serve vessels operating on the Ohio River in the vicinity of Cincinnati, a portion of the river not served by public coast stations operating on VHF. This is a step in implementing VHF on the rivers.

Authorizations of special interest.—A plan of the American Waterways Operators to standardize VHF maritime mobile radiotelephone service on the Mississippi River system moved ahead during the year. A number of VHF limited coast stations were licensed and several applications were pending.

Closure of station.—The Commission authorized discontinuance of public coast radiotelegraph station WSE at Jacksonville, Fla., based on the licensee's inability to obtain radio operators.

Radio communication in Alaska.—Because wireline facilities are not generally available in Alaska, communities and industry there depend largely on radio for safety and business purposes. The Alaska Communications System (ACS) operates the main trunklines in that State which connect with other parts of the United States and the rest of the world. Special frequencies are allocated to Alaska for public point-to-point and ship-shore communication. At the request of ACS, the Commission has proposed to make an additional frequency (2240 kc) available for use in Alaska by ship stations to communicate with ACS coast stations to eliminate interference between stations in certain areas.

AVIATION RADIO SERVICES

General

The Commission regulates non-Government use of radio for aeronautical communication, aeronautical radionavigation, and other related safety and operational requirements of the aviation industry including international telecommunication where U.S. civil aircraft are involved.

The Aviation Radio Services include 16 classifications, involving both aircraft and aeronautical ground radio stations. The administration of these services requires close coordination with other Gov-

ernment agencies and a number of technical and policy-making groups, several of which are noted hereafter.

Radio Technical Commission for Aeronautics (RTCA)

RTCA is a nonprofit cooperative association of Federal agencies and aeronautical industry organizations. Its affairs are managed by an executive committee and its technical work is performed by special committees. The reports of its special committees are of assistance to Government agencies concerned with the welfare of aviation radio services. The Commission is represented on the executive committee and on special committees concerned with specific technical developments.

FCC representatives participated in special committees during the past year which considered the following subjects: "Frequency Utilization Plan for the Band 108-136 Mc"; "Standardized Procedures for Measurement of RF Energy Emitted from Aviation Receivers"; "Compendium of Electronic Navigational Systems"; "Data Link System Requirements"; "International Minimum Performance Standards-Airborne Radio Communications, VOR, ILS, ADF Equipment"; "Air Traffic System"; "Public Air/Ground Radiotelephone System"; "System for Downed Aircraft Location"; "Flight Identification in Air Traffic Control"; and "Frequency and Modulation Standards, Digital Communications System."

International Aviation

The first session of the Aeronautical Extraordinary Administrative Radio Conference (EARC) of the International Telecommunications Union (ITU) was held in Geneva January 27 to February 20, 1964. FCC representatives helped prepare U.S. advance documentation and position material for this conference, attended the session, and participated in followup agreements affecting the United States. The FCC is now participating in preparation of material for a second session in 1966. The primary objective of this series of international conferences is to draft an annex to the ITU radio regulations concerning the allotment of high frequencies for the Aeronautical Mobile (R) Services.

The Interagency Group on International Aviation (IGIA) coordinates international aviation matters within the United States for the various governmental agencies involved. Commission representatives assisted in IGIA preparation of U.S. advance documentation and positions for ICAO meetings such as: Limited South East Asia Rules of the Air, Air Traffic Services/Communications Regional Air Navigation Meeting; Third Air Traffic Control Automation Panel; Second Informal Meeting of North Atlantic Air Traffic Control Provider States; Fifth Meeting of Panel of Teletypewriter Specialists; Meteor-

ology/Operations Divisional Meeting; Informal Caribbean Communications; First Meeting of All Weather Operations; Fourth Air Traffic Control Automation Panel; Fourth African-Indian Ocean Regional Air Navigation Meeting; and Special North Atlantic Meeting.

The Commission also participated in amendments to the regional plans of the International Civil Aviation Organization (ICAO), in coordination of changes in the ICAO annexes, and in activities of a team of representatives from the Federal Aviation Agency and the aviation industry developing a communication and radionavigation plan for the North Atlantic to cover a period extending into the 1970's with the introduction of supersonic transport aircraft.

New Developments and Rule Changes

In docket 15078 the rules were amended to permit, under certain conditions and a showing of need, the authorization of more than one flight-test station for operation at an airdrome.

The Pilot-to-Weather Forecaster Service test, which was scheduled to terminate July 1964, was extended by the Commission until January 1965. The test to date has not provided a solution to the capability for providing this service at a cost which will permit national implementation.

Some of the more important items pending at the end of fiscal 1964 include a proposal in docket 14452 to provide a frequency tolerance of 0.003 percent for the majority of aircraft radio transmitters as well as ground stations operating in the air/ground system, and a rulemaking petition to exempt survival craft transmitters from type-acceptance requirements.

PUBLIC SAFETY RADIO SERVICES

General

The Public Safety Radio Services, consisting of seven specialized services, provide radio communication essential to discharge a wide variety of non-Federal governmental functions, particularly the protection of life and property.

New Developments and Rule Changes

On October 9, 1963, rule changes were adopted in docket 14503 which, among other things, made additional frequencies available in the 25-42-Mc band to the various public safety services. Because of the requirement that as of November 1, 1963, fire communications were required to be divorced from police systems, the 10 most heavily used police frequencies were made available to the Local Government Radio Service as well as the Police Radio Service.

Based on additional frequencies being provided the local government service and the adoption of a more efficient system of frequency coordination in this service, it was proposed (docket 15401) to make

additional governmental entities eligible in this service. Such rule amendments, which were adopted shortly after the close of fiscal 1964, include "districts" and "authorities" as eligible entities. "School districts" and "park authorities" are still excluded.

By a rule change in docket 15161, effective August 1, 1964, applicants requesting certain modifications of existing radio systems in the public safety services must comply with frequency-coordination procedures. The modifications specified involve increase in operating power and antenna height, and change-of-station location. However, to obviate the need for filing modification applications when a minimal increase in input power is desired, licensees are authorized to utilize up to double the input power requested on the application.

A number of additional frequencies were allocated to the various public safety services for operational fixed stations in the 72-76 Mc band (docket 14785). In addition, narrow-band technical standards for this band were established. All systems are required to be in compliance with the new standards by October 15, 1965.

DISASTER COMMUNICATIONS SERVICE

This radio service authorizes communication facilities in the 1750-1800 kc band for use in emergencies such as storm, flood, and war. No new developments occurred in this service during the fiscal year.

LAND TRANSPORTATION RADIO SERVICES

General

The various Land Transportation Radio Services provide for the use of radio by railroads, the trucking industry, interstate and local bus companies, taxicabs, and emergency road-service vehicles.

The Railroad Radio Service has been particularly active in modernizing its communication facilities and seeking new means and methods of automating many of its operations with the aid of radio-controlled devices and apparatus.

New Developments and Rule Changes

In the Motor Carrier Radio Service five frequencies in the 44 Mc band were provided the trucking industry for use in simplex or single frequency mobile radio systems (docket 15175). Previously, these frequencies had been available only in conjunction with a companion base station frequency for duplex operations.

In docket 15345 the Taxicab Radio Service rules were changed to permit the use of radio to facilitate the pickup and delivery of small items of property, on a basis incidental and secondary to the transportation of passengers, and contingent upon permissibility under local laws.

In some rural areas the only telegraph service available is that which may be obtained at the nearest railroad station. Railroad employees at these stations act as agents for the telegraph company and railroad communication facilities are used in the transmission or receipt of telegrams. Continuation of this traditional telegraph service by railroads had been, in recent years, jeopardized by many railroads converting their communication systems to radio and the Commission's rules forbade the use of railroad radio facilities in the rendition of a communication common carrier service. Therefore, the Commission, shortly after the close of the fiscal year, amended its rules (docket 14970) to enable railroads to continue their near century-old service of providing public telegraph service by radio as well as by wire.

INDUSTRIAL RADIO SERVICES

General

The Industrial Radio Services consist of 10 different radio services to aid commerce and industry. Practically anyone engaged in a commercial activity may obtain a license to operate a two-way mobile or fixed radio system in the Business Radio Service. Because of its open eligibility provisions, the business service has become the workhorse of the industrial group. Since its creation in 1958 it has far outstripped all other industrial services in both number and rate of growth.

New Developments and Rule Changes

Three major rulemaking proceedings concluded during the year concerned the industrial services. By virtue of channel "splitting" in the 25-42 Mc band (docket 14503), the Special Industrial and Business Radio Services, along with the Power, Petroleum, and Forest Products Radio Services, all received a fair measure of new assignable channels.

In another split-channel proceeding (docket 14785), additional frequencies in the 72-76-Mc operational fixed band were made available to the industrial services. Contemporaneously, 10 exclusive and 20 shared frequencies from this band were provided the Manufacturers Radio Service (docket 15131), to be used with very low (flea) powered transmitters in manufacturing operations throughout the country. Manufacturers will employ these frequencies with hand-carried transmitters to control heavy-equipment movements in hazardous areas and operations where other methods of communication are inadequate or unreliable.

CITIZENS RADIO SERVICE

General

Use of electronic means for processing applications and record-keeping in the Citizens Radio Service was begun in fiscal 1964. Now with nearly 700,000 stations, the size of this service has more than

doubled in the last 2 years. Its popularity is based upon its communication value for a wide variety of business and personal activities. In addition, there is low-equipment cost and simplified licensing and operating requirements.

New Developments and Rule Changes

An active enforcement program, including license revocations and monetary forfeitures, has been undertaken to combat the mounting rule violations by licensees in the Citizens Radio Service. The great volume of rule violations threatens this service for the purposes for which it was established.

In addition, a major revision of the rules (docket 14843), designed to clarify and tighten the limitations, was adopted on July 22, 1964. The November 1 effective date was stayed by the Commission on September 23, until 30 days after it disposes of petitions for reconsideration.

AMATEUR RADIO SERVICE

General

The Amateur Radio Service continued to grow and amateurs continued to exercise their unique ability to further international goodwill. Radio Amateur Civil Emergency Service (RACES) systems are now located in every State to provide disaster and civil defense communication in peace as well as in war. One of these RACES networks provided essential radio aid for rescue operations in the Alaskan earthquake.

In the field of space communication an important first in amateur history was achieved during the year when a VHF signal was bounced off the surface of the moon to provide two-way conversation between amateurs in California and Finland.

New Developments and Rule Changes

Amateur radio application processing is now being accomplished electronically.

The Communications Act was amended (Public Law 88-313) to permit an alien amateur to operate his station in this country provided there is a bilateral agreement with his country to permit operations on a reciprocal basis by U.S. amateurs. FCC rule implementation of this statutory change is underway.

Presently under consideration are petitions proposing that new classes of amateur licensees be established to provide special privileges to persons who demonstrate superior radio skills and knowledge. These petitions have aroused controversy in amateur circles.

STATISTICS

Stations in Safety and Special Radio Services

At the end of fiscal 1964, there were nearly 1½ million stations in the Safety and Special Radio Services. Citizens Radio Service is still the fastest growing service with this year's increase at more than one-third of the total.

Stations in Safety and Special Radio Services

| Class of station | June 30, 1963 | June 30, 1964 | Increase or (decrease) |
|---|---------------|---------------|------------------------|
| Citizens..... | 446,590 | 682,307 | 235,717 |
| Amateur..... | 255,140 | 264,007 | 8,867 |
| Disaster..... | 431 | 372 | (59) |
| RACES..... | 15,267 | 16,439 | 1,172 |
| Total amateur and disaster services..... | 270,838 | 280,818 | 9,980 |
| Aeronautical and fixed group..... | 4,867 | 5,128 | 261 |
| Aircraft group..... | 84,269 | 84,110 | (159) |
| Aviation auxiliary group..... | 621 | 672 | 51 |
| Aviation radionavigation land..... | 409 | 414 | 5 |
| Civil Air Patrol..... | 16,036 | 17,233 | 1,197 |
| Total aviation services..... | 100,202 | 107,557 | 1,355 |
| Business..... | 49,973 | 62,048 | 12,075 |
| Forest products..... | 2,321 | 2,596 | 275 |
| Industrial radiolocation..... | 338 | 386 | 48 |
| Manufacturers..... | 891 | 1,179 | 288 |
| Motion picture..... | 48 | 54 | 6 |
| Petroleum..... | 9,289 | 9,660 | 371 |
| Power..... | 13,932 | 14,521 | 589 |
| Relay press..... | 186 | 211 | 25 |
| Special industrial..... | 30,147 | 32,876 | 2,729 |
| Telephone maintenance..... | 671 | 816 | 145 |
| Total industrial services..... | 107,796 | 124,347 | 16,551 |
| Automobile emergency..... | 1,521 | 1,406 | (115) |
| Interurban passenger (motor carrier)..... | 68 | 84 | 16 |
| Interurban property (motor carrier)..... | 2,770 | 2,857 | 87 |
| Urban passenger (motor carrier)..... | 131 | 134 | 3 |
| Urban property (motor carrier)..... | 421 | 677 | 256 |
| Railroad..... | 4,179 | 4,664 | 485 |
| Taxicab..... | 4,999 | 4,993 | (6) |
| Total land transportation services..... | 14,089 | 14,815 | 726 |
| Alaskan group..... | 1,505 | 1,558 | 53 |
| Coastal group..... | 425 | 498 | 73 |
| Fixed (marine) ¹ | 85 | 97 | 12 |
| Marine radiodetermination land ² | 47 | 50 | 3 |
| Ship group..... | 141,165 | 159,390 | 18,225 |
| Total marine services..... | 143,227 | 161,593 | 18,366 |
| Fire..... | 8,312 | 9,496 | 1,184 |
| Forestry conservation..... | 4,177 | 4,042 | (135) |
| Highway maintenance..... | 4,978 | 5,416 | 438 |
| Local government..... | 4,650 | 6,255 | 1,605 |
| Police..... | 15,919 | 16,605 | 686 |
| Special emergency..... | 5,115 | 5,558 | 443 |
| State guard..... | 17 | 17 | 0 |
| Total public safety services..... | 43,168 | 47,389 | 4,221 |
| Total safety and special stations..... | 1,131,910 | 1,418,826 | 286,916 |

¹ In prior reports, called marine auxiliary group.² In prior reports, called marine radiolocation land.

Transmitters in Safety and Special Radio Services

At the end of fiscal 1964, slightly under 5 million transmitters were authorized to be used in the Safety and Special Radio Services. This is an increase of 961,471 over 1963. A breakdown of the estimates of land, fixed, and mobile transmitters authorized by class of station follows:

Transmitters in Safety and Special Radio Services

| Class of station | Land or fixed | Mobile | Total |
|---|---------------|-------------|-------------|
| Citizens..... | 14, 000 | 2, 183, 302 | 2, 197, 302 |
| Amateur..... | 256, 086 | | 256, 086 |
| Disaster..... | 372 | | 372 |
| RACES..... | 32, 880 | | 32, 880 |
| Total amateur and disaster services..... | 289, 338 | | 289, 338 |
| Aeronautical and fixed group..... | 8, 205 | | 8, 205 |
| Aircraft group..... | | 134, 576 | 134, 576 |
| Aviation auxiliary group..... | 336 | 3, 158 | 3, 494 |
| Aviation radionavigation land..... | 538 | | 538 |
| Civil Air patrol..... | 8, 617 | 17, 233 | 25, 850 |
| Total aviation services..... | 17, 696 | 154, 967 | 172, 663 |
| Business..... | 37, 229 | 434, 336 | 471, 565 |
| Forest products..... | 2, 596 | 23, 364 | 25, 960 |
| Industrial radiolocation..... | 232 | 772 | 1, 004 |
| Manufacturers..... | 1, 415 | 27, 117 | 28, 532 |
| Motion picture..... | 54 | 918 | 972 |
| Petroleum..... | 23, 184 | 67, 620 | 90, 804 |
| Power..... | 11, 617 | 159, 731 | 171, 348 |
| Relay press..... | 190 | 2, 700 | 2, 890 |
| Special industrial..... | 29, 588 | 312, 322 | 341, 910 |
| Telephone maintenance..... | 816 | 25, 704 | 26, 520 |
| Total industrial services..... | 106, 921 | 1, 054, 584 | 1, 161, 505 |
| Automobile emergency..... | 1, 325 | 12, 900 | 14, 225 |
| Interurban passenger (motor carrier)..... | 67 | 756 | 823 |
| Interurban property (motor carrier)..... | 3, 137 | 47, 900 | 51, 037 |
| Urban passenger (motor carrier)..... | 106 | 3, 216 | 3, 322 |
| Urban property (motor carrier)..... | 510 | 13, 540 | 14, 050 |
| Railroad..... | 4, 328 | 139, 920 | 144, 248 |
| Taxicab..... | 8, 730 | 159, 776 | 168, 506 |
| Total land transportation services..... | 18, 203 | 378, 008 | 396, 211 |
| Alaskan group..... | 3, 428 | | 3, 428 |
| Coastal group..... | 797 | | 797 |
| Fixed (marine) ¹ | 97 | | 97 |
| Marine radiodetermination land ² | 80 | | 80 |
| Ship group..... | | 191, 268 | 191, 268 |
| Total marine services..... | 4, 402 | 191, 268 | 195, 670 |
| Fire..... | 8, 546 | 104, 456 | 113, 002 |
| Forestry conservation..... | 6, 063 | 32, 336 | 38, 399 |
| Highway maintenance..... | 4, 874 | 48, 744 | 53, 618 |
| Local government..... | 5, 630 | 62, 550 | 68, 180 |
| Police..... | 14, 945 | 199, 260 | 214, 205 |
| Special emergency..... | 5, 280 | 16, 674 | 21, 954 |
| State guard..... | 34 | 408 | 442 |
| Total public safety services..... | 45, 372 | 464, 428 | 509, 800 |
| Total safety and special transmitters..... | 495, 932 | 4, 426, 557 | 4, 922, 489 |

¹ In prior reports, called marine auxiliary group.² In prior reports, called marine radiolocation land.

Applications in Safety and Special Radio Services

During fiscal 1964, 582,511 applications for stations in the Safety and Special Radio Services were received. A comparison of the number of applications received during the past 2 years follows:

Applications in Safety and Special Radio Services

| Class of station | June 30, 1963 | June 30, 1964 | Increase or (decrease) |
|---|----------------|----------------|------------------------|
| Citizens..... | 221,332 | 293,480 | 72,148 |
| Amateur..... | 117,571 | 117,799 | 228 |
| Disaster..... | 129 | 43 | (86) |
| RACES..... | 2,311 | 2,023 | (288) |
| Total amateur and disaster services..... | 120,011 | 119,865 | (146) |
| Aeronautical and fixed group..... | 2,583 | 3,166 | 583 |
| Aircraft group..... | 30,346 | 33,331 | 2,985 |
| Aviation auxiliary group..... | 312 | 306 | (6) |
| Aviation radionavigation land..... | 220 | 228 | 8 |
| Civil Air Patrol..... | 4,919 | 5,821 | 902 |
| Total aviation services..... | 38,380 | 42,852 | 4,472 |
| Business..... | 18,990 | 25,867 | 6,877 |
| Forest products..... | 1,339 | 1,300 | (39) |
| Industrial radiolocation..... | 378 | 378 | 0 |
| Manufacturers..... | 715 | 761 | 46 |
| Motion picture..... | 21 | 44 | 23 |
| Petroleum..... | 3,583 | 3,672 | 89 |
| Power..... | 6,150 | 7,432 | 1,282 |
| Relay press..... | 96 | 154 | 58 |
| Special industrial..... | 11,653 | 12,191 | 538 |
| Telephone maintenance..... | 406 | 368 | (38) |
| Total industrial services..... | 43,331 | 52,167 | 8,836 |
| Automobile emergency..... | 662 | 623 | (39) |
| Interurban passenger (motor carrier)..... | 34 | 39 | 5 |
| Interurban property (motor carrier)..... | 1,097 | 1,394 | 297 |
| Urban passenger (motor carrier)..... | 39 | 54 | 15 |
| Urban property (motor carrier)..... | 334 | 571 | 237 |
| Railroad..... | 1,651 | 2,307 | 656 |
| Taxicab..... | 2,039 | 2,276 | 237 |
| Total land transportation services..... | 5,856 | 7,264 | 1,408 |
| Alaskan group..... | 277 | 309 | 32 |
| Coastal group..... | 569 | 276 | (293) |
| Fixed (marine) ¹ | 44 | 61 | 17 |
| Marine radiodetermination land ² | 30 | 18 | (12) |
| Ship group..... | 40,039 | 43,400 | 3,361 |
| Total marine services..... | 40,959 | 44,064 | 3,105 |
| Fire..... | 3,588 | 4,856 | 1,268 |
| Forestry conservation..... | 1,712 | 1,536 | (176) |
| Highway maintenance..... | 2,223 | 2,616 | 393 |
| Local government..... | 3,236 | 4,136 | 900 |
| Police..... | 6,287 | 7,328 | 1,041 |
| Special emergency..... | 2,307 | 2,346 | 39 |
| State guard..... | 2 | 1 | (1) |
| Total public safety services..... | 19,355 | 22,819 | 3,464 |
| Total safety and special applications..... | 489,224 | 582,511 | 93,287 |

¹ In prior reports, called marine auxiliary group.² In prior reports, called marine radiolocation land.

Enforcement Sanctions in Safety and Special Radio Services

Violation cases in the Safety and Special Radio Services which required the institution of enforcement sanctions are indicated in the following statistical table.

Enforcement sanctions in Safety and Special Radio Services

| | 1963 | 1964 | Increase or (decrease) |
|---|------|------|---------------------------|
| Station license revocation proceedings: | | | |
| Cases pending beginning fiscal year..... | 22 | 62 | 40 |
| Cases started during fiscal year..... | 111 | 166 | 55 |
| Cases closed by revocation..... | 66 | 110 | 44 |
| Cases closed by dismissal (based on voluntary license cancellation or other reasons)..... | 5 | 30 | 25 |
| Cases pending at end of fiscal year..... | 62 | 88 | 26 |
| Amateur operator suspension proceedings: | | | |
| Cases pending beginning fiscal year..... | 1 | 0 | (1) |
| Cases started during fiscal year..... | 4 | 0 | (4) |
| Cases closed by operator license suspension..... | 5 | 0 | (5) |
| Cases closed by dismissal..... | 0 | 0 | 0 |
| Cases pending at end of fiscal year..... | 0 | 0 | 0 |
| Monetary forfeitures: | | | |
| Imposed under Title III and Section 507 of Communications Act (compulsory radio safety requirements aboard ships): | | | |
| Forfeiture notices to ships..... | 73 | 60 | (13) |
| Forfeiture notices to shipmasters..... | 54 | 39 | (15) |
| Cases closed by payment in full or as mitigated (ships)..... | 61 | 42 | (19) |
| Cases closed by payment in full or as mitigated (shipmasters)..... | 12 | 13 | 1 |
| Cases closed by remission (ships)..... | 4 | 8 | 4 |
| Cases closed by remission (shipmasters)..... | 40 | 15 | (25) |
| Unpaid cases referred for formal collection action (ships)..... | 0 | 0 | 0 |
| Unpaid cases referred for formal collection action (shipmasters)..... | 2 | 0 | (2) |
| Imposed under Section 510 of Communications Act: | | | |
| Cases pending beginning fiscal year..... | (1) | 10 | ----- |
| Forfeiture notices issued..... | (1) | 133 | ----- |
| Cases closed by payment in full or as mitigated..... | (1) | 30 | ----- |
| Cases closed by remission (based on voluntary license cancellation, license revocation, or other reasons)..... | (1) | 37 | ----- |
| Unpaid cases referred for formal collection action..... | (1) | 7 | ----- |
| Cases pending at end of fiscal year..... | (1) | 69 | ----- |

¹ No comparative data for 1963. First forfeiture notices under section 510 of act were issued in latter part of fiscal year 1963.

Common Carrier Services

DOMESTIC TELEPHONE

Highlights

Total operating revenues of the domestic telephone industry amounted to \$11.2 billion in calendar 1963 of which the Bell System accounted for \$9.8 billion and some 2,700 independent telephone companies accounted for \$1.4 billion. The Bell System had total earnings of \$1.7 billion representing a 7.5-percent return on a net investment of \$22.1 billion. In 1962 the Bell System total earnings were \$1.6 billion, representing a return of 7.4 percent on net investment of \$20.5 billion. In 1963, Bell's earnings on interstate operations were \$425 million, which was a return of 7.6-percent on net investment of \$5.4 billion. In 1962, Bell had interstate earnings of \$378 million, or a 7.5-percent return on net investment of \$4.9 billion. The earnings are calculated on the basis of exclusion of the effects of the investment tax credit.

In line with Commission policy of continuing reviews of telephone interstate operations, it held conferences with officials of the American Telephone and Telegraph Co. which resulted in FCC announcement on November 25, 1964, that the company would reduce interstate telephone rates by about \$100 million annually, the largest such reduction to date.

In late 1963 A.T. & T. announced a new stock offering to share-owners of 12¼ million shares at a price of \$100 per share in the ratio of 1 new share for every 20 shares held. The amount of new equity capital realized approximated \$1¼ billion. In connection with the new offering, the company increased its annual dividend from \$3.60 to \$4 per share effective in April 1964. In addition, a 2-for-1 split in common stock became effective in June 1964.

In recent years major problems have arisen in connection with changing concepts of rate structure due, in part, to changing technology in the communications art and, in part, to changes in the market for communications. The filing of such new tariffs as those relating to Wide Area Telephone Service, Wide Area Data Service, and Tel-pak raised questions necessitating extensive formal hearings. These

tariffs are examples of the trend toward rates which appear to be responsive to the so-called bulk communications market. The tariffs mentioned apply volume rates, in one form or another, to long-distance telephone service, teletypewriter exchange service, and the various private-line services, respectively. It is expected that the trend toward volume rates, exemplified by these tariffs, will continue to present questions requiring careful regulatory scrutiny in order to insure against unreasonable discriminations, prejudices, and preferences.

During recent years several new services were introduced by the telephone and telegraph companies. At the time tariffs are filed, the rates deemed necessary are supported by carrier estimates of costs and assumptions as to customer acceptance. Reliability of these claims can be determined only after the tariffs have gone into effect and operating data become available. Until actual results are reviewed, there is a question, in many instances, as to the propriety of the rates. These reviews, which require extensive cost studies and analyses, present problems both for the Commission and the carriers.

The reduced "after 9" rates (described in the 1963 annual report) have benefited principally the residential or social user of message telephone service and have resulted in a substantial stimulation of calls after 9 p.m. The net savings to the public resulting from these reduced rates and the concurrent increases in certain person-to-person rates was \$79 million including the effects of stimulation and shifts in traffic to the new lower rate classification. A new peak period of usage occurs on many circuits during the time these rates are in effect, particularly from 9 p.m. to 10 p.m. The company advises it will expend approximately \$100 million to augment interstate facilities to handle the increased "after 9" traffic over congested routes. However, as originally contemplated, a big portion of the additional volume is being handled over facilities which previously had been idle during the hours these rates apply.

Following discussions with the Commission, the Western Electric Co., effective July 1, 1964, reduced the prices of the products it manufactures for the Bell companies, resulting in savings to the latter of \$44 million annually. The Commission and the National Association of Railroad and Utilities Commissioners have continued their cooperative reviews of Western Electric's prices, earnings and costs. Such reviews are also being made regarding certain General Telephone & Electronics Corp. affiliated manufacturing companies.

Telephone Services and Facilities

During fiscal 1964 the industry installed more than 3.5 million telephones, bringing the total number to approximately 86 million.

Total investment in plant has been increased by more than \$2.8 billion to provide for present and future needs, by modernizing equipment

to improve transmission and reduce the time required to switch calls, by constructing exchange and toll plant less susceptible to storm damage, and by increasing broadband private-line facilities for Telpak, closed-circuit video, and other new communication requirements.

At the end of 1963 the total industry telephone plant investment exceeded \$36.5 billion. About \$4.5 billion was spent on all forms of commercial communication, which included more than 5,000 business machines, computers, and associated devices "talking" to each other over telephone lines. Within a few years, the Nation may be sending more business data and video information over long-distance circuits than voice communication. During fiscal 1964, Extended Area Service (Metroplan) was provided or expanded in over 330 exchanges throughout the Nation.

Approximately one-half of the more than 70 million telephones operated by the Bell System have been converted to All-Number Calling (ANC), a program which began in 1961 with the gradual conversion of telephone letters and numbers to all-number designations.

More than 81 percent of all Bell telephones are now equipped to dial long-distance calls directly and more than 98 percent can receive Direct Distance Dialing (DDD) calls, a factor which has significantly improved telephone toll speed of service. An expanded direct-distance dialing service was available this year for more than 200,000 business and residence customers and more than 20,000 coin telephones in New York City. This system is being extended to Cleveland, San Francisco, and Boston. Touch-tone calling was introduced in the fall of 1963. Since then, 30,000 pushbutton-dialing telephones have been installed in 23 States.

Picturephone service, which enables users to view each other while they talk, began June 24, 1964, at specified public stations in New York, Chicago, and Washington connecting those cities for this new combined visual-audio telephone service.

The domestic telephone network is made up of two ownership groups—Bell and the independents. Bell through its associated companies serves about 70 million or 82 percent of the Nation's telephones while the independents serve about 16 million or 18 percent. The industry's rate of growth has averaged an annual increase since 1956 of 7.5 percent for Bell and 11 percent for the independents. The combined network handled more than 1 billion long-distance calls in 1963. Together they provide this Nation with more than half the world's telephones—approximately 44 telephones for every 100 persons in the United States.

Consolidations and acquisitions continued to reduce the number of independent companies during fiscal 1964, at the end of which there were slightly less than 2,700 such companies, a decline of about 6 per-

cent from the previous year. The largest consolidation during the year was acquisition of the Western Utilities Corp. and its three operating telephones affiliates (California Water & Telephone Co., Southwestern States Telephone Co., and West Coast Telephone Co.) by the General Telephone & Electronics Corp. in return for stock valued in excess of \$325 million. This brought the total telephones served by affiliates of General Telephone, a holding company, to 6.27 million, or slightly more than 40 percent of the total independent telephone industry.

Eight applications were granted authorizing Bell companies to transfer or exchange among themselves plant valued at \$19,883,964. Four other grants enabled carriers to acquire telephone plant and property of other carriers at a total purchase price of \$29,200.

Total Bell toll telephone circuit miles exceeded 119,159,610 at the end of fiscal 1964. About 44.5 percent or 56,522,528 circuit-miles are operated over various types of radio-relay systems. The Long Lines Department of A.T. & T. provides a total of 59,500,000 message telephone circuit-miles—35,700,000 utilizing radio-relay facilities, 19,690,000 employing coaxial cable, and 4,110,000 on open-wire and other cable conductors.

During 1963 the Nation's telephones handled 328,866,400 average daily conversations—70,800,000 by the independents and 258,066,400 by Bell. Of the total calls, 246,282,000 were local and 11,784,400 were toll. The Bell System's average speed for completing long-distance connections in 1963 was 51 seconds, an improvement of 2 seconds over 1962.

In 1963 the world's largest private-line switched-voice network—the Federal Telecommunications System—was placed in operation, linking some 750,000 U.S. Government telephones in 8,000 Federal offices throughout the Nation. The network has more than 1,600,000 circuit-miles and uses switching centers at strategic locations. The switching equipment, designed to accommodate future technical developments, provides automatic alternate routing and a simplified uniform dialing plan.

The Bell System's blast-resistant transcontinental cable between New York City and Fairview, Kans., was completed. When extended to Mojave, Calif., in December 1964, it will add some 9,000 telephone circuits to the 15,000 now spanning the country.

During fiscal 1964 the Commission granted 284 applications for the construction of cable, wire, and carrier systems costing \$151,523,481, including the annual blanket construction program of the Long Lines Department of A.T. & T. amounting to \$48,148,000. In addition, the Commission authorized expenditures of \$192.7 million for 129,648 additional radio-relay channel-miles—Bell companies for 118,000

channel-miles costing \$186,597,727, independent telephone companies for 5,938 channel-miles costing \$4,603,771, and specialized or miscellaneous carriers (CATV) for 5,110 channel-miles at a cost of \$1,459,440.

The Commission granted five applications to discontinue telephone service during fiscal 1964, each of which provided for substitute service by another telephone company. One grant was made after formal hearing.

Tariff Docket Cases

TELPAK (docket 14251).—The Commission, on March 18, 1964, issued a tentative decision which found that an unlawful discrimination exists as between users to whom Telpak rates apply and those taking service at regular private-line rates. It provided that A.T. & T. should file tariff schedules within 30 days after issuance of a final decision eliminating the unlawful discrimination. Parties filed exceptions to the tentative decision and requested oral argument before the Commission. The argument was scheduled for September 11, 1964, to be followed by the Commission's final decision.

WATS (docket 13914).—Hearings were previously completed in the investigation of A.T. & T.'s Wide Area Telephone Service (WATS), and a recommended decision by the Chief of the Commission's Common Carrier Bureau, issued September 4, 1964, recommended termination of the investigation and the rates be permitted to remain in effect pending further study. The parties were afforded opportunity to file exceptions to the recommended decision within 30 days after its issuance.

WADS (docket 14154).—The Commission ordered A.T. & T. to cancel its full-scale Wide Area Data Service (WADS) offering but permitted it to continue its developmental line-switched teletype service (a forerunner of WADS) until otherwise ordered by the Commission. Pursuant to this decision, A.T. & T. cancelled its WADS tariff effective October 1, 1963.

TWX (docket 15011).—The record in the WADS proceeding raised questions with respect to the relationship between WADS rates and A.T. & T.'s Teletypewriter Exchange Service (TWX) rates. Accordingly, the Commission, on March 13, 1963, instituted an investigation of the charges, practices, classifications, and regulations applicable to TWX. Meanwhile, however, it was advised that A.T. & T. and Western Union contemplate entering into negotiations for the sale by A.T. & T. of its TWX facilities to Western Union. In order to observe the progress of these discussions, the Commission postponed until September 14, 1964, the date for the filing of A.T. & T.'s direct case in this proceeding.

Private line (dockets 11645 and 11646).—As previously reported, the Commission in January 1963 issued a final decision in which Western Union and A.T. & T. were ordered generally to raise rates as to private-line teletypewriter services and to lower rates for voice channels. Appeal was taken by three Chicago meatpackers. On July 31, 1963, the U.S. Court of Appeals for the Seventh Circuit stayed the Commission's order but, on August 14, 1964, denied the packers' petition for review. The covering tariffs became effective October 1, 1964.

Thornell Barnes Co. (docket 14654).—On March 13, 1964, an initial decision in this case ordered Illinois Bell Telephone Co. to pay the Barnes company \$1,281.27, and to take certain corrective action with respect to computing and billing toll charges. Exceptions were filed. Oral argument and final decision are pending.

Special construction charges (docket 15471).—The Commission, on May 13, 1964, ordered an investigation of certain A.T. & T. special-construction charges. These charges are applicable whenever the company, during the construction of facilities in compliance with customers specified requirements, establishes a route other than that which it would ordinarily utilize. Hearing was scheduled for September 29, 1964.

Press rates (docket 15094).—The Commission, on May 27, 1963, instituted an investigation into the lawfulness of existing rates for private-line telegraph and private-line telephotograph services furnished to the press. This investigation is an outgrowth of the private-line case in which the Commission prescribed or authorized higher private-line telegraph and telephotograph rates. The press contends that such rates would impair the widespread dissemination of news. The proceeding involved 7 days of hearing. Proposed findings of fact and conclusions were filed by the parties. A recommended decision is pending.

New Tariffs

Private-line tariffs.—As a result of the Commission's decision in the private-line case, A.T. & T. filed appropriate tariffs to be effective August 1, 1963. By subsequent court action, the order of the Commission in connection with A.T. & T. in this case was enjoined and the new tariffs did not become effective as to the filing carrier but did become effective as to services furnished wholly by the concurring carriers.

Special construction charges.—In conformity with the private-line decision, A.T. & T. filed tariff revisions to reflect, for the first time, charges in dollars and cents for special construction and for special equipment and arrangements.

United States-Japan cable tariffs.—In connection with the opening of the new United States-Japan cable, new or revised service offerings have been made by the Hawaiian Telephone Co. as well as A.T. & T. Included are such matters as message toll service to Midway and Wake, program transmission, and private-line telephone service from California to Guam and from Hawaii to Japan.

Tariff revisions.—During the fiscal year, 10,821 revised or new pages of 711 tariffs were filed with the Commission. In line with the Bell project to revise and reduce the bulk of its tariffs, a new filing canceled 49 traffic arrangements and compressed approximately 500 pages into 92 pages. Also, a new tariff listing rate centers and central offices reduced the number of pages by about 15 percent.

Depreciation

Revised depreciation rates prescribed for eight Bell companies resulted in an average increase in such rates of about 7 percent. Over half the increase was accounted for by shortened lives for station apparatus and station connections due to increased activity in plant associated with business services and increased movement of equipment and higher labor costs in station connections. It is expected that these factors will continue to be the principal contributors toward increased depreciation rates in the coming year, although the effect of obsolescence on several of the central office equipment categories is becoming more pronounced each year.

During the year the Traffic Service Position was introduced in the Bell System to allow direct dialing of person-to-person, collect, coin, credit card, and other special long-distance calls which have been handled by operators in the past. This development indicates replacement of all cord switchboards within the next 10 years.

Anticipated increased production of electronic switching systems in the next few years should result in a more rapid replacement of panel equipment initially and subsequent step-by-step installations. Preliminary estimates indicate that electronic switching equipment will be considerably less expensive than the older types in large installations, both as to first cost and maintenance.

Other Subjects

Investment tax credits.—The Commission, on April 29, 1964, amended its rules with respect to accounting for investment tax credits (docket 14850) by domestic telephone and telegraph carriers, affording such carriers the option of using either service life “flow through” or immediate “flow through” method to account for such credits. In so doing, it vacated a July 29, 1963, order requiring all tax credits to “flow through” immediately to net income in the year of acquisition or construction of the property to which such credits are related.

In the case of international carriers there is no ratemaking recognition permitted without consent of the carrier under the 1964 Revenue Act of the amount of the investment tax credit either immediately or over the service life of the property. Consequently, these carriers are afforded a third alternative whereby expenses are normalized by a charge equal to the amount of the investment credit with an immediate offsetting credit to income in the current year's accounts.

Further, the Commission ordered that amounts of investment credits which had been accumulated in a deferred-credit account under the interim accounting permitted in its order of November 20, 1962, and continued in effect by an order of August 2, 1963, be disposed of in a manner consistent with the method of accounting adopted under the authority of the April 29, 1964, order.

Charitable contributions.—The Commission denied requests of the A.T. & T. and the United States Independent Telephone Association that it reconsider its June 27, 1963, denial of their petitions for rule-making on a proposal that the accounting rules for telephone companies be amended with respect to contributions to charitable and educational organizations. Such items are required to be charged to a "below-the-line" income account under present rules.

Original cost accounting.—Under Commission requirement, 22 journal entries recording acquisitions of telephone plant at original cost were submitted for consideration during the year. The accounting for 19 acquisitions, which in certain instances involved the disposition of amounts in excess of original cost, was approved. Forty-two acquisitions were pending at the end of the year.

Telephone set losses.—The net quantity of Bell System telephone sets lost or determined to be unrecoverable was 792,282 in calendar 1963, a decrease of 23 percent from 1962. This overall improvement for the most part is attributed to the implementation of stricter controls by Bell companies.

Relief and pensions.—Bell company payments to trust funds for employees' service pensions amounted to \$222.4 million for 1963 which is a \$6.2 million decrease from 1962. As of December 31, 1963, the balance in Bell System pension funds amounted to almost \$3.4 billion. This reduction in payments resulted from the adoption by Bell companies of an interest factor of 3.5 percent as compared with 3 percent used in recent years, partially offset by the use of revised wage scales and pension-plan changes made later in 1963.

In the latter part of 1963 Bell companies adopted pension-plan changes which (1) reduced the social security adjustment from one-half to one-third of the primary benefit; (2) provided pension to a qualified survivor of a class A pensioner under certain conditions; (3) provided pension for employees with 15 years but less than 20

years of service at age 65; and (4) liberalized death benefits. These changes result in increased pension and benefit costs. The estimated effect of all 1963 changes in pension accrual rates on gross accruals on an annual basis for A.T. & T. and its principal telephone subsidiaries is an increase of \$24 million.

The Commission proposed (docket 15494) to amend its rules to permit accrual accounting, by charges to an operating expense account, in death-benefit provisions for active and retired employees, similar to the accounting now provided for service pension costs.

Miscellaneous accounting matters.—The Commission has under consideration the propriety of the accounting being performed by Bell companies for several items, some of which may require rulemaking. These include accounting for (1) general office expenses assigned to intercompany billings for removal and maintenance work; (2) costs of data-processing centers; (3) transfers of telephone plant and related reserves for depreciation between State areas in multistate operations; (4) past large-scale sales and other retirements of private mobile radiotelephone equipment to comply with the 1956 antitrust consent decree; and (5) salvage and cost of removal of station apparatus returned to Western Electric Co.

The Commission has under consideration two A.T. & T. proposals to amend the telephone accounting rules. They concern retirement of certain items in pole lines and cable accounts.

DOMESTIC TELEGRAPH

Highlights

Notwithstanding an 8-percent decline in public-message volume, The Western Union Telegraph Co.'s gross landline operating revenue reached a new high of \$286,822,000 in calendar year 1963, exceeding the previous peak in 1962 by \$22,703,000. The increase was due to nearly tripled Telex revenue and a 36-percent increase in private-line service revenue, flowing primarily from the Autodin digital data-communications system used by the military services. Telex revenue in 1963 amounted to \$7,652,000 as compared with \$2,570,000 in 1962. Private-line revenue was \$85,698,000 in 1963 and \$63,225,000 in 1962. Public-message revenue declined only 3.6 percent in 1963, the full effect of the 8-percent decline in message volume being partially offset by rate increases effected in 1963.

Net income from the company's entire operations was \$7,418,000 in 1963, compared with \$10,606,000 in 1962. The 1963 figure reflects a \$9,450,000 net charge resulting from the loss on the sale of the ocean-cable system. The 1962 figure reflects a negative Federal income-tax provision of \$3,500,000 due principally to the effect of accelerated depreciation in the calculation of the tax.

Western Union's continued expansion of its facilities resulted in gross plant as of December 31, 1963, of \$597 million as compared with \$541 million at the end of 1962. At the close of 1963 the company had 15,092 offices, of which 1,729 were company operated and the remainder were agency offices operated by railroads, small telephone companies, and small businesses. There was a net drop of 90 company-operated offices since 1962, due to the consolidation of 28 branch offices with nearby branch offices and the conversion to agency operation of 62 company-operated offices. From October 31, 1962, to October 31, 1963, there was a decline of 2,006 employees to a total of 28,015 employees, reflecting also the company's continued efforts to effect economies in the light of dwindling message volumes.

Total message volume declined 8 million messages to a total of 104 million messages in 1963. Revenues from domestic public messages, still the company's biggest revenue producer, amounted to \$145 million, or 51 percent of total revenues, in 1963. In 1962 the comparable revenues were \$151 million, or 57 percent of total revenues.

As of September 30, 1963, the company's ocean-cable system was sold to Western Union International, Inc. The net assets of the cable system transferred to the new company exceeded the proceeds realized by Western Union by \$17,700,000. This resulted in a tax credit of \$8,250,000, of which \$1 million is an offset to the provision for Federal income taxes for 1963, leaving \$7,250,000 to be applied to Federal income taxes in other years.

Telegraph Services and Facilities

Modernization and expansion.—Western Union is well advanced with the largest modernization and plant expansion program in its history, which includes the building of a transcontinental microwave system, installation of the world's largest digital data-communications system (Autodin) for the military services, providing an Advanced Record System for the General Services Administration, expansion of Telex throughout the Nation, and development of new customer-to-customer voice and alternate record-voice services.

Sections of Western Union's microwave beam system between San Francisco and Los Angeles, between Kansas City and Dallas, and between Buffalo and New York City, were in service by mid-1963, and operations were started in December 1963 over the entire transcontinental route. Sections of the system to serve other cities in the East are scheduled for completion in 1964. The new system's 4-million-voice channel-miles will provide advanced crosscountry broadband microwave facilities capable of handling all forms of modern communications.

The Autodin system, completed by Western Union for the Department of Defense in 1963, consists of 5 major switching centers and

more than 350 out-stations. The company signed another contract with the Department of Defense to provide for substantial expansion of this automatic digital network. Four new switching centers are to be added, bringing the total in the United States to nine, and the capacity of the five existing centers will be increased. The enlarged system will have a capability of more than 2,000 out-stations and is scheduled for completion by mid-1966.

Western Union is to furnish the Advanced Record System portion of the Federal Telecommunications System for the General Services Administration, which will serve the civilian agencies of the Federal Government. The new system is scheduled to start operating early in 1965, and will include 1,600 out-stations across the country. It will be Western Union's second largest private-line record system, out-ranked only by Autodin. The new system, using computers for automatic routing of messages, is designed to handle printed telegraph, facsimile, and high-speed data communications. It features both circuit and message switching, and direct-dial connections.

Expanding services.—Western Union's most rapidly growing service, percentagewise, is its new Telex service (a dial-operated customer-to-customer teleprinter exchange service). Revenue amounted to \$7,652,000 in 1963 as compared with \$2,570,000 in 1962. There were 9,800 subscribers in the United States at the end of 1963, and the company expects to acquire approximately 4,000 new subscribers in 1964.

Private-line service revenue amounted to \$85.7 million in 1963 compared with \$63.2 million in 1962. Together with Telex service it accounted for more than 32 percent of the total revenue in 1963 as compared with 25 percent in 1962.

Western Union's share of total domestic telegraph communications revenue declined from 80.7 percent in 1945 to 57.7 percent in 1963. Conversely, the Bell System's share of such revenue increased from 19.3 to 42.3 percent in the same period.

Western Union plans to inaugurate its broadband exchange service in 19 cities during 1964. This new alternate record-voice intercity service will provide customer-to-customer wideband channels for transmitting high-speed data, facsimile, and other types of recorded communication, also voice—on a measured-rate basis. It will utilize the company's microwave radio-relay facilities in large measure.

Western Union's first private-wire automatic telephone system (Pats) was placed in service in 1963 for the Philadelphia-Baltimore-Washington Stock Exchange. The 3-city network links 32 brokerage firms in Washington and Baltimore directly with the exchange's trading floor in Philadelphia.

Extension of lines and curtailment of service.—The Commission granted 48 Western Union applications to supplement or extend its lines, principally to meet increasing requirements for private-wire telegraph services. The requests involved the leasing of approximately 140,000 telegraph channel-miles, 20,000 data channel-miles, 3,000 facsimile channel-miles, 400 Telpak channel-miles, and 41,000 voice channel-miles.

The Commission also approved four Western Union applications to equip certain sections, approximately 5,000 miles, of its transcontinental microwave system. The development of additional and more diversified facilities on this radio-relay system will enable the company to release a portion of the channels currently leased from the Bell System.

During the year the Commission granted 926 applications by Western Union to curtail telegraph service in communities or parts thereof; 10 requests were withdrawn; and 114 were pending at the yearend. The Commission authorized the closure of 1,424 railroad-operated and 370 other agency offices operated part time by small business establishments, generally located in small communities. Their discontinuance was due principally to the closing of railroad depots, the attrition of Morse operators, and a negligible service requirement, generally averaging less than one message a day at each location. Also authorized was the substitution of agency offices for company-operated offices in 56 communities. The substitute agency offices are, in most instances, teleprinter operated and provide full telegraph acceptance and delivery service, generally with open hours equal to, or in excess of, those observed at the former company-operated offices. Approval was also given for the closure of 21 company-operated branch offices in large cities with substitute service provided through other nearby company-operated offices or other facilities. Western Union estimates that annual savings resulting from office closures, conversions, and hour reductions amount to approximately \$1 million.

Speed of service.—Western Union is required by the Commission to make daily studies and submit monthly reports thereon showing the origin-to-destination speed (time filed to time delivered, or first attempt) of its domestic message full-rate traffic handled at the 75 largest cities. The reports show that substantial improvement was made during this year, as compared to the previous year, in the company's speed-of-service performance, the ultimate goal of which calls for delivery of full-rate messages by telephone or tie line within 1 hour, and business full-rate messages by messenger within 75 minutes. Although on-the-spot investigations made by the Commission's staff have had a salutary effect on service generally, only a limited number of

such checks, confined to the most urgent cases, were made during the year because of budget limitations.

Domestic Telegraph Rates and Tariffs

Message service.—As reported in 1963, Western Union filed revised tariff schedules increasing rates for interstate message telegraph services and certain miscellaneous services. The revised rates were designed to produce additional annual revenues of approximately \$16.5 million on a systemwide basis. On July 19, 1963, charges were revised for United States-Canada and St. Pierre-Miquelon Islands telegraph message and money order services which were estimated to increase Western Union revenues by approximately \$417,000 annually. Increased rates for United States-Mexico telegraph message service were made effective January 1, 1964, to provide additional revenues of about \$108,000 annually. The overall average effect was estimated to increase the cost of telegraph services to the public by approximately 10 percent. As the fiscal year ended, Western Union requested additional message-rate increases to offset, in part, new wage increases for its employees. They were intended to bring about \$4 million additional net operating revenue. These were permitted to go into effect.

Public Telex service.—Effective June 1, 1964, Western Union established rates and regulations for a new service known as Public Telex Service, for an experimental period of 1 year. Under this new offering, the company will furnish facilities to enable the general public to use the Telex service from public Telex stations to Telex subscribers' stations in the continental United States (except Alaska), Canada, and Mexico, or to establish Telex connections with U.S. international carriers for service to oversea points. The original offering was limited to one or more of the company's public telegraph offices in New York City.

Tel(T)ex service.—As reported in 1962, Western Union established a Telex service from subscribers to nonsubscribers on an experimental basis. Effective June 11, 1964, the company filed revised tariff material to extend this service to June 10, 1965. The expiration date of the tariff for related Tel(T)ex service has been extended to the 1965 date to enable the company to gain additional operating and cost experience.

Tariff schedules.—During the year Western Union filed 1,083 pages of domestic telegraph material and 16 requests for special permission to file tariff schedules on less than statutory notice.

Other Regulatory Matters

During the period from 1963 to 1972 Western Union anticipates the early retirement of \$67 million of outside plant (i.e., poles, wire, cable,

etc.) located along the rights-of-ways of 35 railroads. Substantial portions of the plant will be sold to the railroads at a nominal value. These sales were accorded routine accounting treatment in 1963. However, each year's sales will be reviewed to determine whether special accounting treatment is required if substantial losses are experienced upon retirement of the plant.

Due to the rise in construction activity and in the level of overhead costs in recent years, Western Union began the capitalization of relief and pensions and social security taxes applicable to construction, effective January 1, 1963. This change in accounting treatment increased 1963 net income of the carrier by \$2.5 million but will result in higher depreciation charges during the life of the plant to which these capitalized overheads are related.

Still pending before the Commission is a request by Western Union for authority to account for income taxes, based on the use of accelerated depreciation, in a manner consistent with the use of such taxes in calculating the cost of service for ratemaking purposes in certain cases. The requirement for such accounting arises from the so-called income differential created by the use of straight-line depreciation in the company's books, as prescribed by the Commission, and the use of accelerated depreciation for Federal income-tax purposes in cases involving special customer single-life installations.

Investigation of Domestic Telegraph Service

Significant progress was made in the FCC Telephone and Telegraph Committees' domestic telegraph investigation (docket 14650) during the fiscal year. On July 9, 1963, representatives of the carriers, governmental agencies, labor unions, and trade associations presented to the committees opening statements on the problems facing the domestic telegraph industry. In September these participants submitted direct testimony addressed to the issues set forth in the Commission's inquiry order of May 23, 1962. On October 11 hearings began before a hearing examiner. In the ensuing 47 days of hearings, cross-examination of Western Union witnesses was substantially completed and examination of witnesses for the Department of Defense and Post Office Department was finished. In addition, a number of A.T. & T. witnesses testified. On request, Bell System and Western Union witnesses also presented information for the record covering forecasts of communications markets and economies associated with greater utilization and expansion of plant and facilities.

It is expected that the current phase of this proceeding will be completed before the end of calendar 1964. The FCC staff will then begin preparation of a report for the committees which, together with presentations by other participants, will serve as a basis for policy

recommendations by the committees to the Commission regarding the future of nationwide message telegraph service.

As part of the domestic telegraph investigation, the Commission requested the Bell System to prepare a cost study showing revenues, expenses, earnings, and net investment assignable to message-toll telephone, teletypewriter exchange service (TWX), wide-area telephone service, private-line telegraph and telephone service, Telpak, and all other services. This study marks the first attempt by the Commission to obtain allocations of expenses, earnings, and investment for each of the major A.T. & T. interstate services on a simultaneous basis. Such information will facilitate an analysis of the overall framework of communications pricing practices within which domestic telegraph services are supplied.

DOMESTIC COMMON CARRIER RADIO FACILITIES

Domestic Public Land Mobile Radio Service

A clear trend toward dial operation in the Domestic Public Land Mobile Radio Service is evinced by the large number of applications proposing automatic or partially unattended operation. Just as traditional landline telephone service has changed from manual operation to dial systems, so are the common carrier mobile radio services moving in the direction of fully automatic dialing.

Many systems currently are capable of a through-dial service, i.e., a mobile subscriber may dial and be connected to another mobile subscriber or a landline station (in a home or office) without the aid of an operator. A new improved mobile telephone system was successfully field tested in Harrisburg, Pa. It demonstrated a 2-way dial operation which is capable of automatic selection for as many as 11 channels.

Competition between miscellaneous common carriers and landline telephone carriers, all anxious to render an expanded mobile radio service to the public, points to a period of rapid development, with eventual availability of the service in most parts of the country. The growth of such services also has motivated an increasing number of States to take steps toward regulating the intrastate services rendered by the miscellaneous common carriers (carriers not also engaged in the business of furnishing either a public message landline telephone or telegraph service).

Common Carrier Microwave Radio Services

Over the past 15 years, microwave radio has replaced wireline facilities to the extent that it has become a major means of meeting demands for long-distance and certain short-route high-capacity communication. It is used to provide reliable telephone, telegraph, video-

and data-transmission services. This unprecedented demand upon the radio spectrum available for common carrier microwave assignments has resulted in substantial frequency congestion in various geographical areas and limits the extent to which future public communication needs can continue to be met by the use of radio. This condition exists despite the substantial strides made toward more efficient use of common carrier radio assignments through improved techniques and equipment. Today, for example, in excess of 1,800 voice-type transmission circuits can be derived from a single radio channel as compared with the former limit of 600 telephone circuits.

The more sophisticated types of communication services now being provided (data, telemetering, direct long-distance dial telephone service, etc.) require transmission facilities with high reliability characteristics, and an increasing number of requests are being made for additional or multiple radio frequency channels to improve the reliability of microwave radio facilities. On July 29, 1963, the Commission instituted an inquiry (docket 15130), "In the Matter of Reliability and Related Design Parameters of Microwave Radio Relay Communication Systems and Resultant Impact Upon Spectrum Utilization" in order to obtain information to enable it to establish policies and standards with respect to the reliability of microwave communication.

The Commission, on May 20, 1964, authorized an initial microwave system utilizing crossband frequency diversity operation in the 6 and 11 Gc (gigacycle) common carrier bands. The telephone companies view operation of such systems as an expedient for minimizing microwave system outages attributable to selective fading.

In a report and order (docket 14729), released July 12, 1963, the Commission reallocated certain microwave frequency bands assigned to mobile microwave radio services. Common carriers, thereby, lost the 7050-7125 Mc band as well as the 6525-6575 Mc segment of the 6425-6575 Mc band which was shared with noncommon carrier private operational fixed services. Since these bands were utilized for mobile video services by common carriers, substantial readjustment by them will be required. However, through this action, common carriers gained exclusive use of the 6425-6525 and 11,700-12,200 Mc bands. A period of 5 years from the effective date of August 19, 1963, was allowed to effect the changeovers required.

On December 13, 1963, the Commission proposed further rulemaking in dockets 14895 and 15233. In essence, it proposes that where a common carrier utilizes microwave relay facilities to serve a CATV system which renders service within the primary service (Grade A) contour of a TV broadcast station, the CATV system will, if requested to do so by the broadcaster, be required to carry the broadcast signal on the cable without degradation and not duplicate, either simultane-

ously or 15 days prior or subsequent thereto, a program to be broadcast by the TV station. Pending the outcome of this rulemaking, applicants who wish to provide microwave service to CATVs must indicate that they will accept the interim conditions. (See further reference to this subject in the Broadcast chapter.)

Domestic Common Carrier Application Form

On June 3, 1964, the Commission revised its application form for construction permits in the domestic public radio services, thereby terminating the proceedings in docket 11842. It anticipates that use of the new form will enhance the filing of properly completed applications and lead to more expeditious action thereon.

INTERNATIONAL TELEGRAPH AND TELEPHONE

General

International telecommunication services are furnished by means of radio and submarine cables. Additional facilities were provided to Europe with the opening of the TAT-3 cable on October 16, 1963. Telephone and telegraph service by cable across the Pacific became available with the opening of the British Commonwealth cable from Canada to Australia in December 1963, and the Hawaii-Guam-Japan cable in June 1964. These cables, as well as earlier cables in other areas capable of handling both telephone and telegraph services, carry an increasing portion of total U.S. traffic. Satellite systems are expected to provide additional facilities for international communication.

Telegraph services reach practically every part of the world. There is telephone contact with about 180 countries and oversea points. Telegraph and telephone services are available to ships at sea.

Financial Position of Industry

Total operating revenues of the international telegraph industry advanced in calendar year 1963 to a new high of \$97,822,000, reflecting the continuing strong demand for customer-to-customer services. Net operating revenues also increased, reaching \$12,720,000 in 1963, or 23.9 percent over 1962. Customer-to-customer services rose 19.3 percent to \$26,859,000. International teletypewriter exchange service (Telex) revenues increased 12.6 percent to \$13,704,000 and leased channel service revenues increased 27.3 percent to \$13,155,000, while telegraph message revenues remained virtually unchanged at \$63,496,000.

Total operating revenues from oversea telephone services (including the leasing of channels for alternate voice and nonvoice use) also moved upward in 1963 to a total of \$65,469,000, an increase of 11.5 percent.

Western Union Cable Divestment

With consummation of the divestment agreement between the Western Union Telegraph Co. (Western Union) and American Securities Corp. on September 30, 1963, a newly formed independent company, Western Union International, Inc. (WUI), succeeded Western Union in the rendition of its international telegraph services. WUI was required to remove its administration offices by September 30, 1964, from the building in which Western Union headquarters offices are located.

To provide for any premature retirement, there is under consideration the accounting treatment to be accorded the cable-system plant acquired from Western Union, as well as the costs (i.e., the lump-sum payment and the annual rental payments) incurred or to be incurred by WUI in connection with the cables leased from Anglo American Telegraph Co., Ltd.

Reorganization of American Cable & Radio Corp.

Progress was made in the proposed reorganization to combine American Cable & Radio Corp.'s four subsidiary companies operating in the continental United States into a single entity. During the year, All America Cables and Radio, Inc., transferred all of its domestic assets to Mackay Radio & Telegraph Co. Plans call for a similar transfer by the Commercial Cable Co. and Globe Wireless Ltd. before the end of calendar 1964. On July 16, 1964, Mackay filed copies of articles of incorporation changing its name to ITT World Communications, Inc.

International Rate Study

The Commission initiated a comprehensive review of the propriety of existing rate levels and rate structures applicable to communication services to oversea points. As a first step, during the latter part of May 1964, it addressed letters to all oversea carriers requesting that they undertake studies to develop pertinent data regarding costs and operating results. It is expected that a sizable portion of the staff's time will be devoted to this study during the coming year.

Overseas Leased Channel Cases

The Commission, on September 11, 1963, suspended certain tariff revisions filed by the A.C. & R. operating companies which proposed reduced rates to users leasing three or more teleprinter channels between Miami, Fla., and San Juan, P.R., and ordered an investigation (docket 15160) into the lawfulness of the suspended rates. After hearings, the Commission on February 19, 1964, adopted an initial decision finding the tariff revisions unlawful under section 202 of the Communications Act and ordering them canceled. No exceptions having been filed, the initial decision became final on March 21, 1964.

Ocean Telephone Cables

Upon consideration of applications filed by the American Telephone and Telegraph Co. and Mackay Radio & Telegraph Co., each requesting authorization to construct an additional submarine telephone cable to Europe, the Commission ruled that the cable should be of the type and design advocated by A.T. & T., but should be owned jointly by such U.S. oversea telecommunication companies as desire to participate in the venture. Subsequently, A.T. & T., Mackay, Press Wireless, Inc., RCA Communications, Inc., and Western Union International, Inc., were authorized to construct, land, and operate the cable, which will connect New Jersey and France and be placed in service in 1965. In addition, the provision of new alternate voice-record broadband service over circuits in the submarine telephone cables was restricted to the record carriers, with A.T. & T. being permitted to retain its existing leases. The Commission retains jurisdiction over the entire matter to enable it to require such reallocation of facilities between the telephone and record companies as might be required in the future to meet service needs.

The Pacific submarine telephone cable network of the U.S. companies continues to expand, with cables between Hawaii and Guam, and Guam and Japan, in addition to a second cable between California and Hawaii, being placed in service. Telephone cable service between the United States and Japan was formally opened by President Johnson on June 18, 1964. A cable is also planned between Guam and the Philippines. Extensions connecting the Pacific network to other points and foreign cable systems beyond Guam are also contemplated.

Long-range plans call for a cable extending from Panama down the west coast of South America to Chile, across Chile and Argentina, and up the east coast to Brazil. An additional cable is planned in the Caribbean area, between Florida and the Virgin Islands, extending from the latter point to Venezuela. Some of the Virgin Islands cable circuits will be extended to Puerto Rico via microwave facilities.

Most of these cables constitute joint undertakings by one or more U.S. carriers and foreign communication entities.

Use of Telephone Facilities by Telegraph Carriers

The Commission granted applications of the several international telegraph carriers to obtain indefeasible right of use of those circuits they had been leasing, as well as additional circuits, in the submarine telephone cables owned in whole or in part by A.T. & T. Indefeasible right of use appears to be a more economical and satisfactory arrangement than do leases for telegraph carriers desiring to operate facilities in the submarine telephone cables.

Use of High-Frequency Bands

Frequencies in the high frequency radio bands allocated to the international fixed services continue to be heavily used not only for communication with points served solely by radio, but also to provide backup facilities to the many points served by the new high-capacity submarine cables.

International Radio Circuits

During the year authority was granted to A.T. & T. to test the feasibility of operating direct radiotelephone circuits with Dakar, Senegal; Damascus, Syria, and Monrovia, Liberia.

Press Wireless, Inc., was authorized to communicate with Khabarovsk, U.S.S.R., for relay of press traffic to Moscow.

A.T. & T. and RCA have discontinued operation of circuits to Iceland which is now served via Canada by cable.

Rates for International Services

There were no significant changes in the overall level of rates for international telegraph and telephone message services. Downward adjustments were made in the rates charged by the U.S. carriers for leased telegraph channels to points in Europe served by the trans-oceanic telephone cables. Reductions also were made in the rates for such service between the mainland and Hawaii.

Effective in June 1964, a change in the method of charging for Telex service inbound from the Netherlands was instituted on an experimental basis for a period of 6 months. With the institution of fully automatic Telex service (customer-dialed) the usual 3-minute minimum charge applicable to semiautomatic service (operator-dialed) was discontinued in favor of a time-pulse charging scheme (three pulses per second) with no minimum. Also, on a 6-month experimental basis beginning July 1, 1964, the 3-minute minimum charge was eliminated in favor of a 1-minute minimum for fully automatic service with Belgium and for outbound service to the Netherlands. During the experimental period, the Commission will observe closely the effects of these changes on other telegraph services and earnings of the industry.

Two new services were inaugurated during the year—Stock Ticker Service and Overseas Market Quotation Service. They provide up-to-the-minute information on prices of securities and commodities on the U.S. markets.

No action was taken during the year on a petition filed by A.C. & R. in fiscal 1963 requesting a general investigation into the reasonableness of the charges, practices, classifications and regulations for international point-to-point telegraph services and, in particular, an increase of 30 percent for telegraph message service. However, the Commission in May 1964 initiated a comprehensive review of the rate

levels and structures of all overseas telecommunications services. (See International Rate Study.)

Pan American Complaint

The Pan American Union and the Pan American Sanitary Bureau filed a complaint against six international telegraph carriers (docket 14198), alleging that these carriers unlawfully failed to provide preferential Government rates to complainants. The Commission on May 6, 1964, ruled in favor of the complainants, interpreting the International Organizations Immunities Act as entitling these organizations to government rates for their official telegrams between the United States and foreign countries. At the close of the year, a motion by the complainants was granted reopening the proceeding to resolve the issue of damages for alleged past overcharges.

Depreciation

Reviews were made to evaluate the reasonableness of the international telegraph carriers' booked-depreciation reserves and charges, and the propriety of their depreciation accounting practices. Although the Commission did not prescribe any new or revised depreciation rates for the international carriers in fiscal 1964, considerable progress was made, with cooperation of the carriers, in developing data essential to prescription of new or revised depreciation rates pursuant to section 220(b) of the act.

Tariff Schedules

During the year carriers filed 3,152 pages of international tariff material and 146 applications for permission to file tariff schedules on less than statutory notice.

Other Regulatory Matters

The Commission on May 27, 1964, proposed rules (docket 15489) regarding the accounting to be performed by radiotelegraph carriers with respect to their interests in ocean cables operated as integral parts of communication systems which combine radio and cable facilities. Minor amendments were also proposed with respect to the accounting by telegraph ocean-cable carriers. It proposed that a new plant account, and a new maintenance expense account, and certain provision relating to the retirement of ocean cable plant should be added to the accounting rules for radiotelegraph carriers.

STATISTICS

General

Annual reports were filed by 577 common carriers and 8 controlling companies for the calendar year 1963. 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, summaries of which are published monthly by the Commission.

Telephone Carriers

Annual reports were filed by 567 telephone carriers, including 206 carriers engaged in general landline telephone service and 361 miscellaneous common carriers providing only land mobile radiotelephone service. Seventy-four of the 206 carriers were subject to the landline telephone reporting requirements of the Commission and the remaining 132 were required to report on the more limited basis applicable to mobile radio carrier licensees.

Selected financial and operating data concerning 60 general telephone carriers whose annual operating revenues exceed \$250,000 are shown in the following table for the year 1963 as compared to 1962.

*Telephone carriers*¹

| Item | 1962 | 1963 | Percent of increase |
|---|------------------|------------------|---------------------|
| Number of carriers..... | 60 | 60 | |
| Book cost of plant (as of Dec. 31)..... | \$29,960,461,439 | \$32,289,935,688 | 7.78 |
| Depreciation and amortization reserves..... | 8,352,692,485 | 6,839,062,611 | 7.66 |
| Net book cost of plant..... | 23,607,768,954 | 25,450,873,077 | 7.81 |
| Local service revenues..... | 5,415,327,812 | 5,742,358,830 | 6.04 |
| Toll service revenues..... | 3,664,958,031 | 3,951,759,818 | 7.83 |
| Total operating revenues..... | 9,519,860,109 | 10,157,661,346 | 6.70 |
| Operating expenses and operating taxes..... | 6,488,936,743 | 6,884,774,967 | 6.10 |
| Provision for Federal income taxes ² | 1,353,014,278 | 1,443,115,336 | 6.66 |
| Net operating income after all taxes..... | 1,677,909,088 | 1,829,771,043 | 9.05 |
| Net income..... | 1,438,184,639 | 1,537,846,913 | 6.93 |
| Dividends declared..... | 953,937,707 | 970,754,234 | 1.76 |
| Company telephones at end of December..... | 70,874,376 | 73,790,785 | 4.11 |
| Business..... | 18,817,169 | 19,547,732 | 3.88 |
| Coin..... | 1,279,652 | 1,308,008 | 2.22 |
| Residence..... | 50,777,555 | 52,935,045 | 4.25 |
| Number of calls originating during the year: | | | |
| Local ³ | 108,084,017,712 | 112,035,198,927 | (³) |
| Toll ³ | 4,534,434,865 | 4,851,651,053 | (⁵) |
| Number of employees at end of December..... | 603,515 | 611,190 | 1.27 |
| Male..... | 268,720 | 271,531 | 1.05 |
| Female..... | 334,795 | 339,659 | 1.45 |
| Total compensation of employees for the year..... | \$3,633,022,728 | \$3,784,301,959 | 4.16 |

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

² All of the Bell companies and most of the non-Bell companies in 1963 reduced the provision for Federal income taxes by the amount of investment credit authorized by the Revenue Act of 1962 and, under interim accounting authority granted by FCC Order of Nov. 20, 1962, extended by Order of Aug. 2, 1963, charged miscellaneous income with an equal amount. By so doing net income is unaffected. The total amount of investment credits reported in 1963 by these carriers was \$60,727,420. A few carriers allowed the amount of their investment credit to "flow through" to net income and some insignificant amounts were charged to provision for Federal income taxes.

³ Partly estimated by reporting carriers. The number of calls has not been adjusted to reflect the reclassification of calls from "toll" to "local" due to the enlargement of local calling areas. The Bell System, after adjusting for such reclassifications, reported for 1963 increases of 3.35 percent in local conversations and 8.40 percent in toll conversations.

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 2,700 telephone companies. There are also additional very small connecting rural or farmer lines and systems in considerable number.

Land mobile radiotelephone service is offered in about 550 areas (each usually comprising a city or town but sometimes covering adja-

cent cities or towns) by 36 of the 74 telephone carriers reporting to the Commission as "fully subject" carriers, with revenues for 1963 amounting to \$8.3 million, an average of over \$15,000 per area. This service is also offered in 163 areas by 132 other carriers engaged in general landline telephone service and in 456 areas by 361 miscellaneous common carriers. Their 1963 revenues were \$0.7 million and \$5 million, respectively, or \$4,200 and \$11,000, respectively, average per area. The low average revenue per area served by the 132 general telephone companies is apparently a result of many of them using the mobile service largely in their own maintenance vehicles and possibly not actively pursuing outside sales. In many cases the miscellaneous common carriers and the general telephone companies are in direct competition. The former also compete among themselves in many localities. More than half of the miscellaneous common carriers reported operating losses for 1963. Operating losses or profits are not available for enough of the general telephone company licensees to permit a similar statement regarding them.

Domestic Telegraph Carrier

The following table sets forth financial and operating data relating to the domestic landline operations of the Western Union Telegraph

The Western Union Telegraph Co.¹

| Item | 1962 | 1963 | Percent of increase or (decrease) |
|--|---------------|---------------|-----------------------------------|
| Book cost of plant (as of Dec. 31)..... | \$541,418,986 | \$596,587,306 | 10.19 |
| Depreciation and amortization reserves..... | 183,098,859 | 198,929,797 | 8.65 |
| Net book cost of plant..... | 358,320,127 | 397,657,509 | 10.98 |
| Message revenues..... | 181,474,208 | 176,654,437 | (2.66) |
| Teletypewriter exchange service revenues..... | 2,569,905 | 7,651,614 | 197.74 |
| Leased-circuit revenues..... | 61,980,995 | 84,687,222 | 36.63 |
| Total operating revenues..... | 264,118,593 | 286,822,217 | 8.60 |
| Operating expenses, depreciation and other operating revenue deductions..... | 257,139,164 | 266,659,860 | 3.70 |
| Net operating revenues..... | 6,979,429 | 20,162,357 | 188.88 |
| Provision for Federal income taxes ² | (3,730,000) | 1,000,000 | (³) |
| Net income ⁴ | 10,404,580 | 24,930,601 | 139.61 |
| Net income (landline and cable systems)..... | 10,606,536 | 7,418,639 | (30.06) |
| Dividends (landline and cable systems)..... | 10,484,482 | 10,490,373 | .06 |
| Number of revenue messages handled ⁵ | 112,486,552 | 104,220,311 | (7.35) |
| Number of employees at end of October..... | 30,021 | 28,015 | (6.68) |
| Total compensation of employees for the year..... | \$168,278,093 | \$160,649,307 | (4.53) |

¹ Represents data for landline operations. Figures covering Western Union's cable operations for the period Jan. 1 to Sept. 30, 1963, are included in the next table.

² Reflects estimated net reductions in Federal income tax expense of \$4,290,000 and \$4,160,000 in 1962 and 1963, respectively, arising from the utilization, for income tax purposes but not for accounting purposes, of a liberalized depreciation method recognized by Section 167 of the Internal Revenue Code of 1954. Also reflects estimated net increases in Federal income tax expense of \$217,000 and \$195,000 in 1962 and 1963, respectively, arising from the utilization in prior years of 5-year amortization authorized under Section 168 of the Internal Revenue Code of 1954. The accumulated amount to Dec. 31, 1963, of liberalized depreciation and 5-year amortization income tax differentials accounted for on the "flow through" basis was \$22,489,000. As a result of the \$8,250,000 tax credit related to the sale of the cable system there is no liability for Federal income tax in 1963 (the \$1,000,000 is the result of an accounting allocation), and consequently investment tax credits under the Revenue Act of 1962 were not used. It is estimated that the unused investment tax credit carry over to subsequent years will approximate \$1,977,000.

³ Not comparable.

⁴ The increase in net income for 1963 over 1962 is in considerable part attributable to the fact that the \$8,250,000 tax credit arising from the loss on sale of the ocean-cable system was tabulated as an extraordinary income credit of the landline system.

⁵ Includes domestic transmission of transoceanic and marine messages (about 11,433,000 in 1962 and 11,582,000 in 1963).

Co. for the calendar year 1963 as compared to 1962. Its ocean-cable system was sold to Western Union International, Inc., as of September 30, 1963. Data pertaining to its cable operations prior to that date are included in data concerning international telegraph carriers.

International Telegraph Carriers

Financial and operating statistics relating to the U.S. international telegraph carriers for the calendar year 1963 are here shown as compared to similar figures for 1962.

International telegraph carriers

| Item | 1962 | 1963 | Percent of increase or (decrease) |
|---|---------------|---------------|-----------------------------------|
| Number of carriers | 9 | 9 | |
| Book cost of plant (as of Dec. 31) | \$163,359,572 | \$153,464,873 | (6.06) |
| Depreciation and amortization reserves | 72,394,028 | 66,939,045 | (7.54) |
| Net book cost of plant | 90,965,544 | 86,525,828 | (4.88) |
| Message revenues: | | | |
| Domestic ¹ | 3,321,611 | 3,321,063 | (.02) |
| Transoceanic ² | 56,275,572 | 56,406,818 | .23 |
| Marine | 1,942,804 | 2,250,346 | 15.83 |
| Teleprinter exchange service revenues | 12,159,415 | 13,691,874 | 12.60 |
| Leased-circuit revenues | 9,490,210 | 12,098,159 | 27.48 |
| Total operating revenues | 92,372,493 | 97,821,724 | 5.90 |
| Operating expenses, depreciation and other operating revenue deductions | 82,104,144 | 85,101,934 | 3.65 |
| Net operating revenues | 10,268,349 | 12,719,790 | 23.87 |
| Provision for Federal income taxes ³ | 4,083,026 | 3,611,450 | (11.55) |
| Net income ⁴ | 8,117,830 | (8,637,600) | (206.40) |
| Dividends declared ⁵ | 3,620,000 | 2,991,350 | (17.37) |
| Number of revenue messages handled: | | | |
| Domestic ⁶ | 67,309 | 53,069 | (21.16) |
| Transoceanic | 24,772,584 | 25,545,580 | 3.12 |
| Marine | 1,056,779 | 1,073,910 | 1.62 |
| Number of employees at end of October | 10,522 | 9,968 | (5.27) |
| Total compensation of employees for the year | \$50,651,008 | \$51,905,482 | 2.48 |

¹ Includes revenues of 2 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 (primarily Canadian and Mexican).

² Radiotelegraph transoceanic message revenues of All America Cables & Radio, Inc., \$1,698,002 in 1962 and \$1,631,684 in 1963, are not included.

³ All America Cables, Commercial Cable Co., and Mackay Radio & Telegraph Co. had for the year 1963 net reductions totaling \$325,000 in Federal income tax expense arising from utilization for income tax purposes, but not for accounting purposes, of a liberalized depreciation method recognized by Section 167 of the Internal Revenue Code of 1954. These amounts were accounted for on the "flow through" basis. The accumulated amount "flowed through" for the years 1961, 1962, and 1963 was \$810,000. The liberalized depreciation income tax differentials accumulated in the accounts of All America and Mackay during 1964 through 1960, in the amount of \$885,000, are being amortized in equal amounts over 10 years beginning Jan. 1, 1962 to provision for Federal income taxes. RCA Communications, Inc., had for 1963 net reductions in Federal income tax expense of approximately \$821,000 arising from utilizing the 1954 liberalized depreciation method. The accumulated amount of liberalized depreciation income tax differentials accounted for since 1957 on the "flow through" basis was \$2,537,000. Commercial Cable and Mackay had investment tax credits authorized by the Revenue Act of 1962 totaling \$41,270 for 1963. Deductions from ordinary income were charged with the amounts of these credits so that net income is unaffected. RCA had investment tax credits in 1963 amounting to \$774,000. Western Union International, Inc., had for the 3 months ended Dec. 31, 1963, investment tax credits amounting to \$12,000. The full amount of these credits was accounted for on a "flow through" basis.

⁴ The loss in 1963 is attributable to tabulating gross book loss of \$18,126,223 incurred by Western Union Telegraph Co. on sale of its cable system as an extraordinary income charge of the cable system while the related Federal income tax credit of \$8,250,000 is tabulated as an extraordinary income credit of the domestic telegraph system.

⁵ All dividends declared by Western Union Telegraph Co. have been reported in the previous table relating to the domestic landline operations of that company and are excluded from this table.

⁶ Represents domestic-classification messages (primarily Canadian and Mexican).

Overseas Telegraph and Telephone Traffic

During calendar year 1963 a total of 660,157,000 words were handled into and out of the United States by international cable

and radiotelegraph carriers. In the outbound direction 334,759,000 words were transmitted, while 325,398,000 were inbound. There were also 2,624,100 telephone calls outbound and 1,922,100 calls inbound, totaling 4,546,200 calls. 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 the calendar year are set forth in the following table:

U.S. overseas message telegraph traffic in words and telephone calls, 1963

[Includes traffic transiting the United States]

| Country | Telegraph traffic, number of words (in thousands) | | Telephone traffic, ¹ num- ber of calls (in hun- dreds) | |
|--|---|---------------------------------------|---|---------------------------------------|
| | 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 | | | | |
| Europe: | | | | |
| Ascension Island (Bahrain relay)..... | | | 4 | 7 |
| Austria..... | 1,468 | 1,384 | 134 | 38 |
| Belgium..... | 4,067 | 4,284 | 235 | 93 |
| Bulgaria..... | 118 | 110 | | |
| Cyprus..... | 115 | 106 | | |
| Czechoslovakia..... | 579 | 654 | | |
| Denmark..... | 2,145 | 1,624 | 164 | 62 |
| Finland..... | 789 | 818 | 26 | 18 |
| France..... | 16,744 | 16,066 | 1,287 | 814 |
| Germany..... | 18,505 | 15,046 | 2,458 | 1,053 |
| Greece..... | 2,753 | 2,359 | 135 | 49 |
| Hungary..... | 335 | 550 | | |
| Iceland..... | 202 | 191 | | |
| Ireland..... | 1,255 | 1,408 | | |
| Italy..... | 16,246 | 13,865 | 882 | 387 |
| Luxembourg..... | 181 | 155 | | |
| Netherlands..... | 7,631 | 6,426 | 349 | 225 |
| Norway..... | 3,157 | 2,184 | 139 | 69 |
| Poland..... | 863 | 1,394 | 14 | 26 |
| Portugal..... | 1,380 | 1,177 | 34 | 18 |
| Rumania..... | 166 | 176 | | |
| Spain..... | 5,291 | 3,746 | 229 | 111 |
| Sweden..... | 4,433 | 4,077 | 232 | 134 |
| Switzerland..... | 9,576 | 7,576 | 586 | 244 |
| Turkey..... | 1,613 | 1,469 | 23 | 12 |
| U. S. S. R..... | 4,520 | 3,463 | 11 | 22 |
| United Kingdom..... | 46,131 | 45,430 | 2,766 | 2,374 |
| Vatican City State..... | 149 | 132 | | |
| Yugoslavia..... | 1,253 | 1,205 | 16 | 12 |
| All other places..... | 310 | 892 | | |
| Total Europe..... | 152,875 | 137,867 | 9,724 | 5,763 |
| Africa: | | | | |
| Algeria..... | 198 | 115 | | |
| Angola..... | 111 | 92 | | |
| Canary Island..... | 183 | 179 | | |
| Congo (Leopoldville)..... | 380 | 360 | | |
| Ethiopia..... | 390 | 405 | | |
| Ghana..... | 378 | 246 | | |
| Guinea, Republic of..... | 181 | 93 | | |
| Ivory Coast..... | 175 | 102 | | |
| Kenya..... | 626 | 673 | | |
| Liberia..... | 1,058 | 1,617 | | |
| Libya..... | 614 | 388 | | |
| Malagasy Republic..... | 126 | 82 | | |
| Mali..... | 114 | 16 | | |
| Morocco..... | 512 | 469 | | |
| Nigeria..... | 881 | 809 | | |
| Rhodesia and Nyasaland..... | 351 | 381 | | |
| Senegal..... | 166 | 106 | | |
| Sierra Leone..... | 369 | 181 | | |
| Somali Republic..... | 103 | 89 | | |

See footnote at end of table.

U.S. overseas message telegraph traffic in words and telephone calls, 1963—Con.

[Includes traffic transiting the United States]

| Country | Telegraph traffic, number of words (in thousands) | | Telephone traffic, ¹ num- ber of calls (in hun- dreds) | |
|--|---|---------------------------------------|---|---------------------------------------|
| | 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 | | | | |
| Africa—Continued | | | | |
| South African Republic..... | 2, 776 | 3, 028 | 25 | 20 |
| Sudan, The..... | 191 | 174 | ..... | ..... |
| Tanganyika..... | 221 | 218 | ..... | ..... |
| Tunisia..... | 254 | 375 | ..... | ..... |
| Uganda..... | 357 | 17 | ..... | ..... |
| United Arab Republic..... | 1, 845 | 2, 262 | 15 | 17 |
| Zanzibar..... | 153 | 72 | ..... | ..... |
| All other places..... | 772 | 510 | ..... | ..... |
| Total Africa..... | 13, 485 | 13, 059 | 40 | 37 |
| Near East: | | | | |
| Arabia: | | | | |
| Aden..... | 470 | 211 | ..... | ..... |
| Saudi..... | 1, 058 | 1, 166 | 5 | 7 |
| Yemen..... | 179 | 43 | ..... | ..... |
| Iran..... | 1, 237 | 1, 113 | ..... | ..... |
| Iraq..... | 519 | 1, 398 | ..... | ..... |
| Israel..... | 3, 260 | 3, 160 | 79 | 50 |
| Jordan..... | 234 | 232 | ..... | ..... |
| Lebanon..... | 1, 624 | 1, 762 | ..... | ..... |
| Persian Gulf..... | 763 | 740 | ..... | ..... |
| Syria..... | 283 | 219 | ..... | ..... |
| All other places..... | 21 | 1 | ..... | ..... |
| Total Near East..... | 9, 648 | 9, 945 | 84 | 57 |
| Total Europe, Africa, and the Near East..... | 176, 008 | 160, 871 | 9, 848 | 5, 857 |
| BERMUDA, WEST INDIES, CENTRAL, NORTH, AND SOUTH AMERICA | | | | |
| Bermuda..... | 1, 195 | 791 | 693 | 475 |
| West Indies: | | | | |
| British West Indies: | | | | |
| Antigua..... | 134 | 119 | 16 | 20 |
| Bahamas..... | 1, 722 | 1, 717 | 1, 197 | 1, 008 |
| Barbados..... | 421 | 265 | 60 | 38 |
| Jamaica..... | 2, 206 | 1, 394 | 404 | 396 |
| Other British West Indies..... | 339 | 261 | ..... | ..... |
| Trinidad..... | 1, 327 | 1, 218 | 79 | 76 |
| Cuba..... | 8, 151 | 19, 316 | 2, 140 | 1, 645 |
| Dominican Republic..... | 2, 179 | 2, 429 | 255 | 254 |
| French Antilles: | | | | |
| Martinique..... | 163 | 131 | 5 | 7 |
| Other French Antilles..... | 97 | 73 | ..... | ..... |
| Haiti..... | 890 | 952 | 45 | 31 |
| Netherlands Antilles..... | 1, 043 | 1, 136 | 48 | 49 |
| Puerto Rico..... | 8, 009 | 6, 615 | 3, 924 | 3, 707 |
| Virgin Islands (United States): | | | | |
| St. Croix..... | 236 | 215 | ..... | ..... |
| St. Thomas and St. John..... | 540 | 499 | ..... | ..... |
| All other places..... | ..... | ..... | ..... | ..... |
| Total West Indies..... | 27, 457 | 36, 340 | 8, 173 | 7, 231 |
| Central America: | | | | |
| British Honduras..... | 309 | 242 | 13 | 6 |
| Canal Zone..... | 811 | 673 | ..... | ..... |
| Costa Rica..... | 1, 640 | 1, 473 | 93 | 77 |
| Guatemala..... | 1, 947 | 1, 914 | 114 | 100 |
| Honduras Republic..... | 1, 104 | 984 | 63 | 61 |
| Nicaragua..... | 1, 276 | 1, 116 | 86 | 76 |
| Panama..... | 2, 216 | 1, 739 | 334 | 272 |
| Salvador..... | 1, 687 | 1, 345 | 64 | 51 |
| All other places..... | ..... | ..... | ..... | ..... |
| Total Central America..... | 10, 990 | 9, 486 | 767 | 643 |

See footnote at end of table.

U.S. overseas message telegraph traffic in words and telephone calls, 1963—Con.

[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 |
| BERMUDA, WEST INDIES, CENTRAL, NORTH, AND SOUTH AMERICA—continued | | | | |
| South America: | | | | |
| Argentina..... | 6,163 | 6,185 | 186 | 164 |
| Bolivia..... | 1,146 | 1,401 | ..... | ..... |
| Brazil..... | 9,216 | 8,128 | 196 | 128 |
| British Guiana..... | 654 | 463 | ..... | ..... |
| Chile..... | 2,875 | 2,210 | 65 | 68 |
| Colombia..... | 5,895 | 4,545 | 182 | 206 |
| Ecuador..... | 2,027 | 1,552 | 51 | 43 |
| Paraguay..... | 355 | 305 | ..... | ..... |
| Peru..... | 3,424 | 2,960 | 133 | 103 |
| Surinam..... | 369 | 282 | 63 | 35 |
| Uruguay..... | 1,814 | 1,860 | 37 | 26 |
| Venezuela..... | 8,607 | 10,841 | 232 | 224 |
| All other places..... | 34 | 26 | ..... | ..... |
| Total South America..... | 42,579 | 40,758 | 1,145 | 997 |
| North America: | | | | |
| Canada ² | 7,531 | 11,698 | ..... | ..... |
| Mexico ² | 3,390 | 3,821 | ..... | ..... |
| St. Pierre and Miquelon..... | 3 | ..... | ..... | ..... |
| Total North America..... | 10,924 | 15,519 | ..... | ..... |
| Total Bermuda, West Indies, Central, North, and South America..... | 93,145 | 102,894 | 10,778 | 9,346 |
| HAWAII, ASIA, AND OCEANIA: | | | | |
| Hawaii..... | 7,696 | 5,892 | 4,206 | 3,180 |
| Asia: | | | | |
| Afghanistan..... | 143 | 109 | ..... | ..... |
| Burma..... | 313 | 348 | ..... | ..... |
| Cambodia..... | 220 | 239 | ..... | ..... |
| Ceylon..... | 429 | 438 | ..... | ..... |
| China: | | | | |
| People's Republic of..... | 122 | 8 | (⁴) | (⁴) |
| Republic of..... | 2,165 | 1,476 | 29 | 17 |
| Hong Kong..... | 3,801 | 3,160 | 92 | 70 |
| India..... | 7,057 | 6,416 | ..... | ..... |
| Japan..... | 17,888 | 15,042 | 607 | 257 |
| Korea, Republic of..... | 1,953 | 2,191 | 138 | 35 |
| Laos..... | 71 | 177 | ..... | ..... |
| Malaya..... | 471 | 425 | 7 | 10 |
| Pakistan..... | 3,157 | 4,063 | ..... | ..... |
| Singapore..... | 1,383 | 1,113 | ..... | ..... |
| Thailand..... | 1,493 | 1,397 | 1 | 1 |
| Vietnam..... | 1,032 | 1,787 | 9 | 42 |
| All other places..... | 39 | 14 | ..... | ..... |
| Total Asia..... | 41,737 | 38,403 | 883 | 432 |
| Oceania: | | | | |
| American Samoa..... | ..... | ..... | 2 | 3 |
| Australia..... | 6,029 | 5,780 | 165 | 159 |
| French Polynesia..... | 136 | 117 | 5 | 3 |
| Guam..... | 527 | 533 | 67 | 61 |
| Indonesia..... | 1,670 | 2,091 | 1 | 7 |
| New Zealand..... | 1,455 | 1,438 | 34 | 33 |
| Philippines..... | 5,139 | 6,016 | 120 | 131 |
| Ryukyu Islands..... | 895 | 899 | 132 | 9 |
| All other places..... | 400 | 377 | ..... | ..... |
| Total Oceania..... | 16,161 | 17,251 | 526 | 406 |
| Total Hawaii, Asia, and Oceania..... | 65,594 | 61,546 | 5,615 | 4,018 |

See footnotes at end of table.

U.S. overseas message telegraph traffic in words and telephone calls, 1963—Con.

[Includes traffic transiting the United States]

| Country | Telegraph traffic, number of words (in thousands) | | Telephone traffic, ¹ num- ber of calls (in hun- dreds) | |
|-------------------------------------|---|---------------------------------------|---|---------------------------------------|
| | Outbound from the United States | Inbound to the United States | Outbound from the United States | Inbound to the United States |
| HAWAII, ASIA, AND OCEANIA—continued | | | | |
| Unknown destination or origin..... | 12 | 87 | | |
| Grand total..... | 334, 759 | 325, 398 | 26, 241 | 19, 221 |

¹ The data on telephone calls include the number of overseas calls handled via radio and via transoceanic telephone cables. A.T. & T. reports its volume of overseas 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 1963. Any calls that may have been handled with such countries during 1963 are included in the traffic of the intermediate country through which indirect service was rendered. Although telephone service with Alaska is by means of transoceanic cable such service is not classified as oversea telephone service.

² 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.

³ 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.

⁴ Less than 100 calls.

Common Carrier Radio Authorizations

Authorizations outstanding in the common carrier radio services totaled over 8,300 at the close of the fiscal year, an increase of more than 1,700 for the year. Comparative figures by class of service were:

| Class | June 30, 1963 | June 30, 1964 | Increase or (decrease) |
|--|---------------|---------------|---------------------------|
| Domestic: | | | |
| Point-to-point microwave..... | 3, 577 | 4, 143 | 566 |
| Local television transmission ¹ | 73 | 73 | |
| Rural radio..... | 374 | 439 | 65 |
| Domestic public land mobile..... | 2, 407 | 3, 618 | 1, 211 |
| Developmental..... | 128 | 28 | (100) |
| International: | | | |
| Point-to-point telegraph-telephone..... | 7 | 9 | 2 |
| Point-to-point telegraph..... | 14 | 14 | |
| Point-to-point telephone..... | 8 | 8 | |
| International control-fixed..... | 11 | 11 | |
| Total..... | 6, 599 | 8, 343 | 1, 744 |

¹ Studio-transmitter-link.

Common Carrier Applications

Over 9,600 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, 1963 | Received | Disposed of | Pending June 30, 1964 |
|---|-----------------------------|--------------|--------------|-----------------------------|
| <i>Radio facilities</i> | | | | |
| New and changed facilities: | | | | |
| Domestic: | | | | |
| Point-to-point microwave radio stations..... | 647 | 4,850 | 4,483 | 1,014 |
| Local television transmission stations..... | | 24 | 22 | 2 |
| Rural radio stations..... | 60 | 368 | 340 | 88 |
| Domestic public land mobile radio stations..... | 463 | 2,698 | 2,719 | 442 |
| Developmental stations..... | 26 | 53 | 75 | 4 |
| Registration of Canadian radio station licenses..... | | 26 | 26 | |
| International: | | | | |
| Point-to-point radiotelegraph-telephone..... | | 12 | 12 | |
| Point-to-point radiotelegraph..... | | 54 | 54 | |
| Point-to-point radiotelephone..... | | 25 | 25 | |
| International control..... | | 26 | 26 | |
| Renewal of license: ¹ | | | | |
| Point-to-point microwave radio stations..... | | | | |
| Local television transmission stations..... | | | | |
| Rural radio stations..... | | | | |
| Domestic public land mobile radio service: | | | | |
| Systems of— | | | | |
| Telephone companies..... | | | | |
| Miscellaneous common carriers..... | | | | |
| Customer-supplied mobile units utilizing base stations of— | | | | |
| Telephone companies..... | | | | |
| Miscellaneous common carriers..... | | | | |
| Developmental stations..... | | 84 | 84 | |
| International..... | | | | |
| Total radio facilities..... | 1,196 | 8,220 | 7,866 | 1,550 |
| <i>Wire facilities</i> | | | | |
| Telephone extensions..... | 4 | 296 | 291 | 9 |
| Telegraph extensions..... | 4 | 100 | 96 | 8 |
| Telephone reductions..... | | 4 | 4 | |
| Telegraph reductions..... | 132 | 927 | 949 | 110 |
| Total wire facilities..... | 140 | 1,327 | 1,340 | 127 |
| <i>Miscellaneous</i> | | | | |
| Applications to purchase stock in Communications Satellite Corporation..... | 20 | 107 | 123 | 4 |
| Interlocking directorates..... | | 4 | 4 | |
| Jurisdictional determinations..... | | | | |
| Submarine cable landing licenses..... | | 9 | 7 | 2 |
| Grand total..... | 1,356 | 9,667 | 9,340 | 1,683 |

¹ Licenses in the various common carrier radio services are issued for terms of from 1 to 5 years and all licenses in a given service expire at one time with new licenses issued between renewal dates being only for the unexpired license period for the class. This explains why the number of license renewal applications may be none in many years.

Field Engineering

GENERAL

The Field Engineering Bureau completed its first full year of operation along strictly functional lines. Its Field Offices Division is responsible for operation of the district, sub and marine offices as well as the mobile enforcement units; its Monitoring Systems Division supervises the monitoring network and directs the activities of individual monitoring stations; and its Engineering and Facilities Division sets technical policies and procedures and procures technical equipment for the bureau.

A continuing high level of work output was maintained in spite of more complex problems being faced. Not only has monitoring efficiency been improved but inspections have been made more effective. Because of the continually expanding use of radio, radar, satellite communication, CATV systems, etc., the bureau's work in the matter of eliminating interference and enforcing rules and regulations will continue to grow.

FIELD OFFICE ENFORCEMENT

Field office responsibilities include inspection of all classes of stations licensed by the Commission. The basic purpose of the inspection varies with the class of station. Ship and aircraft inspections are made to insure that the safety of passengers will be enhanced by properly functioning radio communication systems. On the other hand, inspection of business and industrial stations includes attention to efficient usage of frequencies in short supply and guidance to the small businessman making use of radio, perhaps for the first time.

The bureau maintains 24 field and 4 suboffices to conduct station inspections, examine and license radio operators (commercial and amateur), and investigate unlicensed operation and interference to reception of all types of radio stations. The efforts of field offices are augmented by two marine offices, three mobile TV and FM enforcement units and two microwave units.

BROADCAST SERVICE

In 1964 new rules became effective concerning the class of operators employed by certain types of AM and FM broadcast stations. These stations may employ, for routine transmitter operation, persons holding at least a radiotelephone third-class operator permit indorsed for broadcast operation. To ease the burden on stations during the transition period, the Field Engineering Bureau granted many waivers to stations unable to immediately meet the new requirements.

Commensurate with the objective of improved technical quality of broadcasting, field engineers made more in-depth inspections of equipment. For example, it is highly desirable that the percentage of modulation by both AM and FM stations be kept within certain limits. If the modulation is too high, interference will be caused to stations on adjacent channels; if it is too low, coverage of the station suffers. Field engineers found a number of stations deficient in modulation compliance and the listening public benefited when the condition was corrected.

BUSINESS AND INDUSTRY

The Communications Act requires the Commission to promote radio communication. Though radio has made great strides in the past 30 years, there is still a "housing shortage" in many parts of the spectrum. To make more frequencies available as a result of advancement in equipment and techniques, the Commission cut in half the amount of spectrum space available to certain classes of stations. To make this "split-channel" operation workable, field engineers during the past year made thousands of engineering measurements to determine whether the spectrum-saving rules were being obeyed.

Fiscal 1964 was the second year of a 5-year program, recommended by a management consultant firm, to apportion the amount of enforcement devoted to each radio service on the basis of a continuing annual sampling, giving emphasis to services having a poor record of compliance. The year's results show, for instance, where compliance in a service was so much above average that enforcement efforts in that service could be reduced and more attention given to services needing more observance.

Application of the small forfeitures act (\$100 to a maximum of \$500) against repetitive or willful rules violators in the nonbroadcast services was accelerated during the year. These actions were largely against prolific violators in the Citizens Radio Service and small-boat operators. Imposition of the fines is handled by the Safety and Special Radio Services Bureau acting upon rule violation information supplied by the Field Engineering Bureau. Fines have averaged \$100, mitigated in some instances to \$25. Many recipients of liability

notices have availed themselves of a provision of the law which permits them to request a personal interview at a field office or monitoring station.

Although there is growing awareness among licensees of the monetary penalty, field enforcement statistics do not indicate any resultant improvement in compliance. It will undoubtedly be several years before the small fines provision becomes a major deterrent factor. Its greatest merit to date has been to permit relatively faster sanctioning action against repetitive violators in contrast to lengthy license revocation proceedings.

MARINE

The emphasis placed on various services by the Commission varies from listener convenience in the broadcast service to business necessity in the common carrier field. Since radio usage in the marine services is primarily for safeguarding human lives, FCC field engineers periodically inspect ships, large and small, to insure that radio equipment will be in proper working order should it become necessary for the vessels to summon aid during distress. Such inspections during the year revealed that certain vessels carrying passengers for hire were using deficient radio equipment. Their licensees were directed to take corrective measures.

RADIO OPERATOR LICENSING

In addition to the licensing of radio stations, radio law and treaty also require the licensing of transmitter operators. This is done by the field offices which regularly conduct examinations and otherwise determine qualifications for seven grades of commercial operator licenses and two grades of amateur operator licenses.

ADMINISTRATION OF OPERATOR REQUIREMENTS

The Field Engineering Bureau is delegated responsibility for determining the content of radio operator examinations. Commercial operators are basically classified as radiotelegraph and radiotelephone. Several grades within each classification carry different degrees of authority according to demonstrated qualifications and, in some cases, experience. Also, when operators must perform specialized technical duties they are required to qualify in a supplemental examination and their licenses are then endorsed to confer additional authority.

For many years routine operation of most low power and non-directional broadcast stations has been performed by persons holding a restricted radiotelephone operator permit. This is issued to eligible candidates who certify in writing to their knowledge, ability, and

responsibilities as operators. In October 1963, because there had been many rule violations, the Commission instituted a new license requirement for such operators calling for a written examination. The Field Engineering Bureau, based upon the violation records and other criteria, composed a special examination leading to a special endorsement on the radiotelephone third class operator permit. This new requirement became effective April 19, 1964.

With the assistance of the National Association of Broadcasters and the various State associations of broadcasters, many special examinations were scheduled. The number of cities where examinations were given was increased from the normal figure of 50 to 177. During the last half of fiscal 1964 approximately 20,000 candidates qualified for the new authorization.

The bureau's San Juan, P.R., office translated the special broadcast examination into the Spanish language for the convenience of Puerto Rico candidates.

The Commission is authorized by law to waive the operator license requirement in some circumstances upon a finding that it would be in the public interest to do so. Based upon regulatory experience, it waived the operator license requirement for the "pushbutton" operation of most stations in the Public Safety Radio Services.

There was an increase in the number of aliens applying for radio operator authorizations. The requirement of U.S. nationality was waived for 1,141 aliens to permit them to use radiotelephony for safety purposes while piloting U.S. registered aircraft. Such operator licenses are normally valid only while the holder is lawfully in this country.

During the year the Commission licensed the first radio operator from American Samoa. It was empowered to do so by a 1962 amendment to the Communications Act authorizing the licensing of nationals in addition to U.S. citizens.

Three instances of fraud came to the Commission's attention in which candidates applied for commercial operator licenses in the names of other persons. The cases were referred to the Department of Justice for prosecution. In addition, three licenses were suspended for violations of the Communications Act or Commission rules.

INTERFERENCE INVESTIGATION

Though broadcast is the main attraction to most people, millions also depend upon radio to exchange communications or to use frequencies to generate energy for industrial purposes.

These nonbroadcast activities combine to literally submerge the Nation in a sea of electromagnetic energy and it is not surprising that a portion of this energy goes astray and creates interference in

the radio spectrum. About 43,000 complaints of interference to authorized radio services were received by FCC field offices during the year. The limited field staff cannot begin to investigate each complaint. But, thanks to technical knowledge, the large majority of these complaints are satisfactorily resolved at local level. By telephone or written correspondence, many complainants are advised about the cause and cure of most interference and are able to solve their own problems.

The Field Engineering Bureau has fostered the formation of nearly 800 TV and other cooperative interference committees throughout the country. Many routine interference complaints are referred to these volunteer organizations which promptly look into the matter and recommend remedial measures to the complainants.

About 1,200 major interference investigations were conducted by field engineers during the year. Interference to radio services where safety of life was a factor continued to receive priority. Some investigations required up to 5 days travel and frequently an extended period of monitoring was necessary before the source could be located and the cause eliminated.

In ridding the airwaves of interference, field engineers have participated in many joint flight checks with Federal Aviation Agency crews. FCC engineers have struggled up mountains carrying detection equipment with forest rangers, operated with border patrols, and spent many cramped hours in mobile investigative units waiting to hear an interfering signal so that the tracking procedure could commence.

CERTIFICATION OF ISM EQUIPMENT

A significant investigative demand, marked by outstanding achievement, was pursuit of the certification program for industrial, scientific and medical (ISM) equipment. Users of such equipment are required to make detailed engineering measurements and observations to assure that the FCC's technical standards and radiation limitations are met and submit a certifying form to the Commission.

In the Northeastern United States, where hundreds of radio frequency (RF) generating devices are used industrially, vigorous enforcement has paid dividends in the form of safer air travel. Sixty-six new plants in the New York City area utilizing RF heating equipment capable of radiating energy that would cause interference to air navigation submitted certifications during the year. Investigative engineers traced 27 signals causing interference to air navigation to that source and issued cease operation orders pending certification. About 950 certifications of ISM equipment were received during fiscal 1964. This figure is substantially larger than any previous year and results principally from field investigative and enforcement efforts.

UNLICENSED STATIONS

A simple application, properly executed, is all that is required to obtain radio communication authority in certain services. But even this seems to be too much trouble for some persons. And several unlicensed operations were willfully resorted to after an application had been rejected. One aeronautical beacon operation was in this category. The lure of "getting on the air" frequently overcomes prudence and many owners of transmitters try to use their equipment before their applications are processed.

Some persons purchase relatively inexpensive low-power communication devices and discover that range can be extended by simply adding a long-wire antenna or increasing the power input. The result: an unlicensed radio station, sometimes with astonishing range. Twenty-eight such stations trying to operate in the AM broadcast band were closed down during the year. But by far the biggest source of unlicensed operation was in the Citizens Radio Service. About 500 unlicensed stations were located, investigated and enforcement action initiated during the year.

MONITORING

The Commission operates a nationwide system of radio-monitoring and direction-finding stations, including facilities in Alaska and Hawaii. This network is under 24-hour direction of a headquarters control center in Washington.

The FCC monitoring network formerly included 2 types of stations—primaries and secondaries—depending upon size, number of personnel, and equipment. With the inauguration of a new, third type of station on premises and with facilities shared with another Government agency, monitoring station classifications were changed during the year to class A (formerly primaries), class B (formerly secondaries), and class C (the new type of station). At the present time there are 11 class A, 6 class B, and 1 class C stations (elsewhere listed).

The direction-finding functions of three of the present class A stations are being transferred to new class C facilities under construction at Marietta, Wash., Imperial Beach, Calif., and Wahiawa, Hawaii. A new class C station in Puerto Rico is expected to be activated during the coming year. Otherwise no new monitoring stations were established, but improvements were initiated or completed at several existing stations.

Because of the increasing importance of radio monitoring and direction-finding operations in the southeast sector, the Fort Lauderdale, Fla., station has been augmented in both facilities and personnel over

the past several years and, further, has now been changed to class A status to increase its effectiveness.

Enforcement monitoring of the various radio services continues to be done on a rotating spot check basis. Attention is thus distributed among all services.

The task of systemic "cruising" of the radio-frequency spectrum to detect violations and unauthorized operations is a continuous activity of all monitoring stations, with special concentrated surveillance activities rotated to selected stations on a monthly basis. Ten special monitoring surveys were conducted during the year to obtain data for Commission rulemaking and regulatory purposes. Frequency usage data compiled by FCC and private monitoring stations are furnished the International Frequency Registration Board on a continuing basis.

Monitoring Facilities

Progress was made during the year in the continuing program to eliminate obsolescent FCC monitoring equipment. Depending largely upon availability of funds, it appears that this project can be completed by the end of fiscal 1966.

Of particular importance during 1964 was acquisition of 10 more electronic counters for making frequency measurements. Other acquisitions included additional high-frequency transmitters for synchronizing monitoring and direction-finding operations where landline teletype is not available, as in Hawaii, and for emergency backup during interruptions to the teletype net; antenna multicouplers to permit several receivers to be connected to a single antenna; very low to very high-frequency receivers; more rugged tape recorders and specialized test equipment needed to check performance and maintain monitoring and electronic measuring instruments in good condition.

Increasing demands continue to be placed on FCC's field technical facilities as radio services continue to expand and become more sophisticated both in types of equipment and in their usage. Since land space at the monitoring stations is limited, possible alternatives are being sought for the large rhombic antennas which occupy a considerable amount of land area for multi-azimuthal coverage in the high-frequency range. Tests are being made of log periodic antennas which give promise of greater versatility within less space.

As commercial operations increase in the VHF and expand into the UHF regions of the spectrum, more attention is being given to means for obtaining broader geographical coverage with present monitoring staffs and facilities, particularly in areas remote from monitoring stations. One step has been to put a limited program of mobile monitoring into effect. These units greatly increase the range and effectiveness of the fixed monitoring stations and provide surveillance

of the VHF and UHF ranges at locations beyond the reception areas of the fixed monitoring stations.

Direction Finders

The FCC long-range direction-finder network provides a means of quickly tracing the source of signals within range. Being able to determine the location of an unidentified signal makes the long-range direction finder an important tool in solving interference cases, locating unauthorized transmitters, and providing "fixes" on aircraft and ships in distress.

Effort to improve the accuracy and reliability of individual direction finders at monitoring stations is a continuing project. Improved sensitivity and accuracy in the FCC-designed wide-aperture direction finder are being realized in tests at the Powder Springs, Ga., monitoring station. Similar installations during the coming year are planned for the stations at Kingstree, Tex., Chillicothe, Ohio, and Laurel, Md., to replace the older, adcock type of direction finders there.

Network Intercommunication

During the year the monitoring stations at Fort Lauderdale, Fla., Douglas, Ariz., and Spokane, Wash., were brought into the landline teletype circuit which now links 15 monitoring stations in the contiguous 48 States with central net control and with each other. This system of instantaneous communication is necessary to coordinate monitoring observations and direction-finder bearing reports which are vital to the rapid solution of interference cases and locating distressed craft and illegal stations.

Radioteletype facilities continue to be important, however, for backup purposes. Only three monitoring stations (in Alaska and Hawaii) are dependent entirely upon radioteletype for relay of operational and emergency traffic. Contact with the monitoring station being reestablished in Puerto Rico also will be by radioteletype.

International Radio Interference

The Commission's monitoring and direction-finder system receives requests daily from FCC licensees and Federal agencies seeking relief from interference to radio circuits serving all parts of the globe. The FCC direction-finding net furnishes a unique service by rapidly determining the geographical location of sources of nonidentifying radio emissions. Although domestic transmitters are sometimes to blame, foreign transmitters often give cause for complaint, as in the following examples of interference cases resolved by long-range detection:

Interference to San Francisco telephone reception from Tokyo caused by a station in Santiago, Chile.

U.S. Navy transmissions from Morocco interfered with U.S. Coast Guard operations on the Pacific Coast.

A broad spurious emission from a station in Bogota, Colombia, interfered with marine (ship) working frequencies in the United States.

A Cuban station on an unregistered frequency assignment interfered with reception of transmissions from New York to Caracas, Venezuela.

Teheran, Iran, transmissions to Moscow rode in on U.S. Navy receivers at Annapolis.

A high-frequency broadcast station in the Dominican Republic interfered with U.S. Army radio communication in Maryland.

Tropical Field Strength Recording

Data concerning propagation of radio transmissions are gathered in the field for Government agencies, including use by the Commission in rulemaking and frequency-allocation proceedings. During the year a program was initiated at three monitoring stations for automatic recording in the AM broadcast band of strength of signals from foreign broadcast stations.

At this period of the 11-year sunspot cycle, instead of being confined to their intended domestic coverage range, signals from stations in the tropics, especially Latin American broadcast stations, are reflected by the ionosphere so that they are heard in this country as interference to "clear channel" broadcast stations during evening hours. As the interfering signal varies in intensity, its strength is logged by the FCC on a time-marked chart roll, providing a continuous and permanent record. Supplementing these signal strength recordings, conventional audio tape recordings are made for brief periods in surveying the amount of interference on the various domestic clear channels.

Search and Rescue

The FCC radio-direction finding network is often called upon to assist in locating distressed aircraft and surface vessels by taking bearings on their radio transmissions. Typical cases of this assistance were:

Bearings furnished by the Anchorage and Fairbanks monitoring stations enabled a search aircraft to locate a downed military helicopter in the Alaskan wilds. Two men abroad were rescued.

The pilot of a military aircraft who had reported that he was unsure of his position was furnished a "fix" which enabled him to proceed safely to his destination.

Direction-finder bearings by the Kingsville, Tex., and Fort Lauderdale, Fla., monitoring stations helped locate a yacht with six persons aboard which had run aground on the coast of South America.

Enforcement of Class D Citizens Rules by Monitoring

Class D operation in the Citizens Radio Service requires intensive monitoring enforcement to correct the widespread, flagrant abuses of the rules and to obtain the benefits of this radio service to licensees generally. More than 300 of these licensees were found liable to license

revocation or forfeiture action during the year. This number represents only part of the citizens rule violators observed (see "Unlicensed Stations").

Contractual Services for Federal Agencies

The Field Engineering Bureau continued to furnish special technical services to various Federal agencies in the cooperative work of collecting scientific data for defense and research programs. These services included field strength recording and monitoring, also tracking and direction finding in connection with radio transmissions from high-altitude, freefloating balloons and weather buoys carrying transmitters powered by atomic energy.

Services to foreign governments included the training of their officials and students in the techniques of setting up and using monitoring direction finding and related equipment.

The cost of all these services for fiscal 1964, for which the Commission was reimbursed, approximated \$110,000.

TECHNICAL ENFORCEMENT FACILITIES

Observations and measurements of transmissions of all types of FCC-licensed radio stations are made by the field offices to assure compliance with technical requirements relating to frequency, power, bandwidth, modulation, spurious radiations, etc. Proper technical operation is essential to maximum effective use of the radio spectrum with a minimum of interference.

Not all stations can be received satisfactorily at FCC monitoring stations and enforcement offices. Therefore, it is necessary that suitable instruments be readily transportable in specially equipped vehicles so that observations and technical measurements can be made away from the FCC's fixed installations. These vehicles also play an important role when observations must be made at the transmitter itself. Without this mobile enforcement capability, radio service in many remote areas would deteriorate greatly. Resultant impairment of service would be caused not only to the viewing and listening public but also to communication services important to business and industry, as well as to police, fire, and aviation radio.

Significant progress was made during the year in upgrading the quality of technical equipment at field offices, including replacement of many of the obsolescent receivers and measuring instruments with more modern devices, thereby enhancing field enforcement capabilities.

Engineering Measurements Cars

Because of the increasing need for engineering measurements in all areas of the country, implementation was continued of the program

for providing each enforcement office with a vehicle equipped with the necessary electronic instruments to make technical measurements of broadcast and other radio emissions to assure compliance with technical requirements. Although it may be another year or two before all offices can be furnished all necessary instruments for this purpose, the program has advanced to the stage where it is no longer necessary for several field offices to share a single vehicle, even though sharing of some of the more expensive electronic instruments is still necessary.

Investigative Facilities

Technical facilities for conducting investigations, such as tracking down illegal or unidentified stations and sources of interference, include direction-finder-equipped mobile units. In addition to permanently installed electronic equipment, special equipment most suitable to the specific case is temporarily carried in the vehicle with miniaturized receivers or detection equipment being used for on-foot investigations when necessary. Capabilities of the investigative facilities have been considerably enhanced by the growing availability of compact lighter weight transistorized receivers and other portable equipment.

FM-TV Enforcement Units

The first of the Commission's three FM and TV broadcast enforcement units, placed in service in 1955, was replaced by a modern unit. Although the older unit represented the latest in measurement and monitoring technology when it was activated 9 years ago, advances since that time made it expedient to construct an entirely new facility incorporating modern electronic instrumentation for measuring and analyzing the characteristics of FM and TV broadcast transmissions. The 1955 unit had logged 90,000 miles in cooperating with broadcasters to ensure satisfactory TV and FM service to the public.

Upper Spectrum Engineering Measurements Units

Because of the characteristics of signals in the higher frequency parts of the spectrum, especially microwave signals, most technical enforcement is dependent upon mobile facilities. Microwaves play an increasing role in the Nation's space program and line-of-sight links for many communication systems. Two specially equipped upper spectrum mobile units are now in use, one in the East and one in the West. Additional units are planned, both for assuring optimum service with respect to existing stations and for collecting technical data that will aid in this Nation's progress in upper spectrum use.

ANTENNAS

Part 17 of the Commission's rules provides for the obstruction marking of antenna structures pursuant to provisions of the Communications Act. Antenna proposals for new or modified transmitting towers are processed by the Commission to insure compliance with requirements established in Federal Aviation Agency's Part 77 Regulations governing the filing with that agency of notices of proposed construction. Towers in excess of 170 feet in height or towers that exceed hazard criteria of FAA's regulations are required to be painted and lighted.

The number of antenna proposals processed by the FCC for all radio services during the year totaled 29,241, exceeding the previous high of 24,558 in 1963. This was due to the record-breaking total processed for the Safety and Special Radio Services, which jumped from 21,297 in fiscal 1963 to 26,255 in 1964.

TV transmitting towers continue to increase vertically as well as numerically. During the year, 11 additional towers exceeding 1,000 feet in height were constructed, including the 2,063-foot structure of KTHI-TV at Fargo, N. Dak., now the world's tallest manmade structure. The second tallest tower (2,060 feet) will be that of KXJB-TV, Valley City, N. Dak.

The FAA and FCC are continuing their collaboration toward the establishment of TV antenna farms at communities where channel allocations would provide for grouping antennas of two or more stations. The Commission is proposing legislation to control the lighting and marking of abandoned transmitting towers.

RECRUITMENT AND TRAINING OF ENGINEERING PERSONNEL

Recruitment efforts by the Field Engineering Bureau were again successful in obtaining student trainees and graduate engineers for its technical programs. The bureau is assisted by the new recruitment program of the U.S. Civil Service Commission wherein trained recruiters visit colleges and other "sources of supply" in an effort to obtain engineering personnel.

CIVIL DEFENSE AND RADIOLOGICAL MONITORING

In association with the Office of Civil Defense of the Department of Defense, 18 FCC monitoring stations have been furnished radiological monitoring equipment. These stations make monthly readings and report the results to bureau headquarters for forwarding to the Office of Civil Defense. Eighteen FCC field personnel have taken radiological monitoring courses and have, in turn, imparted this

training to other staff members so as to make the field force proficient in the operation of this equipment.

FIELD ENGINEERING OFFICES AND MONITORING STATIONS

A list of field engineering district offices and monitoring stations follows:

1. 1600 Customhouse, Boston, Mass., 02109
2. 748 Federal Bldg., New York, N.Y., 10014
3. 1005 New U.S. Customhouse, Philadelphia, Pa., 19106
4. 415 U.S. Customhouse, Baltimore, Md., 21202
5. 405 Federal Bldg., Norfolk, Va., 23510
6. 1240 Peachtree St. NE., Atlanta, Ga., 30303; (suboffice) 238 Post Office Bldg., Savannah, Ga., 31402
7. 51 SW. First Ave., Miami, Fla., 33130; (marine office) 201 Spradlin Bldg., Tampa, Fla., 33606
8. 608 Federal Bldg., New Orleans, La., 70130; (suboffice) 439 U.S. Courthouse and Customhouse, Mobile, Ala., 36602
9. 5636 New Federal Office Bldg., Houston, Tex., 77002; (suboffice) 301 Federal Bldg., Beaumont, Tex., 77704
10. 1314 Wood Street, Dallas, Tex., 75202
11. 849 South Broadway, Los Angeles, Calif., 90014; (suboffice) 1245 Seventh Ave., San Diego, Calif., 92101; (marine office) 356 West Fifth St., San Pedro, Calif., 90731
12. 323-A Customhouse, San Francisco, Calif., 94126
13. 441 U.S. Courthouse, Portland, Oreg., 97205
14. 806 Federal Office Bldg., Seattle, Wash., 98104
15. 521 New Customhouse, Denver, Colo., 80202
16. 208 Federal Courts Bldg., St. Paul, Minn., 55102
17. 3100 Federal Office Bldg., Kansas City, Mo., 64106
18. 826 U.S. Courthouse, Chicago, Ill., 60604
19. 1029 New Federal Bldg., Detroit, Mich., 48226
20. 328 Federal Bldg., Buffalo, N.Y., 14203
21. 502 Federal Bldg., Honolulu, Hawaii, 96808
22. 322-323 Federal Bldg., San Juan, P.R., 00903
23. 53 U.S. Post Office and Courthouse Bldg., Anchorage, Alaska, 99501
24. 1101 Pennsylvania Ave. NW., Washington, D.C., 20555

| | | |
|-------------------------|-------------------------|------------------------|
| <i>Class A stations</i> | Portland, Oreg. | Chillicothe, Ohio |
| Allegan, Mich. | Powder Springs, Ga. | Douglas, Ariz. |
| Canandaigua, N.Y. | Santa Ana, Calif. | Fairbanks, Alaska |
| Fort Lauderdale, Fla. | Waipahu, Hawaii | Spokane, Wash. |
| Grand Island, Nebr. | | |
| Kingsville, Tex. | <i>Class B stations</i> | <i>Class C station</i> |
| Laurel, Md. | Ambrose, Tex. | Winter Harbor, Maine |
| Livermore, Calif. | Anchorage, Alaska | |

STATISTICS

Field engineering statistics for fiscal 1964 in comparison with 1963 follow:

Inspection statistics

| Stations | United States | | Foreign | |
|---|---------------|---------|---------|------|
| | 1963 | 1964 | 1963 | 1964 |
| <i>Ship</i> | | | | |
| Authorized stations | 141,165 | 159,390 | | |
| Compulsory: | | | | |
| Inspections | 4,326 | 4,743 | 151 | 156 |
| Violation notices | 1,812 | 1,653 | 34 | 43 |
| Items cleared during inspection | 3,861 | 4,054 | 174 | 116 |
| Certificates issued ¹ | 2,479 | 2,853 | 134 | 130 |
| Voluntary: | | | | |
| Inspections | 1,815 | 1,833 | | |
| Violation notices | 1,326 | 939 | | |
| <i>Broadcast</i> | | | | |
| Authorized stations | 15,829 | 17,231 | | |
| Inspections | 1,851 | 2,061 | | |
| Engineering signal analyses of FM and TV broadcast stations | 305 | 331 | | |
| Violation notices: | | | | |
| Inspections | 1,712 | 2,121 | | |
| Inspection monitoring | 178 | 475 | | |
| <i>Other than Broadcast Services ²</i> | | | | |
| Authorized stations | 726,375 | 986,961 | | |
| Inspections | 7,074 | 5,831 | | |
| Violation notices: | | | | |
| Inspections | 3,217 | 2,707 | | |
| Inspection monitoring | 2,402 | 1,208 | | |

¹ Safety Convention, Communications Act Safety Radiotelephony, and Great Lakes Agreement Radiotelephony Certificates.

² Excludes ship, broadcast, and amateur.

Investigative statistics

| | 1963 | 1964 | Increase or (decrease) |
|---|--------|--------|------------------------|
| Interference complaints received by FCC: | | | |
| Interference to monochrome TV | 29,690 | 26,826 | (2,864) |
| Interference to color TV | 205 | 309 | 104 |
| Interference to aural broadcast | 4,304 | 3,725 | (579) |
| Interference to other services | 4,941 | 7,381 | 2,440 |
| Total | 39,140 | 38,241 | (899) |
| Interference cases investigated by FCC: | | | |
| Other investigations by FCC | 19,719 | 18,922 | (797) |
| Total | 4,240 | 2,881 | (1,359) |
| Total | 23,959 | 21,803 | (2,156) |
| Number of cooperative interference committees | 41 | 41 | 0 |
| Number of TV interference committees | 785 | 758 | (27) |
| Total | 826 | 799 | (27) |
| Number of unlicensed stations found in violation of Communications Act: | | | |
| Indecent-language cases | 512 | 480 | (32) |
| Certifications submitted by users of ISM equipment | 44 | 47 | 3 |
| Total | 658 | 975 | 317 |

Monitoring statistics

| | 1963 | 1964 | Increase or (decrease) |
|--|---------|---------|------------------------|
| Source and number of major interference complaints: | | | |
| U. S. military agencies..... | 619 | 834 | 215 |
| Civil government agencies..... | 322 | 126 | (196) |
| Commercial companies..... | 1, 293 | 1, 406 | 113 |
| Foreign governments..... | 26 | 30 | 4 |
| Total..... | 2, 260 | 2, 396 | 136 |
| Monitoring net alerts..... | 3, 436 | 3, 354 | (82) |
| Director-finder bearings: | | | |
| Case bearings..... | 25, 950 | 28, 837 | 2, 887 |
| Search-and-rescue bearings..... | 502 | 481 | (21) |
| Total..... | 26, 452 | 29, 318 | 2, 866 |
| Cases monitored and developed: | | | |
| Major: | | | |
| Interference..... | 2, 372 | 2, 685 | 313 |
| Noninterference..... | 283 | 277 | (6) |
| Minor (local): | | | |
| Interference..... | 6, 002 | 6, 090 | 88 |
| Noninterference..... | 4, 667 | 4, 696 | 29 |
| Total..... | 13, 324 | 13, 748 | 424 |
| Survey cases..... | 23 | 25 | 2 |
| Contractual cases for other Government agencies..... | 5 | 4 | (1) |
| Signals identified and indexed..... | 77, 150 | 75, 545 | (1, 605) |
| Monitoring reports to IFRB: | | | |
| FCC..... | 53, 682 | 44, 865 | (8, 817) |
| Commercial companies (via FCC)..... | 17, 894 | 14, 955 | (2, 939) |
| Total..... | 71, 576 | 59, 820 | (11, 756) |
| Citations: | | | |
| FCC licensees..... | 9, 650 | 11, 418 | 1, 768 |
| U. S. Government stations..... | 723 | 434 | (289) |
| Foreign stations..... | 4, 994 | 5, 335 | 401 |
| Total..... | 15, 357 | 17, 237 | 1, 880 |

Commercial radio operator licenses

| Class of license | Outstanding June 30, 1963 ¹ | Outstanding June 30, 1964 | Increase or (decrease) |
|---------------------------------------|--|---------------------------|------------------------|
| Radiotelegraph: | | | |
| 1st Class..... | 6, 045 | 6, 020 | (25) |
| 2d Class..... | 9, 303 | 9, 370 | 67 |
| 3d Class..... | 2, 048 | 2, 063 | 15 |
| Radiotelephone: | | | |
| 1st Class..... | 77, 070 | 81, 439 | 4, 369 |
| 2d Class..... | 60, 296 | 64, 328 | 4, 032 |
| 3d Class..... | 77, 562 | 106, 138 | 28, 576 |
| Restricted permits ² | 2, 214, 615 | ³ 2, 344, 517 | 129, 902 |
| Total..... | 2, 446, 939 | 2, 613, 875 | 166, 936 |

¹ Figures in this column, due to a correction in the method of computation, change those which appeared in the 1963 annual report.

² Restricted permits normally issued for lifetime of operator since November 15, 1953.

³ Does not include 1,141 permits issued for a term of 1 year or less to alien aircraft pilots.

Applications processed by Antenna Survey Branch

| Services | Pending July 1, 1963 | Received in ASB | Completed by ASB | Pending June 30, 1964 | Obstruc- tion markings assigned |
|-------------------------------|----------------------------|--------------------|---------------------|-----------------------------|--|
| Broadcast: | | | | | |
| AM..... | 28 | 262 | 270 | 20 | 206 |
| FM..... | 3 | 493 | 459 | 37 | 306 |
| TV..... | 39 | 881 | 840 | 80 | 241 |
| International..... | 0 | 2 | 2 | 0 | 0 |
| Experimental..... | 0 | 20 | 18 | 2 | 1 |
| Total broadcast..... | 70 | 1,658 | 1,589 | 139 | 754 |
| Common carrier..... | 54 | 1,592 | 1,397 | 249 | 660 |
| Safety and special radio..... | 1,092 | 25,711 | 26,255 | 548 | 907 |
| Grand total..... | 1,216 | 28,961 | 29,241 | 936 | 2,321 |

Applications referred to Federal Aviation Agency for special aeronautical study

| Services | Pending at FAA July 1, 1963 | Additional during year | Final actions during year | Pending at FAA June 30, 1964 |
|-------------------------------|--------------------------------------|------------------------------|------------------------------------|---------------------------------------|
| Broadcast: | | | | |
| AM..... | 23 | 209 | 221 | 11 |
| FM..... | 3 | 186 | 178 | 11 |
| TV..... | 34 | 263 | 267 | 30 |
| International..... | 0 | 0 | 0 | 0 |
| Experimental..... | 0 | 5 | 3 | 2 |
| Total broadcast..... | 60 | 663 | 669 | 54 |
| Common carrier..... | 52 | 848 | 850 | 50 |
| Safety and special radio..... | 109 | 4,211 | 4,179 | 141 |
| Grand total..... | 221 | 5,722 | 5,698 | 245 |

Research and Laboratory

RESEARCH

Studies were continued and additional information was developed from the large amount of data accumulated in the New York City UHF TV project of 1962-63. The information obtained was useful in dealing with questions arising from the introduction of the all-channel principle for the manufacture of TV receivers, from the reduction of sound carrier power requirements in the Commission's rules, and in the design of methods for conducting field strength surveys. Also, certain types of information obtained in this project were applied to the derivation of the new VHF and UHF propagation curves for FCC rules and standards.

A special study is being made to determine the feasibility of operating land mobile systems on frequencies above 1000 Mc. The rapid growth of radio services using these systems and the limited spectrum space available to them have produced a problem that might be resolved by using frequencies in the upper UHF (Upper High Frequency) and lower SHF (Super High Frequency) regions. Another special study being conducted concerns manmade noise.

Studies were conducted for use in preparatory work for the Space Study Group of the International Radio Consultative Committee (CCIR). These studies are concerned with the feasibility of frequency sharing between communication satellites and earth stations.

Computer programs were developed and used for facilitating propagation studies aimed at more accurate field strength prediction and better channel assignment techniques.

Ionospheric Propagation

Reports of unusual amounts of co-channel interference to the nighttime service of AM broadcast stations were investigated. FCC sky-wave propagation curves have proved useful and dependable for the purpose they have served in domestic broadcasting. Preliminary measurements of field strengths made at FCC monitoring stations indicated that, under certain conditions, skywave signals from stations located in tropical latitudes, or south of these latitudes, may be stronger

than indicated by the skywave propagation curves. Inasmuch as channel occupancy and transmitter powers are both increasing, continued research and study of this problem will be required. This work is being coordinated with the Central Radio Propagation Laboratory of the National Bureau of Standards, and with the International Radio Consultative Committee (CCIR).

VHF and UHF Propagation

Economical and efficient systems of frequency utilization require precise methods of predicting service and interference coverage, not only for AM, FM, and TV broadcasting but also for all the various radio services which are seeking frequency spectrum space.

Information obtained from various sources was combined with information developed by the Commission over several years for the derivation of new VHF and UHF propagation curves. These curves may be applied to mobile radio services and to the TV broadcast services. The study of effects of various parameters on the propagation of radio waves is being continued, with particular reference to certain terrain factors involving information which may be readily available for applications requiring knowledge of service and interference potentialities.

Research Reports

The following technical reports were issued during the year:

R-6305, "Comparative Field Strength Measurements in the High and Low VHF Bands";

R-6306, "A Method of Estimating the Extent of Interference to TV Broadcast Service Caused by Low Power Transmitters Operating on VHF TV Channels";

R-6401, "Analysis of Sweep Frequency Spectrum Occupancy Analyzer";

R-6402, "Field Calibration of Moderate Gain UHF-TV Receiving Antennas for Field Strength Measurement Purposes";

R-6403, "The Need for Compatibility Studies at VHF and UHF";

R-6404, "Observation of Interference to Channel 14 from Adjacent Channel Mobile Operation";

R-6405, "Report on Mobile Field Strength Measurements Taken with Receiving Antenna 10 Feet Above Ground", and

R-6406, "Technical Factors Affecting the Assignment Facilities in the Domestic Public Land Mobile Radio Services."

EXPERIMENTAL RADIO SERVICES

The Experimental Radio Services provide for fundamental research and the development of new techniques, new equipment, and other related activities. Licensees in these services range from the largest research laboratories to technical-minded schoolboys. Every effort is

made to furnish experimental licenses for all who have a legitimate program of experimentation. New ideas come from unexpected sources. Some result in revolutionary developments.

During the past year many new experimental projects were initiated and many of the earlier projects enlarged. A large volume of technical data was received from "Telstar" satellite operations and recorded for later analysis to give the world a better understanding of the problems involved in space communication.

The "Stratascop" project was extended to include the use of a 36-inch telescope aboard a balloon at very high altitudes. The clear atmosphere makes possible the recording and simultaneous transmission to earth of TV pictures of the planets and stars. This project required the development of highly sophisticated control and stabilization mechanisms and associated circuitry.

In order to meet the ever-increasing demands for experimental authorizations, the Commission's experimental rules are being completely revised. This work will carry over into 1965. Among the most difficult problems is that of providing frequencies for all projects proposed. The demand for more and more frequencies has forced experimenters to utilize higher and higher frequencies until some of them are now using 60,000 Mc and above.

The experimental workload is increased by a large number of applications involving urgent projects performed under contracts with U.S. Government agencies. Many of them carry high priorities.

While the number of experimental applications increases slowly, the complexity involved adds to the Commission's work of clearing frequencies and requires many more man-hours than in previous years. This trend is expected to continue.

PROPOSED BAN ON ELECTRONIC EAVESDROPPING

Rules which would prohibit the use of radio devices for eavesdropping purposes were proposed by the Commission on January 15, 1964 (docket 15262). They would outlaw such use of any communication equipment which the FCC licenses under section 301 of the Communications Act or is subject to part 15 of its rules governing operation of low power devices. This action was prompted by the mounting use of miniaturized radio apparatus for "bugging" private conversation.

The Commission pointed out that electronic eavesdropping is not only contrary to the public interest by invading personal privacy but is an added source of interference to authorized radio services. Exempted would be operations of law enforcement officers conducted under legal authority. Also, the ban would not apply to cases where parties to a conversation consented to have it electronically overheard or recorded.

NONLICENSED RADIO FREQUENCY DEVICES

The regulations governing these devices and equipments are contained in part 15 (RF devices) and part 18 (ISM equipment). The basic purpose is to insure that the operations of such apparatus are compatible with licensed radio usage.

Three factors are complicating this problem. The increased number of radio stations makes it more difficult to find a place for these non-licensed devices. Radio receivers are more sensitive today, which means they are more susceptible to interfering signals. More receiving systems are unattended and designed to provide automatic responses. By eliminating the operator, with his capability of discriminating between the desired and the interfering signal, these automated systems require an environment that is virtually free of intruding signals.

Added to this is the increasing number of radio devices being proposed for home and industrial use. This is showing up as an increase in the number of letters of inquiry and petitions for amendment of FCC rules to provide for these devices. Typical is a petition from the Door Opener and Radio Control Manufacturers Association asking deletion of the duty cycle limitation for operation of radio door openers above 70 Mc. Another petition, from Perma-Power Co., requests additional frequencies for radio door openers. Letters have been received proposing RF (Radio-Frequency) devices as home dryer controls, as dog-training equipment, as fire or burglar alarms, and other new uses. It thus becomes incumbent upon the Commission to make strenuous efforts to satisfy the public demand for these gadgets by finding a place for them in the spectrum.

Industrial controls and sensing devices, on which automating industry is dependent, are largely electronic in nature. Unless carefully designed, constructed, and maintained, these devices can become serious sources of interference. One such device, designed to release a defoaming agent into an elevated tank at a chemical plant, malfunctioned and broke into oscillation, radiating a signal that caused interference to an airport control tower frequency at Akron, Ohio.

Another aspect of the interference problem is radio noise from nonradio sources.

But whatever the source, the problem of radio noise is becoming more acute. The Commission is confronted with ever-increasing complaints of interference arising from electrical equipment which generate and radiate RF energy incidental to their normal operation. The radiation from these devices can be reduced in large measure if greater care is exercised by the manufacturer in the design and construction of the equipment.

The automobile industry is aware of the interference potential of the average car's ignition system and has taken measures to reduce radiation from that source. Similarly, the electric power industry knows that power transmission and distribution systems contribute to the radio noise. It, too, has for many years expended considerable effort to keep such noise within limits. Other manufacturers have been less aware of this problem.

Present legislative authority limits FCC to regulating the use of RF energy. As home appliances and industrial equipment capable of creating interference multiply, it may be necessary to attempt control of the interference situation by regulations affecting the manufacture of such devices.

ALL-CHANNEL TV RECEIVERS

Manufacturers, by and large, have accepted the all-channel TV set requirement and are complying with it. Most of these receivers use transistorized UHF tuners with continuous tuning. In the spring of 1964 several tuners using detents (stop positions) for particular channel selection were demonstrated. It can be expected that within a year or two all TV receivers will be fitted with detent type of UHF tuners.

Under provisions of the all-channel receiver rules, receivers shipped for in-school use were exempted temporarily, and conditionally waived for three hospitals because of the intercommunication system problems.

TECHNICAL STANDARDS STUDIES

Advance technical studies were conducted in connection with development of standards for new communication systems and improvements in existing systems.

In the land mobile service, efforts were made to devise and encourage use of new techniques to accommodate the increasing number of stations. Methods for determining the degree of actual channel usage were evolved and tested. The current state of technology applicable to this service was investigated and several subjects were earmarked for further study. In this activity close liaison is being maintained with the new land mobile advisory committee.

Other technical studies were conducted looking toward new or improved specifications for an air-ground radiotelephone system, UHF television broadcasting, microwave frequency diversity and reliability, control of subjective loudness in broadcast programming and announcements, CATV relay systems, and radar design standards. These and other technical studies necessitate the acquisition and analysis of all available current technological information. These

data are obtained from literature, conferences with experts in the respective matters, and attendance at engineering meetings where relevant material is discussed. The results of these technical studies are used to formulate rules and standards for the respective services.

TYPE ACCEPTANCE

The Commission's program for type acceptance of transmitting equipment has been in effect for over 8 years. It seeks to improve spectrum utilization through procedures in which types of equipment must be shown to comply with FCC technical standards in order to be acceptable for licensing. (See also "Type Approval.") An additional purpose of the type-acceptance program is to eliminate duplication of effort among Commission offices in determining the suitability of equipment for licensing in the various services. The following table compares the past 2 years of type-acceptance activity:

| Type of equipment | Number of applications granted | | Increase or (decrease) |
|--------------------------|--------------------------------|------|------------------------|
| | 1963 | 1964 | |
| TV broadcast..... | 31 | 15 | (16) |
| AM and FM broadcast..... | 77 | 55 | (22) |
| Nonbroadcast..... | 372 | 470 | 98 |
| Total..... | 480 | 540 | 60 |

Type acceptance was withdrawn from certain types of equipment not meeting the technical standards which became mandatory in the land mobile services November 1, 1963. Conformance with these standards is necessary in order to utilize additional frequency assignments made possible by "channel splitting," which permits nearly twice the number of assignments as previously without allocation of additional frequency space. Type acceptance was also withdrawn for some equipment in the maritime mobile service failing to meet technical standards which went into effect January 1, 1964.

LABORATORY

Research and Development

During the year the Commission's laboratory made experiments and observations concerning the measurement of loudness of commercial announcements of broadcast stations. These efforts did not lead to significant new findings. Tests were conducted of the effects on reception which might result from reducing the sound-transmitter power of TV stations. The results supported the conclusion that sub-stational reductions can be made with hardly detectable effects at the

receiver, provided there is already a usable grade of picture reception.

Laboratory tests of a limited number of AM receivers indicated that an increase of power of an AM broadcast station from 50 to 750 kw would cause an expected increase in interference in the blanketing area of the station but would not permanently damage the sets.

Methods of measuring oscillator radiation of FM and TV receivers were the subject of further study. It was shown that the level of radiation can be affected by the length of the antenna transmission line of the receiver. Also, it was found that some new receivers have radiation levels which depend upon the strength of the signals they pick up.

Laboratory developments during the year included a new type of voltage calibrator with broad-frequency spectrum output, and a broad-band antenna-to-transmission line-matching transformer. These are expected to be useful in the FCC's field-strength measuring equipment.

Observations of interference and technical characteristics of the AT&T "Bell-Boy" radio-paging system were conducted.

Assistance to Other Commission Programs

The laboratory developed and delivered six small battery-powered oscilloscopes to the Field Engineering Bureau for use in its enforcement of small-boat radio requirements. There is no other source of comparable equipment. Considerable effort was devoted to other field activities, including development of procedures for measuring technical characteristics of stereo FM broadcast stations, modification of commercial equipment for use in monitoring stations, and assistance in setting up and calibrating a new mobile TV and FM enforcement truck.

Tests were made for the Safety and Special Radio Services Bureau to determine the interference potentiality of a commercial transceiver offered for sale to the public for use in the Citizens Radio Service.

Studies of the radiation from a portable battery-powered TV receiver indicated the possibility of dangerous interference if a passenger should operate one in an airplane. These tests also showed that measurement procedures for such interference should be revised.

Tests were made of the relative efficiency of several types of selective-signaling apparatus being considered by the CCIR for worldwide standardization of selective calling in the marine radiotelephone service.

The laboratory studied the interference potentiality and the improvement in efficiency of an emergency communication system for the FCC Office of Emergency Communications in cooperation with the Defense Communications Agency.

Calibration of Measuring Equipment

The laboratory is responsible for modification, repair, and calibration of measuring equipment used in the field and in its own work. During the year this activity included 27 field strength meters, 14 standard signal generators, 2 radio-frequency bridges, 3 modulation monitors, 1 frequency meter, and 1 artificial antenna for ship transmitter power measurements.

Type Approval

The laboratory tested and approved a commercial modulation monitor for use by FM broadcast stations. The largest class of apparatus tested for type approval comprised various devices which can unintentionally emit electromagnetic waves capable of interfering with authorized radio communication. (See also "Type Acceptance.")

Type approval signifies that the Commission's laboratory has tested a prototype submitted by the manufacturer, and that these tests showed compliance with the rules governing interfering emissions. There is no implication of approval of the intended function of the device. Following is a summary of type-approval activity for the year:

| Kind of equipment | Number of submissions for test | Number of type approvals granted |
|----------------------------|--------------------------------|----------------------------------|
| Medical diathermy..... | 3 | 1 |
| Medical ultrasonic..... | 7 | 4 |
| Industrial ultrasonic..... | 7 | 1 |
| Ship radar..... | 5 | 5 |
| Wireless microphones..... | 24 | 3 |
| Epilator..... | 9 | 8 |
| Microwave oven..... | 1 | 1 |
| Low-temperature asher..... | 1 | 1 |

Tests of Restricted Radiation Devices

The laboratory tested interference emissions from five TV sets, of which one was found exceeding FCC regulations. Ten UHF converters were tested, of which nine had oscillator radiation far exceeding the values allowed by the Commission for UHF sets.

Spectrum Occupancy and Automated Monitoring

Study of the actual occupancy of assigned channels by the various classes of stations may provide a key to more efficient frequency planning. For several years two laboratory-developed occupancy recorders have been operating at Laurel, Md., and Kingsville, Tex., gathering data on occupancy of channels in the 2- to 30-Mc range. The recorder at Laurel has now been redesigned for use in VHF and UHF channel-occupancy studies. This recorder was operated for several

months during the year at Laurel, New York City, and Los Angeles. The charts are being studied.

The work with spectrum-occupancy recorders has led to an understanding of the feasibility of new techniques of automatic monitoring of the emissions of VHF and UHF stations, offering a means of greatly extending the degree of effectiveness of the enforcement of the Commission's technical regulations.

Frequency Allocation and Use

GENERAL

The radio spectrum must be shared not only by radio services in the United States, both Government and non-Government, but also by those of all other countries. Consequently, a system of allocating specific bands of frequencies to recognized radio services throughout the world has been evolved over the years. To meet the ever-changing frequency requirements, conferences are held periodically by the International Telecommunication Union (ITU), a specialized agency of the United Nations, to consider amendments to the International Table of Frequency Allocations and the related International Radio Regulations.

The maintenance of a national table of frequency allocations, which is intended to best meet the frequency needs of the United States, is a joint Government-industry effort. Although more detailed because of the many types of radio usage in the United States, the national table must stay within the framework of the international requirements.

Although the allocation of frequency bands for various purposes furthers the orderly use of the radio spectrum, it is also necessary to employ other means to minimize and mitigate harmful interference to radio operations over the globe. In general, this is accomplished through national and international procedures for resolving interference when it occurs and coordinating frequency assignments in advance. Additionally, continuing national and international efforts are made to promote better technical standards and more efficient use of the radio spectrum.

NATIONAL FREQUENCY ALLOCATIONS

Although some frequency allocation matters have both national and international implications, those primarily international in nature are reported elsewhere in this chapter. Those primarily domestic are treated here.

In March 1964 the Commission terminated its inquiry into the allocation of frequencies to the various non-Government services between 25 and 890 Mc by determining that the needs of TV dictate the maintenance of an 82-channel allocation for that service. To meet the frequency requirements of the nonbroadcast services, primarily land mobile, it held that attention should be directed toward more efficient utilization of the remaining portions of the spectrum between 25 Mc and the lower microwave frequencies. Steps toward that goal are discussed in the chapter dealing with the Safety and Special Radio Services.

Utilization of the microwave bands above 10,000 Mc is being pursued and services which can operate in that region are being encouraged. This is necessary to meet demands in the lower microwave bands for telephone, telegraph and TV broadcast transmission.

During the year work was also initiated to implement domestically, to the extent considered desirable, the international allocation of frequencies for space radio communication purposes and for radio astronomy adopted at the 1963 Geneva Conference.

NATIONAL FREQUENCY COORDINATION

Except for certain bands above 25 Mc which are allocated for Government or non-Government use exclusively, extensive coordination of frequency assignments made by the FCC and other Federal agencies is required to avoid serious interference problems. This is done through the Frequency Assignment Subcommittee (FAS) of the Interdepartment Radio Advisory Committee (IRAC). The IRAC is made up of representatives of Federal agencies and, under powers delegated by the President, is responsible for the assignment of frequencies to all non-Government radio stations.

During the year studies were made looking toward a major change in the IRAC frequency coordination procedures to increase their efficiency and speed, using more modern techniques for communicating proposed frequency assignments among the agencies involved.

Telecommunication policy matters of national importance are coordinated between the FCC and the Office of Emergency Planning, the telecommunications functions of which are under the President.

Another form of coordination between the Commission and other Federal agencies is directed toward the resolution of interference between Government stations and those licensed by the Commission. During the year the Commission helped resolve about 200 such cases.

NATIONAL NON-GOVERNMENT FREQUENCY LISTS

Lists are printed from the Commission's records of frequency assignments made to non-Government stations. Such lists are essential

to good frequency management since they are used in avoiding conflicting assignments and for conducting occupancy studies of various frequency bands. During 1964 these compilations continued to increase in number of listings. Thirty-seven separate lists were printed and approximately 75 copies of each distributed for official use. Other copies are available to the general public from a private printing firm under contract with the FCC for that service.

In addition to the regularly scheduled frequency lists, many special lists were produced for particular study of frequency occupancy. A total of 96,766 licenses, which included additions, modifications, and renewals, were processed to maintain the national non-Government frequency lists, representing a 20-percent increase over last year's total of 80,801.

INTERNATIONAL FREQUENCY ALLOCATIONS

Frequency Allocations for Space Communication

This subject is covered in the chapter on "Space Communication."

Radio Astronomy

The Extraordinary Administrative Radio Space Conference which convened in Geneva on October 7, 1963, afforded an opportunity to improve the allocation of frequencies for radio astronomy use. Initiative was taken in the U.S. proposal, developed in consultation with scientific groups interested in this field. Although details of the resulting revised radio astronomy international allocations and their significance is beyond the scope of this report, the head of the U.S. delegation reported that " * * * While the allocations for radio astronomy are not as adequate as the U.S. had desired, a substantial improvement was made in the protection from harmful interference afforded to radio astronomical observations throughout the world and particularly in the Western Hemisphere * * *".

Ocean Data Service

In response to a resolution by the Intergovernmental Oceanographic Commission (IOC), a subordinate activity of the United Nations Educational Scientific and Cultural Organization, the ITU invited interested nations to consider the adoption of an international allocation to meet specialized oceanographic communication needs. It was proposed to employ the radio channels of oceanographic stations on unmanned anchored buoys, platforms, etc., at prearranged locations on the oceans of the world for the transmission of scientific data concerning variable physical properties of the oceans, meteorological data and, in addition, solar radiation. An FCC inquiry invited comments on a proposal to establish an Ocean Data

Service and provide frequencies for its use within the framework of existing maritime mobile allocations.

"Panel of Experts"

An international "panel of experts" was created by the 1959 Geneva Conference for the purpose of recommending means for relieving the severe congestion in the high-frequency portion of the spectrum between 4 and 27.5 Mc. The panel's second report was adopted by the ITU Administrative Council. Certain recommendations regarding the use of single sideband radiotelephone equipment, in lieu of double sideband, to promote spectrum economy were implemented during 1964 by the FCC through the adoption of new rules for the maritime mobile service and, in addition, for Alaskan public fixed stations.

The panel is preparing an antenna handbook for international distribution which may make a substantial contribution to spectrum utilization by promoting the use of efficient directional antennas to minimize interfering radiation in undesired directions.

INTERNATIONAL FREQUENCY REGISTRATION

By arrangement with the Department of State, the FCC makes all frequency registrations to the ITU's International Frequency Registration Board (IFRB) on behalf of U.S. radio users. The purpose is to obtain international recognition and protection of domestic assignments.

Severe congestion in the high-frequency bands used for international telephone and telegraph traffic has made increased work both for the IFRB and the FCC. Monthly meetings were held during the year of interested Government and non-Government users to resolve frequency assignment conflicts between U.S. licensees and those of other countries.

In addition, there were several meetings to work out high-frequency broadcasting schedules prior to notification to the ITU. Participants included representatives of the British Broadcasting Corp., Canadian Broadcasting Corp., Voice of America, Radio Liberty Network, and Radio Free Europe, with the FCC representing its licensees. The schedules agreed to prior to submission to the IFRB represented one-third of the world's total international broadcast operations.

INTERNATIONAL FREQUENCY COORDINATION

Because the same radio spectrum must be shared by all countries and since radio signals are not stopped by national boundaries, special efforts are required to minimize mutual radio interference

between countries. This is especially true in the case of nations having a common border, such as the United States has with Canada and Mexico.

Due to the high concentration of population and industry along the United States-Canadian border, the probability of serious interference would be high unless the proposed frequency assignments of each country were coordinated with the other prior to assignment. Experience has proved the effectiveness of such teamwork. Although each country has thousands of radio assignments near the border, there were only seven cases of interference between United States and Canadian stations during fiscal 1964. Such coordination involved the exchange of over 4,000 items of correspondence with Canada during the year.

INTERNATIONAL INTERFERENCE AND INFRACTIONS

Cooperative efforts to prevent harmful interference between radio stations over the world are not always successful. For example, accurate prediction of whether interference will occur because of a proposed new assignment is often difficult, especially in some portions of the spectrum where large variations in radio propagation conditions are found. In addition, transmitters may develop technical troubles which can cause their frequencies to wander or degrade their signals.

Under the terms of the ITU convention, the FCC is the medium for contact with foreign administrations and domestic radio licensees in resolving harmful international interference to or from U.S. stations. Procedures for this purpose are a part of the ITU radio regulations and additional ones have been developed domestically. The latter require the close cooperation of the industry and the Federal offices involved.

Cases of international interference vary widely in their complexity. Often, extensive monitoring is required to ascertain the cause of the trouble and possible solutions must be considered for pursuing the matter with the nations concerned. Representations are sometimes made through diplomatic channels of the Department of State. Although many cases may be resolved easily and quickly, others need continuing efforts over a period of months, involving extensive correspondence based on engineering and other considerations.

During the year the FCC was involved in 348 cases of international interference, of which 322 were resolved and efforts continued on the remainder. This required some 2,000 pieces of correspondence. The Commission also received many complaints of interference caused by stations operated by various Government agencies. These were referred to the agencies concerned.

The FCC also participates with other countries in the exchange of international reports of technical and operational infractions by radio stations based on monitoring observations. This is pursuant to ITU procedures and represents a "traffic cop" type of effort to promote more orderly use of the radio spectrum by correcting causes of interference at the start. During the year the Commission sent abroad 5,062 infraction reports of violations of international regulations.

INTERNATIONAL FREQUENCY USAGE DATA

Although frequency assignment lists are helpful in making frequency-occupancy studies, they often do not present a true picture of the actual current use being made of various assignments. This is because of failure to delete assignments no longer active or to note changes in hours of operation. Accordingly, the ITU has established a procedure whereby nations equipped to do so furnish monitoring data for publication by the ITU's monthly monitoring summaries for frequencies between 2.85 and 27.5 Mc. These summaries reflect changes in frequency usage because of propagational conditions due to seasonal and sunspot variations. They are of particular value in locating scarce, currently vacant frequencies which may be used to meet new requirements.

Approximately 60,000 of the 80,000 monitoring observations processed were forwarded to the ITU, representing about one-fifth of the data submitted by all participating nations.

INTERNATIONAL CONFERENCES

A number of major international conferences during the year relating primarily to specific radio services are described elsewhere in this report under their appropriate chapters. For example, international conferences having to do with space communication and those concerning the aeronautical services are covered under "Space Communication" and "Safety and Special Radio Services," respectively. However, the Commission has participated in work for other international telecommunication sessions, including those of broader nature. Included is preparatory work initiated by the Department of State for a future meeting of major importance—the ITU Plenipotentiary Conference scheduled for 1965. That conference will consider a number of ITU matters such as reorganization of the secretariat, financial affairs, the Union's technical cooperation with developing countries, and election of its Secretary General.

The Commission also continued its participation in the work of this country in the International Radio Consultative Committee (CCIR), established by the ITU for the purpose of obtaining the technical

recommendations of the world's telecommunication experts on many international radio regulatory matters such as technical standards for the various radio services. This consisted of participation in both national and international meetings of the several CCIR committees and in preparatory work for future conferences.

As a recapitulation, the Commission engaged in the preparatory work for 44 international conferences, including 36 multilateral, 2 tri-lateral and 6 bilateral meetings, some requiring followup work of a continuing nature. These international conference activities were under the sponsorship of the Department of State or conducted with its concurrence. The Commission furnished 8 delegation chairmen (1 of whom served as international conference vice chairman), 2 delegation vice chairmen, 2 senior delegation advisors, 8 U.S. spokesmen for conference meetings, and 43 other members of U.S. delegations to 28 different international conferences.

CALL SIGNS

Because the FCC has the responsibility of assigning call signs, or making them available for assignment to all U.S. radio stations, the very significant increase in the number of radio stations authorized during the year has required further implementation of a more efficient call sign record system. In addition, rulemaking was proposed by the FCC for the purpose of avoiding difficulties which have arisen from the assignment of similar call signs to broadcast stations in the same area.

In order that radio stations of the world may be properly identified, especially in the event of harmful interference, the International Radio Regulations prescribe the format of call signs used by the various radio services and countries.

Appendix

FCC LOG HIGHLIGHTS OF 1964 FISCAL YEAR

The following capsule summary is based primarily upon releases of the Federal Communications Commission during the 1964 fiscal year—July 1, 1963, to June 30, 1964. The dates shown are largely those of the covering releases and do not necessarily indicate the dates on which the actions were taken.

1963

- July 3**—Revises Emergency Broadcast System. (Further revision Dec. 18, 1963.)
- July 5**—Court of appeals affirms denial of renewal of license to KRLA, Pasadena, Calif.
Requests data from "idle" UHF permittees or licensees.
- July 8**—Issues final decision in KOB-WABC "770 kc" proceeding (21-year-old case originated by reallocation of frequencies under NARBA).
- July 10**—Reallocates certain microwave bands for mobile uses.
- July 11**—Amends technical logging and operator rules for AM and FM stations (reaffirmed, with modification, Oct. 16).
10-percent increase in telegraph rates expected to bring Western Union \$16.5 million added annual revenues.
- July 16**—Testifies before House subcommittee on broadcast editorializing and the fairness doctrine.
- July 17**—Institutes inquiry into overseas leased circuits.
Amends rules to cover ultrasonic equipment used for industrial, scientific and medical purposes.
- July 24**—Adopts rules for alarm signaling in public safety service.
Institutes inquiry into microwave relay frequency diversity and reliability.
- July 25**—Adopts final decision in "WADS" telephone proceeding.
Establishes Instructional TV Fixed Service. (First grant Feb. 18, 1964.)
- July 26**—Reminds broadcast licensees of their responsibilities under the fairness doctrine as to controversial issue programing.
Lifts FM "freeze"; commercial channels assigned communities.
- July 29**—Recommends legislation to permit FCC to suspend tariff schedules for 9 months (instead of present 3 months).

- July 30**—Concludes that investment incentive tax credits should be reflected in common carrier “flow-through” accounting immediately to net income.
- July 31**—Appeals court stays “private-line” rate decision.
- Sept. 4**—Testifies on bills to (1) bar FCC giving favorable weight to Congressional pecuniary interest in broadcast stations; (2) permit grant of special temporary authorizations for 60 days (instead of 30) for certain nonbroadcast operations; and (3) require that petitions for intervention be filed within 30 days after publication of hearing order.
- Sept. 11**—Provides 3 additional frequency bands for radio astronomy on national basis. (On Oct. 4 reserved TV channel 37 for radio astronomy for 10 years.)
Proposes stricter frequency coordination for public safety services.
- Sept. 18**—Declares sponsorship identification necessary on telecast of animated cartoon film series.
- Sept. 19**—Warns broadcasters about monitoring police and fire radio transmissions.
- Sept. 25**—Assures Electronic Industries Association of FCC intention to maintain present TV allocations policies.
- Sept. 30**—Western Union Telegraph Co. effects divestment of international cables.
- Oct. 9**—Reallocates frequencies in safety and special services to accommodate split-channel operation.
- Oct. 11**—Color slides presenting history of all-channel TV broadcast available from FCC on loan basis.
- Oct. 16**—Approves sale of KTVU(TV), Oakland, Calif., for \$12,360,000 (largest price yet paid for single TV station).
Authorizes submarine cable between Florida and St. Thomas, V.I., also Guam-Philippine link in Pacific telephone cable system.
- Oct. 24**—Omaha TV programing report submitted by presiding Commissioner. Advises that FCC cannot authorize broadcasts of numbers and winners of New Hampshire sweepstakes.
- Oct. 25**—Proposes revised UHF table of TV assignments; asks comments on proposal for regular airborne educational TV assignments.
- Oct. 30**—Orders oral argument on proposal to curb excessive broadcast advertising (held Dec. 9-10).
Amends shipboard radio rules to conform with 1960 convention.
- Oct. 31**—Interprets “willfully” in ordering broadcast station forfeitures for failure to identify program sponsor.
- Nov. 6**—Testifies on bill to prohibit FCC from adopting rules on broadcast overcommercialization.
- Nov. 8**—Denies advisory ruling on propriety of radio stations transmitting messages to local doctors.
Removes licensed operator requirements for certain land and fixed public safety stations.
- Nov. 13**—Appoints committee of Commissioners to study pay-TV.
Testifies before House subcommittee on participation by small business in procurement program of Communications Satellite Corporation.
Dismisses A.T. & T. request for declaratory ruling on “press” and “general news” terms.
- Nov. 14**—Reports to Congress on steps taken to expedite processing of applications for assignment and transfer of broadcast stations.
- Nov. 18**—Affirms VHF TV “drop-in” denials.

- Nov. 26**—Commends broadcast industry for news coverage of assassination of President Kennedy.
- Dec. 10**—Announces interim procedures governing airspace clearances for broadcast antenna structures.
- Dec. 12**—Proposes rules to preserve local TV service without retarding growth of CATV systems.
- Dec. 19**—Proposes new program service statement for commercial TV applicants; schedules oral argument.
- Dec. 20**—Appeals court upholds FCC's power to impose "freeze" on applications for new AM stations pending adoption of new rules.
- Dec. 27**—Announces intention to inquire into impact of mutual funds-stock investments on broadcast multiple ownership rules.

1964

- Jan. 2**—Appeals court stays Jan. 1 effective date of application filing fees. (Lifted Feb. 13.)
- Jan. 8**—Adopts procurement rules for communications satellite system and earth terminal stations.
- Jan. 9**—Affirms ruling regarding accounting for charitable contributions by telephone companies.
- Jan. 15**—Terminates broadcast commercialization rule proceeding but will continue control on case-by-case basis.
- Jan. 16**—Proposes rules to prohibit electronic eavesdropping.
- Jan. 22**—Four international telegraph carriers acquire indefeasible right of use of certain cable circuits formerly leased from A.T. & T.
Renews licenses of Pacifica Foundation FM broadcast stations.
- Jan. 24**—Proposes new program service statement for AM-FM applicants; schedules oral argument.
- Jan. 27**—113th ETV grant (some on nonreserved channels) paves way for first educational TV service to Los Angeles area.
- Jan. 30**—Inquires of TV set manufacturers about reports of VHF receiver stockpiling.
Proposes rules to permit power increases for some short-spaced FM stations, also FM assignment table for Alaska, Hawaii, etc.
- Feb. 12**—Issues first electronically processed license (in Citizens Radio Service).
First in amateur service on Mar. 9.
- Feb. 14**—Sets new effective date (Mar. 17) for application fee schedule.
- Feb. 19**—Testifies before House subcommittee on bill to exempt certain ships from radio telephone requirement.
Amends rules to permit early renewals of safety and special licenses (implements 1962 act amendment).
- Feb. 20**—Approves group sale of 11 radio-TV stations for \$38½ million in largest broadcast transaction.
Testifies before House committee on bill to permit alien amateurs to operate radio stations in United States.
Makes public letter response to TV station's complaint against football "blackout."
- Feb. 24**—CBS-TV incentive compensation plan appeals dismissed.

- Feb. 26**—Sets cutoff date for filing of applications by carriers desiring authorization to purchase stock in initial issue of Communications Satellite Corporation.
- Feb. 28**—Recommends legislation to give FCC regulatory authority over interchange of communication facilities between common carriers.
- Mar. 4**—Testifies before House subcommittee on bill to prohibit FCC from assessing fees for services.
Announces consideration of waivers from type-acceptance requirements pending maritime mobile service conversion to single sideband.
Proposes rules to permit blanket authorizations of dispatch stations within service areas of associated domestic public land mobile base stations.
- Mar. 5**—Proposes rules to require public notice of requests for broadcast station call letters.
- Mar. 9**—Announces procedures for submitting applications with fees on and after Mar. 17.
- Mar. 11**—Recommends legislation to give FCC authority to regulate devices which cause harmful interference to radio reception.
Adopts stricter frequency coordination for Public Safety Radio Services.
- Mar. 13**—Approves transfer of only local TV station to local CATV operator; will institute inquiry into joint ownership of CATV systems and TV stations in same communities.
- Mar. 17**—Fee schedule becomes effective.
Favors jointly owned United States-France telephone cable.
- Mar. 18**—Authorizes "flea power" for Manufacturers Radio Service.
Provides additional channel splitting in safety and special and common carrier radio services.
Tentative decision finds Telpak results in unlawful discrimination in relation to other private-line services.
- Mar. 19**—Court of appeals upholds FCC denial of license renewal for WDKD, Kingstree, S.C.
- Mar. 20**—Proposes rules governing ex parte communications in adjudicatory and rulemaking hearing proceedings.
- Mar. 26**—Proposes rules to prohibit "double billing" by broadcast stations.
- Mar. 27**—Inquires into frequency sharing by TV and land mobile services; establishes Industry Advisory Committee for Land Mobile Radio Services.
- Apr. 1**—Proposes rules to make certain quasi-governmental entities eligible in Local Government Radio Service.
- Apr. 2**—Reduces aural-to-visual power ratio for VHF TV stations consistent with UHF standards.
Issues notice of what all-channel TV set requirement means to public.
- Apr. 9**—Testifies before House subcommittee on FCC-proposed bills affecting common carriers.
- Apr. 14**—Reports to House subcommittee on activities in field of satellite communications.
- Apr. 15**—Institutes inquiry into acquisition of CATV systems by TV stations.
Authorizes Communications Satellite Corporation to construct synchronous communication satellite system.

- Apr. 17**—Denies renewal of license for AM station WGMA, Hollywood, Fla., whose principals participated in "fixed" quiz TV shows.
- Apr. 20**—Replies to National Anti-Vivisection Society complaint against WCIU-TV, Chicago, for telecasting films of bullfights.
- Apr. 22**—Institutes inquiry into pending establishment of Ocean Data Service.
- Apr. 24**—Announces further proposed TV application form revision.
- Apr. 27**—Announces general exemption of certain vessels from radio installation requirements of title III, part III of act.
- Apr. 30**—All-channel TV set requirement becomes effective.
Revises investment tax credit accounting by telephone and telegraph carriers to conform with 1964 Revenue Act.
- May 6**—Authorizes 5 U.S. international carriers to build and operate new transatlantic (TAT-4) cables.
- May 8**—Holds Pan American Union and Pan American Sanitary Bureau entitled to Government rates for overseas telegrams.
- May 13**—Responds to Communications Satellite Corporation request for advice regarding carriers holding satellite stock.
Approves sale of KTLA-TV, Los Angeles, for \$12 million (second highest price yet paid for single TV station).
Admonishes broadcast station for "bait and switch" advertising.
- May 14**—Advises on applicability of section 315 to station payments to advertising agencies for political advertising.
Act amended to (1) permit grant of special temporary authorizations for 60 days (instead of 30) for certain nonbroadcast operations and (2) require that petitions for intervention be filed within 30 days after publication of hearing issues.
- May 26**—Advisory Committee for Land Mobile Radio Services organized.
- May 27**—Issues further proposed aural broadcast program form revision.
Proposes amendments to accounting systems for telegraph carriers in view of ownership interests in ocean telephone cables.
- May 28**—Act amended to permit FCC authorizing alien amateurs to operate in United States on reciprocal basis.
Initiates review of international communication rates.
Warns carriers against speculation on stock of Communications Satellite Corporation. (Implemented by proposed rules June 3.)
- June 1**—Special release on FCC 30th anniversary (June 19).
- June 2**—Adopts rules tightening broadcast duopoly ownership.
- June 4**—Adopts rules requiring remaining FM broadcast simplex operations to cease by Dec. 31.
- June 11**—Court of appeals sustains FCC order revoking license of KWK, St. Louis, Mo.
Authorizes first statewide educational TV translator system (Utah).
Revises rules governing filing of intervention petitions and issuance of STAs in domestic public radio services. (Implements May 14 act amendments.)
- June 18**—First telephone cable between United States and Japan opened.
- June 19**—Drops proposed horserace broadcast rules but will continue case-by-case consideration.

- June 24**—"Picturephone" calls inaugurated between Washington, Chicago, and New York City.
Amends rules to permit use of taxicab radio facilities in connection with package pickup and delivery.
Denies petition to exempt certain segments of aviation industry from FCC rules and requirements.
- June 25**—Amends Emergency Broadcast System to meet Presidential message points requirements.
- June 30**—Announces political broadcast questionnaire for 1964 election campaigns will be sent licensees.