



T E L E V I S I O N



F R E Q U E N C Y
M O D U L A T I O N



F A C S I M I L E

TELEVISION HEADLINES OF 1941—From Radio Daily

JANUARY

- Jan. 2—FCC Sees Television Activity; Sixth Annual Report Covers Commercial Possibilities; Program Seen Throughout Entire Industry.
- Jan. 3—Television Progress Aided By Laboratory Research.
- Jan. 10—CBS Color Television Tries First Direct Pickups.
Use Television Antenna for FM Broadcasts.
- Jan. 13—Engineers See Television Via 190-Mile Cable.
- Jan. 14—General Electric Buys Plot for New Television Studios.
- Jan. 15—DuMont Television Report Hits Optimistic Note.
- Jan. 16—Television On Large Screen; Bankers Giving Dough.
- Jan. 20—FCC Sets Details for Television Committee Meet.
- Jan. 2—Farnsworth Television Permit for Fort Wayne Station.
- Jan. 24—New Color Television Patent Hailed as "Workable."
Television Committee's Report May Recommend Old Standards.
- Jan. 27—RCA's Large Screen Television; Highlights Two-Day Tour for FCC with Hour-Long Show; Committee Formally Reports Today.
FCC Formally Considering Television Reports By National Television Standards Committee.
- Jan. 28—Commercial Standards in FCC's Television Report.
- Jan. 30—Fly Reveals Television Stand; Told House Committee FCC Did Well in Holding Off; Says Industry Unity Will Solve Problem.
- Jan. 31—Baird Develops Color Television in England, Despite War.

FEBRUARY

- Feb. 4—Television Patent Granted on Production Method.
- Feb. 11—FCC Still Studying Chain and Television Reports.
Engineers Open Confab; Dr. Baker Talks on Television Standards.
- Feb. 14—FM and Television Interests Race for Chicago "First."
- Feb. 19—FM and Television Interests Battle for High Sites.
- Feb. 20—NBC Big Television Schedule Waits on FCC's Okay.

- Feb. 28—FCC Suggests Rules for Hearing on Television.
Don Lee Completing Work on New Television Antenna.

MARCH

- Mar. 4—Chain Reports Final Draft; FCC to Make New Television Tour.
- Mar. 11—Fly Sees Agreement on Television Standards.
- Mar. 13—Theatrical Union Again Set for Television Jurisdictional Tiff.
- Mar. 14—CBS Sets Negotiation for Chicago FM and Television Site.
- Mar. 17—Green Light for Television on Commercial Basis Seen.
- Mar. 18—Set Television Hearing Agenda; Fly Sees Encouraging Step.
- Mar. 19—Fly Pays Visit to FDR Before Television Hearings.
- Mar. 20—Television Hearings Open.
- Mar. 21—FCC Hears Television Pro and Con; NTSC Asks Limited Commercial Okay While Others Seek Deferment; Color Television an Issue.
Advances in Television Field on SMPE Spring Agenda.
- Mar. 24—Webs Now Holding Off Commercial Television Rush.
- Mar. 25—Television Status Now Vague; Reversal of Former Opinions Again Heard as FCC Hearing Adjourns; Defense Orders Big Factor.
- Mar. 27—Talent Unions Go Slow in Seeking Television Rights.

APRIL

- Apr. 4—First Television Station Set for South America.
- Apr. 10—New Don Lee Television Station Will Make Debut on Sunday.
Television and Disk Recording on SMPE Spring Agenda.
- Apr. 11—Television Activity Surges in Chicago Area.
- Apr. 17—DuMont Television Readied for Early "Green Light."
- Apr. 22—CBS Seeks Field Tests for Its Color Television.
- Apr. 25—Television Green Light Expected in Near Future.
RCA to Show Fight on Big Television Screen.

Apr. 28—RCA Theater-Television Plan: Will Market Large Screen Apparatus But Do No Programming; Sees Need of Outside Producing Units.

MAY

May 2—NBC Shows Color Television; Cites Its Advantages.

May 5—Commercial Television July 1; Green Light on 525 Lines—30 Frames Set as Standard; FM Transmission Required for Sound. Union Jurisdiction Fight Holds Up Television in Chicago.

May 9—Large Screen Television Gets Preview Tonight.

May 12—RCA Large Screen Television Pleases in First Showing.

May 13—Commercial Television Interests Advertising Agencies. Industry Enthused By Theater Television Showing.

May 16—Rapid Growth of Television Seen in Next Five Years.

May 21—First Television Theater Set; Large Screen Going Into the Rialto (New York City) as Part of Regular Entertainment on a Commercial Basis.

May 23—Television Momentum Gains Daily, Says Morton.

May 27—Fly Sees No Reason to Hold Up Television and FM.

May 28—Levy System of Television Offered on License Basis.

JUNE

June 2—Seven Theater Circuits Want Big Screen Television. CBS and DuMont Rush Plans for Commercial Television.

June 3—Talent Bookers Happy as Commercial Television Looms.

June 9—Dozen Major Accounts "Interested" in Television. NBC Uses Television Technique in Latin American Broadcast.

June 13—Movie Men Get Report on Large Screen Television.

June 17—Commercial Television Web in NBC Future Plans. Television Information Exchange Formally Organized.

June 18—Television to Concentrate on News Presentation.

June 19—Commission Approves NBC's Television Licenses.

June 23—CBS's Tentative Plans for Television on July 1.

June 24—Television Plans Continue; Sets Being Revised.

June 25—Sports Being Lined Up for NBC Television Schedule.

June 26—Ask New Television Station for CBS in New York.

June 27—Priorities Hold Back Chicago's Television Debut. Programming Held Keynote to Future of Television Industry. DuMont Resumes Television Production on July 1.

June 30—CBS Gets Permission for Television Test Period.

First Television Rate Card: \$120 Evening Hours.

JULY

July 1—Television Goes Commercial; Years Of Research And \$25,000,000 Plus FCC Okay Takes New Medium Out Of The Laboratory.

July 2—Bulova Extends Television Contract Following Commercial Debut.

July 3—Commercial Television Debut Is Called "Successful."

Jurisdiction Over Television Again Worries Actor Unions.

July 7—Television Audience Grows; Industry Gears To Meet Demand For New Television Sets.

July 8—NBC Television Acquires Historical Movies.

July 9—"Radio City Matinee" First Regular Television Series.

July 11—Mull Scale For Television Artists Next Week.

July 14—CBS's Color Television Starts On Air Thursday.

Lee Television Commercials Scheduled For October 1.

Television-FM Studio Center Planned For Milwaukee.

July 15—Adam Hats To Sponsor Sports Over NBC Television.

See AFRA Now Ready For Television Jurisdiction.

July 17—General Electric Eyes Color Television; DuMont Asks Commercial CP.

July 21—Commercial Television Boom; Fall Outlook Optimistic As Sponsors Indicate Full Cooperation; Don Lee Files Application For Commercial CP; 6 Outlets Expected To Be In Operation By September 1.

Talent Unions Jockeying For Position In Television Field.

July 22—Television Future Bright As CBS Celebrates.

Television Consumer Drive Inaugurated By NBC.

July 23—NBC Television Division In Heavy Expansion Move.

AFM Seeks Full Scale On Television Airings.

July 24—Television Interest Spurts As Activity Increases.

July 28—Theaters Eyeing Television From Box-Office View.

July 29—CBS Asks Extension For Commercial Television.

'Frisco Television-FM Site Picked by Don Lee Engineers.

July 30—Commercial Television Adds Fourth Long-Term Client.

AUGUST

Aug. 1—Grant CBS's Request On Commercial Television Stay.

Aug. 4—AFM Approaching Television With Cautious Tread.

Television Interest Grows As NBC Adds Clients; Fifth Advertiser Signed.

Television-Equipped Boats Pass Initial Trials.

New General Electric Television Antenna Combats All Elements.

DuMont Begins Coast Television Tests In Fall.

Aug. 5—Prices Dropping On All Television Receivers.

Aug. 11—Agencies Eyeing Television As Momentum Increases.

Aug. 13—Commercial Television Receives Shot-In-Arm With New FCC Grant.

Aug. 18—Equity Demands Television Talent Jurisdiction.

Aug. 19—Anthony Asks License For Los Angeles Television Station.

Adam Hats Signs Pact For NBC Television Sports.

Aug. 20—Philco Gets Authorization To Use No. 3 Television Channel.

Aug. 21—Commercial Television Adds Retail Store Accounts.

Aug. 22—General Electric Expanding Plant For Radio And Television Tubes.

Aug. 26—Television As Theater Draw Starts In Chicago On September 8.

Aug. 27—New Television Film Service Gathers Vast Catalog.

SEPTEMBER

Sept. 2—See 20 Television Sponsors Within Coming Month.

Sept. 8—Set Pro-Football Schedule For Radio And Television.

Sept. 10—Program Building Firm Exclusively For Television.

Sept. 11—Chicago Theater Television As Additional Draw.

Sept. 15—See Amicable Setup Of Television-Actor Union.

Sept. 16—Television Guild Members Discuss Commercials.

Sept. 17—Three New Television Grants; Philly, Milwaukee And Los Angeles Set With Commercial Licenses; Also Okay Three More FM Stations.

Sept. 18—Two More Sports Events On NBC's Television Schedule.

Sept. 22—Television Stages Big Show With Defense Keynote.

Sept. 24—Society Of Motion Picture Engineers Semi-Annual Meet Will Discuss Television.

Sept. 25—Television Getting Interest Of Outside Producers.

Sept. 26—First Pigskin Sponsor Goes On Television Tomorrow.

OCTOBER

Oct. 3—Public Interest In Television Found To Be Lagging.

Oct. 6—Television Society Sees Lack Of Definite Information.

Oct. 10—Television Hurdles Major Barrier In Cross-License Agreements.

Oct. 14—Favorable Moves Seen Aiding Television Programs.

Oct. 20—Adam Hats Starts Sponsorship Of Television Wrestling Bouts

Oct. 22—Asks Television Recognition As Aid In Emergency.

Oct. 27—Fly Gets Television Proposal; Mellett Refers Move To Use Medium For Defense Purposes To FCC Head And Communications Board.

Oct. 28—Fly Arranges Confab For "Television In Defense."
Columbia University Okays Televising All Football Games.

Oct. 29—Increase Television Sets As Public Educators.

NOVEMBER

Nov. 3—Television Activity Desired, Chairman Fly Reveals.

Nov. 4—Television Men Meet Today; "Fusion" Gathering Will Discuss Ways And Means Of Developing Art For Defense Purposes.

Nov. 5—Need Government Committee, Television Confab Decides.

Nov. 10—Civil Defense Series Scheduled By NBC Television.

Nov. 12—Don Lee Television Station Sets Augmented Schedule.

Nov. 19—Hosiery Commercial Signed By NBC Television.

Nov. 24—Television Package Program For WNBT New Series.

Nov. 25—Fact-Finding Board Sought As Television Aid.

FCC Plans Trip On December 1 To Study Color Television.

Nov. 27—Offers Five-Point Television Plan To Aid Medium's Development.

Army Training Program To Be Televised By CBS.

DECEMBER

Dec. 2—FCC Sees Color Television on Large and Small Screens.

Dec. 3—First Television Spot Announcements Seeks to Locate Sets.

Dec. 4—Proposed New York Television License Called Off Via FCC Hint.

Dec. 5—Television Production Firm Acquires Film Library.

Dec. 8—Television Sponsor Claims High Sales Percentage.

Dec. 11—Plan Greater Television Use As Civil Defense Aid.

Dec. 12—New Television Society President (Is) Strong "Defense" Advocate.

Dec. 16—Television "Defense Pool" to Be Offered Gratis.

Dec. 18—Television Defense Backing; Civilian Organization Is Extremely Interested as Television Society Under New Aegis Draws Important Antendees.

Dec. 23—Action Theme as Television Starts Defense Program.

Dec. 24—NBC Reveals Progress in Annual Television Report.

Television Society Meets to Start Civil Defense Cooperation.

Dec. 26—Large Screen Television Is Planned by USO for U. S. Army Camps.

Dec. 31—Television Organization Committees for Government Programs.

TELEVISION AIDS IN DEFENSE

By Noran E. Kersta, Manager, Television Dept., National Broadcasting Co.

TELEVISION, the "hard luck guy" of the radio industry, faces in 1942 the most critical of a succession of critical years. The misfortunes that have dogged television's steps since the inception of regular broadcasting service in 1939 continue to bedevil its progress.

The inaugural broadcast from the World's Fair was followed, in five months, by the outbreak of history's greatest war. A regrettable controversy over technical standards flared up in 1940. In 1941 television finally received the full recognition of the Federal Communications Commission. A brave new start was made against obstacles of a nation disturbed by the prospect of imminent war, priorities in raw materials and manufacturers' assembly lines groaning under the load of defense orders. Five months later Japanese bombers blasted Pearl Harbor. Restrictions on the 1942 production of radio receivers are only the latest block in television's path toward the future.

But if 1942 brings fresh crisis for television it also brings new opportunity. In the service of national defense, television is proving the contention that it can transmit intelligence, instruction, better and faster than any other known means of communication.

National Defense

As these words are written, television is undertaking its biggest job in national defense work, the job of instructing New York City's air wardens and fire watchers. In cooperation with the city's Police Department, NBC's television division is to broadcast lecture-demonstrations in officially approved methods of combatting the enemy's war from the skies. A tentative schedule calls for eighteen such television lessons a week within one month after the beginning of the series. The radio industry is generously contributing television receivers for installation in precinct house classrooms throughout the nation's largest city.

Television has given, is giving, liberally of its limited hours on the air to organizations associated with the national effort. New York viewers are constantly reminded of drives for Defense Bonds and Stamps, Army and Navy

recruiting, the American Red Cross, Bundles for Britain and like organizations. The Red Cross and the New York City Fire Department have been represented by regular programs on first aid and fire control.

Television brings to its new defense tasks implements and techniques sharpened through more than two years of regular broadcasting. In its daily work on behalf of war activities, television introduces elements of showmanship to infuse public appeals with more urgency and to dramatize instruction relayed to televiewing volunteer workers and citizen owners of receivers.

Tele in Peace

Those charged with the direction of television have still another job. No more than the wars of centuries gone by, will this one last forever. The day will come when men must turn to the task of rebuilding a world of peace. "Pilot" industries, new activities to lead the country out of the morass of post-war depression, will be needed as never before. Television must be ready then, ready for a period of expansion that will carry it across the country. And to be ready means the accumulation of experience, during months or years of war, in television showmanship, improving equipment and in the business of operating a television station.

The year just ended has given television six months of commercial experience. By order of the Federal Communications Commission, television advanced to full commercial status on July 1, 1941. On that day NBC's WNBT went on the air as the world's first commercial television station. The Philco Radio & Television Corporation station at Philadelphia received the second license under the new order. At the year's end these two were the only commercial television broadcasters. Several others, however, were near commercial status. Among them were W9XBK, a Chicago station operated by the Balaban & Katz Corp.; W6XAO, Los Angeles, owned by the Don Lee Broadcasting System, and W2XWB, the Allen B. DuMont Laboratories station at New York City. WCBW, of the Columbia Broadcasting System, complied with

the operating requirements laid down by the F.C.C. under experimental license.

Rates

Commercialization did not, of course, solve television's economic problem. Current rates cover no more than a fraction of the cost of putting a program on the air. The sponsor does, however, pay the entire cost of talent and of special stage sets involved in his production.

Time charges, being intimately bound up with the number of receivers in a station's service area, will probably remain at or near their present levels for some time to come. The outlook for additional sets from manufacturers' assembly lines does not appear bright at the moment. The demands of war production on available time, men and materials make it improbable that the industry will be able to supply the existing, much less the potential, demand for television receivers.

New York City, with more than half of the country's receiving sets, now has about 5,000. Of these 600 are located in public places, so that the average nighttime audience for New York stations must be in the neighborhood of 40,000 persons. Some sponsors have found television attractive as an advertising medium. In the first six months of commercial operation NBC had fourteen individual sponsors, eight of whom rep-

resented apparel industries, which thus far have found little advantage in sound broadcasting.

Relay Progress

With convincing demonstrations of television's utility in the national defense, the broadcasters should make 1942 the year of a regularly established network. WNBT has been linked experimentally for some time with the Philco station at Philadelphia. A single relay, located at Wyndmoor, eight miles from the Philco station, establishes a connecting link through which NBC programs from New York are rebroadcast to Philadelphia viewers.

In another direction, a distance of 129 miles is bridged by a relay receiver near the General Electric Company station on Helderberg Mountain, near Schenectady. It is not too sanguine to hope for an extension of the network to the nation's capital through the construction of additional radio relay units.

Technical development has been going forward these last few months despite the nation's demands on the time of scientists and development engineers in the industry's laboratories. Significant advances have been made in the design of television apparatus, and constant improvement continues in the circuits of studio and transmitter equipment.

TELECAST PRODUCTIONS, INC.

are pleased to announce that they have taken over the exclusive sales and distribution for Advance Television Picture Service, Inc.

Over 500 feature pictures and more than 1,000 short subjects are now available for sustaining or sponsored programs. Full cutting room, projection room, inspection, delivery and programming service. Special production department.

Best independent feature films in blocks of 13, 26 and 52 are now available for telecasting at reduced unit prices.

TELECAST PRODUCTIONS, Inc.

Myron Zobel, President

30 ROCKEFELLER PLAZA

NEW YORK, N. Y.

TELEVISION

BROADCASTING STATIONS

As of February 1, 1942

The term "television broadcast station" means a station licensed for the transmission of transient visual images of moving or fixed objects for simultaneous reception and reproduction by the general public.

COMMERCIAL

Licensor and Location	Call Letters	Frequency (kc)	ESR (Effective Signal Radiated)	
Earle C. Anthony, Inc. Los Angeles, Calif.....	KSEE	96000-102000	1850	(CP only)
Columbia Broadcasting System, Inc. New York, N. Y.....	WCBW	60000-66000	2400	(CP only)
Don Lee Broadcasting System Hollywood, Calif.	KTSL	50000-56000	5600	(CP only)
Allen B. DuMont Laboratories, Inc. New York, N. Y.....	WABD	78000-84000	950	(CP only)
General Electric Co. Schenectady, N. Y.....	WRGB	66000-72000	3100	(CP only)
Transmitter: New Scotland, N. Y.				
The Journal Co. Milwaukee, Wisc.	WMJT	66000-72000	1200	(CP only)
National Broadcasting Co. New York, N. Y.....	WNBT	50000-56000	1800	
National Broadcasting Co. Washington, D. C.....	WNBW	60000-66000	1200	(CP only)
Philco Radio & Television Corp. Philadelphia, Pa.	WPTZ	66000-72000	680	(CP only)
Zenith Radio Corp. Chicago, Ill.	WTZR	50000-56000	1270	(CP only)

Pending Commercial Applications

Applicant and Location	Call Letters	Frequency (kc)	POWER	
			Visual	Aural
Metropolitan Television, Inc. New York, N. Y.....	---	162000-168000	1000 w	500 w

EXPERIMENTAL

Licensor and Location	Call Letters	Frequency (kc)	POWER	
			Visual	Aural
Earle C. Anthony, Inc. Los Angeles, Calif.....	W6XEA	96000-102000	1000 w	1000 w (CP only)
Balaban & Katz Corp. Chicago, Ill.	W9XBK	60000-66000	1000 w	1000 w (CP only)
Balaban & Katz Corp. Portable-area of Chicago, Ill.....	W9XBT	204000-216000	40 w	(CP only)

Licensee and Location	Call Letters	Frequency (kc)	POWER	
			Visual	Aural
Balaban & Katz Corp. Portable-area of Chicago, Ill.....	W9XBB	384000-396000	10 w	(CP only, television relay station with W9XBK)
Balaban & Katz Corp. Chicago, Ill.	W9XPR	384000-396000	10 w	(CP only)
Bamberger Broadcasting Service New York, N. Y.....	W2XBB	96000-102000	1000 w	1000 w (CP only)
Columbia Broadcasting System Chicago, Ill.	W9XCB	78000-84000	1000 w	1000 w (CP only)
Columbia Broadcasting System Los Angeles, Calif.....	W6XCB	162000-168000	1000 w	1000 w (CP only)
Columbia Broadcasting System New York, N. Y.....	W2XAB	60000-66000	7500 w	7500 w
Columbia Broadcasting System, Inc. Portable-area of New York, N. Y..	W2XCB	346000-358000	25 w (peak)	(CP only television relay station with W2XAB)
The Crosley Corp. Cincinnati, Ohio	W8XCT	50000-56000	1000 w	1000 w (CP only)
Allen B. DuMont Laboratories, Inc. Passaic, N. J.....	W2XVT	78000-84000	50 w	50 w
Allen B. DuMont Laboratories, Inc. New York, N. Y.....	W2XWV	78000-84000	1000 w	1000 w
Allen B. DuMont Laboratories, Inc. Portable-area of New York, N. Y..	W10XKT	258000-270000	50 w	(Television relay station with W2XVT)
Allen B. DuMont Laboratories, Inc. Washington, D. C.....	W3XWT	50000-56000	1000 w	1000 w (CP only)
General Electric Co. New Scotland, N. Y.....	W2XB	66000-72000	10000 w	3000 w
General Electric Co. Schenectady, N. Y.	W2XD	162000-168000	40 w	
General Electric Co. New Scotland, N. Y.....	W2XI	162000-168000	10 w	(Television relay station with W2XB)
General Electric Co. Schenectady, N. Y.	—	162000-168000	60 w	50 w (CP only, television relay station with WRGB)
Hughes Tool Co. Los Angeles, Calif.....	W6XHH	60000-66000	10000 w	10000 w (CP only)
Hughes Tool Co. San Francisco, Calif.....	W6XHT	60000-66000	10000 w	10000 w (CP only)
The Journal Co. Portable-area of Milwaukee, Wisc.	W9XCV	300000-312000	6.5 w	(CP only, television relay station with W9XMJ)
Kansas State College of Agriculture and Applied Science Manhattan, Kans.	W9XAK	50000-56000	100 w	100 w (CP only)

TELEVISION STATIONS

Licensee and Location	Call Letters	Frequency (kc)	POWER	
			Visual	Aural
Metropolitan Television, Inc. New York, N. Y.....	W2MT	162000-168000	250 w	250 w (CP only)
Don Lee Broadcasting System Los Angeles, Calif.....	W6XAO	50000-56000	1000 w	150 w
Don Lee Broadcasting System San Francisco, Calif.....	W6XDL	50000-56000	1000 w	1000 w (CP only)
Don Lee Broadcasting System Portable-area of Los Angeles, Calif.	W6XDU	318000-330000	6.5 w	
(CP 50w, Special television relay station with W6XAO)				
National Broadcasting Co., Inc. New York, N. Y.....	W2XBS	50000-56000	12000 w	15000 w
National Broadcasting Co., Inc. Portable—Camden, N. J. and New York, N. Y.....	W2XBT	162000-168000	400 w	
(Television relay station with W2XBS)				
National Broadcasting Co., Inc. Portable-area of New York.....	W2XBU	282000-294000	15 w	
(Television relay station with W2XBS)				
National Broadcasting Co., Inc. Washington, D. C.....	W3XNB	60000-66000	1000 w	1000 w (CP only)
National Broadcasting Co., Inc. Philadelphia, Pa.	W3XPP	102000-108000	1000 w	1000 w (CP only)
Philco Radio & Television Corp. Philadelphia, Pa.	W3XE	66000-72000	10000 w	10000 w
Philco Radio & Television Corp. Philadelphia, Pa.	W3XP	230000-242000	15 w	15 w (CP 125 Watts)
(Television relay station with W3XE)				
Philco Radio & Television Corp. Portable-area of Philadelphia, Pa.	W3XPR	230000-242000	60 w (peak)	
(Television relay station with WPTZ)				
Purdue University West Lafayette, Ind.	W9XG	66000-72000	750 w	750 w (CP only)
RCA Mfg. Co., Inc. (Portable) Bldg. No. 8 of Camden Plant, Camden, N. J.....	W3XAD	321000-327000	500 w	500 w
RCA Mfg. Co., Inc. Camden, N. J.....	W3XEP	84000-90000	30000 w	30000 w
State University of Iowa Iowa City, Iowa.....	W9XUI	50000-56000 210000-216000	100 w	
Television Productions, Inc. Los Angeles, Calif.....	W6XLA	234000-246000	250 w	
(CP only, television relay station with W6XYZ)				
Television Productions, Inc. Los Angeles, Calif.....	W6XYZ	78000-84000	1000 w	1000 w (CP only)
WCAU Broadcasting Co. Philadelphia, Pa.	W3XAU	84000-90000	1000 w	1000 w (CP only)
Zenith Radio Corp. Chicago, Ill.	W9XZV	50000-56000	1000 w	1000 w

COMMERCIAL TELEVISION STATIONS

PERSONNEL—FACILITIES—ACTIVITIES

K S E E* LOS ANGELES

Frequency: 96000-102000 Kc.
Power: Sight, 1000 Watts; Sound, 2000
Watts
Effective Signal Radiated.....1850
Owned-Operated By.....Earle C. Anthony,
Inc.
Business Address.....141 N. Vermont Ave.

W C B W** NEW YORK

Frequency: 60000-68000 Kc. (Sight, 61250;
Sound, 65750); Power: Sight, 15000 Watts.
Sound, 7500 Watts
Effective Signal Radiated.....2400
Owned-Operated By....Columbia Broadcast-
ing System
Business Address.....485 Madison Ave.
Phone Number.....Wickersham 2-2000
Studio Address.....15 Vanderbilt Ave.
Transmitter and Antenna Location,
Chrysler Building
Time on the Air: 15 hours (or more) weekly

Personnel

Executive Director.....Adrian Murphy
Manager of Operations.....Leonard Hole
Program Director.....Gilbert Seldes
Production Manager-
Director..... Worthington Miner
Publicity Director..... Wil Marcus
Casting Director..... Ruth Norman
Musical Clearance..... Steve Marvin
Chief EngineerDr. Peter C. Goldmark

1941-1942 ACTIVITIES

In January, 1941, CBS demonstrated both live and film pick-up of color television to the Federal Communications Commission and the National Television System Committee in New York. This demonstration employed the color

television system developed by CBS during 1940.

As soon as the CBS transmitter in the Chrysler Building had been converted for operation on the new frequency in June, daily experimental color broadcasts were conducted, and have been continued ever since.

The color development of the Columbia Broadcasting Television has proceeded throughout 1941 and has resulted in basic technical data looking toward the setting of standards. New equipment for both pick-up and receiving, based on commercially practical designs, was constructed.

On July 1, 1941, station WCBW began a regular weekly program schedule of 15 hours per week under the rules of the Federal Communications Commission. The following people in the field of public affairs have appeared before the Columbia Broadcasting System television cameras:

Governor Philip LaFollette, Admiral Yates Sterling, Norman Thomas, Harper Sibley, Mrs. Preston Davie, William L. Shirer, Rex Stout, Morris L. Ernst, Clark Eichelberger, Quincy Howe, Linton Wells, Robert K. Straus, Major George Fielding Elliot, Mrs. Harold V. Milligan, Judge Dorothy Kenyon, Emmet S. Conely, Father Talbot, Helen Parkhurst, Janet Flanner, Michael Strange.

In the field of sports, Arthur Donovan, Johnny Vandermeer, Ruth Aarons, Sandor Glancy, Billy Soose, Lefty Gomez and others.

Third, in the general field of entertainment. The great dancers Paul Draper, Paul Haakon, Patricia Bowman, Eric Hawkins, Estelle and LeRoy, Betty Jane Smith, Harland Dixon and Victor. Singers: Joan Edwards, Tamara, Kuznetzoff, Tana, Burl Ives, Mary Sutherland. Comedians: Al Bernie, Hal Sherman, Gus Van, Jack Gilford, John Hoysradt.

In the arts, Francis Henry Taylor, the Direc-

**Station has special authority to operate experimentally with a commercial license at press-time.

*Station had construction permit at press-time.

tor of the Metropolitan Museum of Art and members of the Metropolitan staff; Thomas Craven the famous art critic; Sidney Janis, authority on modern art; also among architects and designers, Buckminster Fuller and Donald Deskey.

In the great field of country and folk dancing, May Gadd, the head of the Country Dance Society, and the folk dances of a dozen nations.

The lack of mobile equipment because of priorities, hampered the operation of the station because of the pressure it put on the studio. Nevertheless, a new ease of movement, sense of space and sense of real life were developed in the technique of handling the camera and the participants in the programs. These constitute a major contribution in the art of producing television programs.

WCBW, since the start of its operations in July, has presented programs dealing with the National Defense and War Efforts, has shown the workings of many branches of the services of the United States Government, including the Navy, Coast Guard, Marine Corps; also, the Red Cross, Boy Scouts and Civilian Defense organizations. The station developed a technique for the direct sale of Defense Bonds to the television audience by inviting members of the audience to telephone in their Defense Bond orders. In three programs, a total of 100,000 dollars worth of bonds were sold.

• K T S L

LOS ANGELES (HOLLYWOOD) —

EST. 1931

Frequency: Sight, 51250 Kc.; Sound, 55750 Kc.
Power: Sight, 4000 Watts; Sound, 2000 Watts
Effective Signal Radiated..... 5600

Owned-Operated By.....Don Lee Broadcasting System

Business-Studio Address...3800 Mount Lee Drive

Phone Number..... Hollywood 8255
Transmitter & Antenna Location...3800 Mount Lee Drive

Time on the Air: 4 to 5 p.m.; 8 to 11 p.m.

Personnel

PresidentThomas S. Lee
Vice-President and General Manager,

Lewis Allen Weiss

Director of Television.....Harry R. Lubcke
Assistant Director of Television,

Wilbur E. Thorp

Television Engineer.....William S. Klein

Television Engineer.....Harold W. Jury

Television Engineer.....Robert L. Pitzer

Television Engineer.....Thornton Chew

Television Cameraman.....Dwight Warren

Television Cameraman.....James Palmer

Television Producer.....Jack Stewart

Building Superintendent.....Paul Marshall

FACILITIES

SYSTEM IN USE: 525 line 30-60 frame F.C.C., Standard, all electronic cathode-ray. Horizontal Polarization. Studio Cameras and film equipment. Complete 100 ft. square two story television building housing one 100 ft. x 60 ft x 30 ft. television stage, one 46 ft. x 26 ft. x 16 ft. stage, monitor, film, transmitter, makeup, and lounge rooms, offices, shop, transformer vaults, etc. Three hundred foot tower, antenna elevation 2000 ft.

W6XDU (experimental television relay station operating with KTS L) operates on 324 megacycles and is a beam relay type television transmitter used for outside pickups.

DEVELOPMENTS OF 1941: W6XAO (experimental call letters of KTS L) operated 590 hours. Sixty-seven remote programs scheduled and broadcast.

Studio shows have included vaudeville by Maury Amsterdam, Mabel Todd, Tony Romano, the Montez ballet dancers, news telecasts featuring Maxine Gray, and an enlistment and instructional group of acts by the U. S. Navy.

Film presentations included educational items and instruction on and promotion of interest in National Defense. Comedies also were shown, and exceptionally fine films from the Hancock Expedition's travels on the western coast of North and South America. Newsreels also played an important part in the television program, several being prepared especially for television station W6XAO.

Remote television pickups included the professional boxing and wrestling matches from the Hollywood American Legion Stadium twice weekly until November, 1941; thereafter, the same program from the Olympic Auditorium in downtown Los Angeles. The pickup of the Hollywood Stars Coast Baseball League twice weekly was also another remote of great interest to our television lookers. The Easter Sunrise service at the Hollywood Bowl, the Easter Promenade and auto races from Southern Ascot speedway were also telecast.

RECEIVERS: There are between 400 and 500 television receivers in the service area of W6XAO, some as far as Pomona at 35 miles away, a number in Long Beach at 25 miles away and many in cities at lesser distances. The predominant commercially manufactured television receiver is the TRK12 or 120 of RCA. There are some RCA TRK9, and approximately 50 TT5 RCA television receivers. A number of the latter are operating satisfactorily in Long Beach at 25 miles from W6XAO. Other commercially manufactured television receivers are the local Gilfillan G12 which is an equivalent to the RCA TRK12 and utilizes a 12-inch cathode ray tube, some Dumont 12 and 20-inch tube television receivers, the General Electric 12's and 9-inch

receivers, and the Stromberg-Carlson and Stewart-Warner 12 and 9-inch receivers.

There are over a hundred owner constructed television receivers fabricated from Meissner and other kits, as well as completely according to the owners' design. A number of the latter give excellent operation, some utilizing 12-inch cathode ray tubes giving actually superior images at 15 and 20 miles from W6XAO than would be expected from commercially manufactured models.

PUBLIC DEMONSTRATIONS: Television receivers have been maintained by the Don Lee Broadcasting System at the following public places: Wilshire Brown Derby, Kiefer's Pine Knot Drive-In, Vine Brown Derby, Griffith Planetarium, Miramar Hotel, Hollywood Roosevelt Hotel, The Town House. Various radio stores have also held public demonstrations.

PATENTS & RESEARCH: In addition to regularly scheduled programs, research work on television in all of its branches has continued at W6XAO. Membership on NTSC committees and testimony at F.C.C. hearings assisted in setting the commercial standards for television.

W A B D*

NEW YORK CITY

Frequency: 78000-84000 Kc. (Sight, 79250 Kc.; Sound, 83750 Kc.); Power: Sight, 1000 Watts; Sound, 1000 Watts

Owned-Operated By...Allen B. Du Mont Laboratories, Inc.

Business-Studio Address...515 Madison Ave.

Phone Plaza 3-9037

Transmitter & Antenna Location...515 Madison Ave.

Personnel

President Allen B. Du Mont

W R G B*

SCHENECTADY, N. Y.

Frequency: 66000-72000 Kc.; Power: Sight, 10000 Watts; Sound, 3000 Watts

Effective Signal Radiated.....1200

Owned-Operated By.....General Electric Co.

Business Address1 River Road

Phone Number 4-2211

Transmitter & Antenna Location.....New Scotland, N. Y.

W M J T*

MILWAUKEE

Frequency: 66000-72000 Kc.; Power: Sight, 4180 Watts; Sound, 3350 Watts

Effective Radiated Signal.....1200

Owned-Operated By.....The Journal Co.
Business-Studio Address.....720 East Capitol Drive

Phone Number Marquette 6000

Transmitter & Antenna Location...720 East Capitol Drive

W N B T

NEW YORK

Frequency: 50000-56000 Kc. (Sight, 51250; Sound, 55750); Power: Sight, 12000 Watts; Sound, 15000 Watts

Effective Signal Radiated.....1800

Owned-Operated By.....National Broadcasting Co.

Business Address.....30 Rockefeller Plaza

Phone Number Circle 7-8300

Studio Address.....30 Rockefeller Plaza

Transmitter and Antenna Location...Empire State Bldg.

Time on the Air: Full time commercial license

Personnel

Manager of Television Department.

Noran E. Kersta

Executive Program Director...Warren Wade

Chief Television Engineer...Robert E. Shelby

FACILITIES

Technical facilities of Station WNBT include a direct pickup studio for live talent productions, a mobile television unit and transportable equipment. All facilities operate under technical standards established in 1941 by the Federal Communications Commission.

The live talent studio, located in Radio City, is fitted with three camera chains. The cameras are of the Iconoscope type. A film scanning room has two cameras and specially adapted motion picture projectors for both 35 mm. and 16 mm. films.

The mobile unit, mounted in two motor vans, is equipped with two cameras for direct pickup of a wide variety of outdoor and indoor programs at points remote from NBC's Radio City sight-sound studios. It has successfully relayed outdoor programs over a distance of 27 miles. Its video transmitter has an output of 400 watts; an associated sound transmitter is rated at 100 watts. The two operate in the relay channel of 162,000-168,000 Kc. Cable carried with the unit enables the field crew to operate cameras at distances up to 800 feet from the motor vans.

The transportable equipment used by NBC television for remote pickups is a compact unit, weighing less than 1,000 pounds and divided into carrying cases, none of which weighs more than 90 pounds. The equipment

*Station had construction permit at press-time.

• • • **COMMERCIAL TELEVISION STATIONS** • • •

is used for remote pickups where operation of the larger mobile unit is impracticable. It includes a 15-watt video transmitter, two cameras and associated monitoring and control apparatus. A typical instance of its use was in relay of the 1941 New Year's Eve celebration at the Rainbow Room in New York City. The unit is licensed to operate in the channel 162,000-168,000 Kc.

Signals from the WNBT transmitter, located in the Empire State Building tower, are received over a service area with a radius of approximately 60 miles. Under favorable conditions the NBC television programs are seen and heard over considerably greater distances. The General Electric Company's Station W2XB, located 129 miles from the NBC transmitter, has in the past rebroadcast NBC programs originating in New York City. Station WPTZ, Philadelphia, undertook regular rebroadcast of NBC programs in 1941. A single relay link, located at Wyndmoor, eight miles from the Philco station's transmitter, shunts NBC programs to the WPTZ transmitter in North Philadelphia.

The National Broadcasting Company maintains a television staff of nearly 80 persons at Radio City. These are engaged in technical, programming, sales and research activities. A minimum weekly program service of 15 hours is offered to viewers in the New York City area.

Experimental facilities associated with the station include studio equipment for color television. This is of the mechanical, three-color scanning disc type. Experimental broadcasts in color have been made; also frequency modulated transmissions in black-and-white images.

Station WNBT, the world's first commercial television station, was formerly operated as experimental station W2XBS. Originally an RCA station, it was first licensed April 4, 1928. W2XBS was successively located in Fifth Avenue and the Times Square Studio of the National Broadcasting Company. It passed under NBC management in 1930. Since 1931 NBC has conducted television transmissions from the present location of WNBT, in the Empire State Building tower.

The all-electronic system of television was introduced by NBC in a series of test transmissions in 1936. Images were first in 343 horizontal scanning lines. Later the standard was raised to 441 lines, then to 525 lines.

Regular public service in television programs was inaugurated April 30, 1939, when opening ceremonies of the New York World's Fair were broadcast to New York viewers.

The first commercial license issued under the rules of the F.C.C. was granted to NBC in June, 1941. On July 1 the station, as WNBT, went on the air with four commercial pro-

grams. The station's commercial record for the first six months of commercial operation included thirteen sponsors, representing eight different industries. The percentage of sponsored time in December, 1941, was slightly less than ten per cent.

Outstanding programs transmitted by the NBC station have included the complete floor proceedings of the 1940 Republican National Convention at Philadelphia; National League baseball games at Ebbets Field, professional and college football games, numerous Madison Square Garden sports events, supper club floor shows and a wide range of dramatic, variety, educational and personality presentations from the Radio City television studios.

●
W N B W*

WASHINGTON, D. C.

Frequency: 60000-66000 Kc.; Power: Sight, 1000 Watts; Sound, 1000 Watts
Effective Signal Radiated1200
Owned-Operated By..... National Broadcasting Co.
Business-Studio Address.....Wardman Park Hotel

●
W P T Z*

PHILADELPHIA, PA.

Frequency: 66000-72000 Kc.; Power: Sight, 10000 Watts; Sound, 10000 Watts
Owned-Operated By.....Philco Radio & Television Corp.
Effective Signal Radiated680
Business Address.....Tioga & C Streets

●
W T Z R*

CHICAGO

Frequency: 50000-56000 Kc.; Power: Sight and Sound, 4500 Watts
Effective Radiated Signal1270
Owned-Operated By.....Zenith Radio Corp.
Business-Studio Address.....6001 Dickens Ave.
Phone NumberBerkshire 7500
Transmitter & Antenna Location....135 S. La Salle St.
Time on the Air.....Unlimited license

Personnel

PresidentE. F. McDonald, Jr.
Station Manager.....J. E. Brown

*Station had construction permit at press-time.

F. C. C. REGULATIONS REGARDING BROADCAST STATIONS FOR TELEVISION AND FACSIMILE

As of January 1, 1942

The term "visual broadcast service" means a service rendered by stations broadcasting images for general public reception. There are two classes of stations recognized in the visual broadcast service, namely: Television broadcast stations and Facsimile broadcast stations.

COMMERCIAL TELEVISION BROADCAST STATIONS

Definitions

"Television broadcast station" means a station licensed for the transmission of transient visual images of moving or fixed objects for simultaneous reception and reproduction by the general public¹.

"Television broadcast band" means the bands of frequencies allocated for television broadcast stations.

"Television channel" means a band of frequencies 6,000 kilocycles wide and which may be designated by channel numbers as in section on channel assignments in these rules or by the extreme lower and upper frequencies.

"Television transmission standards" means the standards which determine the characteristics of the television signal as radiated by a television broadcast station.

"Standard television signal" means a television signal conforming with the television transmission standards set forth in the Standards of Good Engineering Practice for television stations.

"Television transmitter" means the radio transmitter or transmitters for the transmission of both visual and aural signals.

"Visual transmitter" means the radio equipment for the transmission of the visual signal only.

"Aural transmitter" means the radio equipment for the transmission of the aural signal only.

"Visual transmitter power" means the peak power output when transmitting a standard television signal.

"Service area" means the area in which the signal is not subject to objectionable interference or objectionable

fading. (Television broadcast stations are considered to have only one service area; for determination of such area see *Standards of Good Engineering Practice for Television Broadcast Stations.*)

"Main studio" as to any television broadcast station means the studio from which the majority of the local programs originate, or from which a majority of the station identification announcements are made.

Allocation of Facilities

Basis for license.—Television broadcast stations will be licensed on the basis of the effective signal radiated (ESR) from the visual transmitter in accordance with the following:

ESR is equal to the square root of the power times the antenna field gain times the height of the antenna above the surrounding area. The power is measured in kilowatts, the gain in voltage ratio, the antenna height in feet above surrounding area.

Time of operation.—Television broadcast stations will be licensed only for unlimited time operation.

Showing required.—Authorization for a new television broadcast station or increase in facilities of an existing station will be issued only after a satisfactory showing has been made in regard to the following matters:

(a) That the service area and population which the applicant proposes to serve are computed in accordance with the Standards of Good Engineering Practice for Television Broadcast Stations. (The service area shall be consistent with and serve adequately the city or community proposed to serve in keeping with technical feasibility of coverage. The application shall be accomplished by an analysis of the computation of the

¹ The transmission of synchronized sound (aural broadcast) is considered to be an essential phase of television broadcast and one license will authorize both visual and aural broadcasts.

service area as set forth in the application. No application for construction permit for a new station or change in service area of an existing station will be accepted unless a definite site, details of proposed antenna and other data required by the application form are supplied.)

(b) That objectionable interference will not be caused to existing stations or that if interference will be caused the need for the proposed service outweighs the need for the service which will be lost by reason of such interference.

(c) That the proposed station will not suffer interference to such an extent that its service would be reduced to an unsatisfactory degree. (For determining objectionable interference, see *Standards of Good Engineering Practice for Television Broadcast Stations.*)

(d) That the technical equipment proposed, the location of the transmitter, and other technical phases of operation comply with the regulations governing the same, and the requirements of good engineering practice. (See technical regulations herein and *Standards of Good Engineering Practice for Television Broadcast Stations.*)

(e) That the applicant is financially qualified to construct and operate the proposed station.

(f) That the applicant has available adequate sources of program material for the rendition of satisfactory television broadcast service.

(g) That the proposed assignment will tend to effect a fair, efficient, and equitable distribution of radio service among the several states and communities.

(h) That the applicant is legally qualified, is of good character, and possesses other qualifications sufficient to provide a satisfactory public service.

(i) That the facilities sought are subject to assignment as requested under existing international agreements and the Rules and Regulations of the Commission.

(j) That the public interest, convenience, and necessity will be served through the operation under the proposed assignment.

Channel assignments.—The channels or frequency bands set forth below are available for assignment to television broadcast stations.

(a) Channel	
No.	
1	50,000- 56,000 kc
2	60,000- 66,000 kc
3	66,000- 72,000 kc
4	78,000- 84,000 kc
5	84,000- 90,000 kc
6	96,000-102,000 kc
7	102,000-108,000 kc

8	162,000-168,000 kc
9	180,000-186,000 kc
10	186,000-192,000 kc
11	204,000-210,000 kc
12	210,000-216,000 kc
13	230,000-236,000 kc
14	236,000-242,000 kc
15	258,000-264,000 ks
16	264,000-270,000 kc
17	282,000-288,000 kc
18	288,000-294,000 kc

(b) Stations serving the same area will not be assigned channels adjacent in frequency.

(c) One channel only will be assigned to a television broadcast station.

Experimental operation.—Television broadcast stations may conduct technical experimentation directed to the improvement of technical phases of operation and for such purposes may utilize a signal other than the standard television signal subject to the following conditions:

(a) That the licensee complies with the provisions of section 4.261 with regard to the minimum number of hours of transmission with a standard television signal.

(b) That no transmissions are radiated outside of the authorized channel and subject to the condition that no interference is caused to the transmissions of a standard television signal by other television broadcast stations.

(c) If objectionable interference would result from the simultaneous operation of a television broadcast station operating experimentally and an experimental broadcast station, the licensees shall make arrangements for operation to avoid interference.

(d) No charges either direct or indirect shall be made by the licensee of a television broadcast station for the production or transmission of programs when conducting technical experimentation.

Multiple ownership.—No person (including all persons under common control)² shall, directly or indirectly, own, operate, or control more than one television broadcast station, except upon a showing (1) that such ownership, operation, or control would foster competition among television broadcast stations or provide a television broadcast service distinct and separate from existing services, and (2) that such ownership, operation or control would not result in the concentration of control of television broadcasting facilities in a manner inconsistent with public interest, convenience, or necessity; *Provided, however,* That no person (including all persons under common control), shall directly or indirectly, own, operate, or control more

²The word "control," as used herein, is not limited to majority stock ownership, but includes actual working control in whatever manner exercised.

than one television broadcast station that would serve substantially the same service area; and provided, further, That the Commission will regard the ownership, operation, or control of more than three television broadcast stations as constituting a concentration of control of television broadcasting facilities in a manner inconsistent with public interest, convenience, or necessity.

Normal license period.—All television broadcast station licenses shall be issued so as to expire at the hour of 3 a.m., Eastern Standard Time, and will be issued for a normal license period of one year, expiring February 1.

Equipment

Maximum rated power; how determined.—(a) The maximum rated carrier power of standard television transmitters shall be the same as the manufacturer's rating of the equipment.

(b) The maximum rated carrier power of composite television transmitters shall be the sum of the applicable commercial ratings of the vacuum tubes employed in the last radio stage.

Maximum power rating and operating power.—The Commission will authorize the installation of a television transmitter having maximum power rating equal to the operating output power in accordance with the table set out in section titled "Basis for License."

Monitors.—The licensee of each television broadcast station shall operate at the transmitter:

(a) A frequency monitor independent of the frequency control of the transmitter. The monitor shall meet the requirements set forth in the Standards of Good Engineering Practice for Television Broadcast Stations;

(b) A modulation monitor to determine that the radiated television signal complies with the television transmission standards set forth in the Standards of Good Engineering Practice for Television Broadcast Stations.

Required transmitter performance.—The external performance of television broadcast transmitters shall be capable of radiating a standard television signal meeting the minimum requirements prescribed by the Commission contained in the Standards of Good Engineering Practice. The transmitters shall be wired and shielded in accordance with the good engineering practice and shall be provided with safety features in accordance with the specifications of Article 810 of the current National Electrical Code as approved by the American Standards Association.

Indicating instruments.—The operating output power of television broadcast stations shall be measured by instruments having an acceptable accuracy.

Auxiliary and duplicate transmitters.—The provisions of the rules governing standard and high frequency broadcast stations shall also govern the use of auxiliary and duplicate transmitters for television broadcast stations

Changes in equipment and antenna system.—(a) No changes in equipment shall be made.

(1) That would result in emission of signals outside of the authorized television channel.

(2) That would result in the external performance of the transmitter being in disagreement with that prescribed by the Commission in the Standards of Good Engineering Practice provided that for experimental transmissions equipment changes may be made which would not render the transmitters incapable of radiating a standard television signal for the required minimum number of hours. (See section titled "Minimum Operating Schedule.")

(b) Specific authority³ is required for a change in any of the following:

(1) Increase in the maximum power rating of the transmitter.

(2) Replacement of the transmitter as a whole.

(3) Location of the transmitter antenna.

(4) Antenna system, including transmission line, which would result in a measurable change in service area or which would affect the determination of the operating power by the direct method. If any change is made in the antenna system or any change made which may affect the antenna system, the method of determining operating power shall be changed immediately to the indirect method.

(5) Relocation of main studio if new location is outside of the borders of the city, state, District of Columbia, territory, or possession.

(6) Operating output power delivered to the antenna.

(c) Specific authority,⁴ upon filing *informal* request therefor, is required for the following change in equipment and antenna:

(1) Indicating instruments installed to measure the antenna current or transmission line, except by an instrument of the same type, maximum scale reading and accuracy.

(2) Minor changes in the antenna system or transmission line which would not result in an increase of service area.

(3) Changes in the location of the main studio except as provided for in subsection (b) (5).

³ Formal application required. See Standards of Good Engineering practice for Television Broadcast Stations for specific application form.

⁴ Informal application by letter may be made.

(d) Other changes, except as above provided for in this section or in Standards of Good Engineering Practice for Television Broadcast Stations prescribed by the Commission may be made at any time without the authority of the Commission, provided that the Commission shall be promptly notified thereof, and such changes shall be shown in the next application for renewal of license.

Operating output power; how determined.—The operating output power, and the requirements for maintenance thereof, of each television broadcast station shall be determined by the Standards of Good Engineering Practice for Television Broadcast Stations.

Operation

Minimum operating schedule.—(a) The licensee of each television broadcast station shall maintain a regular program operating schedule transmitting a standard television signal for a total of 15 hours per week. On each day, except Sunday, there shall be at least 2 hours program transmission between 2 p.m. and 11 p.m., including at least 1 hour program transmission on five week days between 7.30 p.m. and 10.30 p.m.

(b) The aural transmitter of a television broadcast station shall not be operated separately from the visual transmitter except for experimental or test purposes, and for purposes incidental to or connected with the operation of the visual transmitter.

Station identification.—(a) A licensee of a television broadcast station shall make station identification announcement, aurally and visually, (call letters and location), at the beginning and ending of each time of operation and during operation on the hour.

(b) Identification announcements during operation need not be made when to make such announcement would interrupt a single consecutive speech, play, or any type of production. In such cases the identification announcement shall be made at the first interruption of the entertainment continuity and at the conclusion thereof.

Motion picture film.—All motion picture film employed in the broadcasts of a television broadcast station must be briefly described as such either at the beginning of the program in which such film is used, or immediately prior to the broadcast of the film. Where the film

broadcast is of more than 15 minutes duration, it shall also be briefly described or immediately following the broadcast of as such either at the end of the program the film.

Logs.—The licensee of each television broadcast station shall maintain program and operating logs and shall require entries to be made as follows:

(a) Program log.

(1) Entry of the time each station identification is made.

(2) Entry briefly describing each program broadcast under the heading 'outside pickup,' 'studio production,' and motion picture film,' or combination thereof.

(3) Entry showing that each sponsored program has been announced as sponsored, paid for or furnished by the sponsor.

(4) Entry showing name of each sponsor and commodity advertised.

(b) Operating log (when transmitting a standard television signal).

(1) Entry of the time the station begins to supply power to the antenna and the time it stops.

(2) Entry of the time the program begins and ends.

(3) Entry of each interruption to the carrier waves, cause and duration.

(4) Entry of the following each thirty minutes:

i) Operating constants of the last radio stages.

ii) Frequency monitor readings.

(c) Log of experimental operation when transmitting other than a standard television signal.

(1) Entry of the time the station begins to supply power to the antenna and the time it stops.

(2) Short description of the broadcast made and its technical purpose.

Logs; retention of.—Logs of a television broadcast station shall be retained by the licensee for a period of 2 years, except when required to be retained for a longer period in accordance with the provisions of section 2.54 (FCC General Rules and Regulations).

Broadcasts by Candidates for Public Office

The provisions of sections on political broadcasts of the Rules and Regulations Governing Standard and High Frequency Broadcast Stations shall also govern television broadcast stations.

EXPERIMENTAL TELEVISION BROADCAST STATIONS

The term "television broadcast station" means a station licensed for the transmission of transient visual images of moving or fixed objects for simultaneous reception and reproduction by the general public. The transmission

of the synchronized sound (aural broadcast) is considered an essential phase of television broadcasting and one license will be authorized for both visual and aural broadcast as herein set forth.

Under these rules for experimental television broadcast stations, the Commission will authorize experimental television relay broadcast stations for transmitting from points where suitable wire facilities are not available, programs for broadcast by one or more television broadcast stations. Such authorization will be granted only to the licensee of a television broadcast station.

A license for an experimental television broadcast station will be issued for the purpose of carrying on research and experimentation for the advancement of television broadcasting which may include tests of equipment, training of personnel, and experimental programs as are necessary for the experimentation.

Licensing Requirements

A license for a television broadcast station will be issued only after a satisfactory showing has been made in regard to the following:

1. That the applicant has a definite program of research and experimentation in the technical phases of television broadcasting, which indicates reasonable promise of substantial contributions to the developments of the television art.
2. That upon the authorization of the proposed station the applicant can and will proceed immediately with its program of research.
3. That the transmission of signals by radio is essential to the proposed program of research and experimentation.
4. That the program of research and experimentation will be conducted by qualified personnel.
5. That the applicant is legally, financially, technically, and otherwise qualified to carry forward the program.
6. That the public interest, convenience or necessity will be served through the operation of the proposed station.

Charges

No charges either direct or indirect shall be made by the licensee of a television station for the production or transmission of either aural or visual programs transmitted by such station except that this section shall not apply to the transmission of commercial programs by an experimental television relay broadcast station for retransmission by a television broadcast station.

Announcements

A licensee of a television broadcast station shall make station identification announcement aurally and visually (call letters and location) at the beginning and ending of each time of operation and during operation on the hour.

At the time station identification an-

nouncements are made, there shall be added the following:

'This is a special television broadcast made by authority of the Federal Communications Commission for experimental purposes.'

Operating Requirements

Each licensee of a television broadcast station shall diligently prosecute its program of research from the time its station is authorized.

Each licensee of a television station will from time to time make such changes in its operation as may be directed by the Commission for the purpose of promoting experimentation and improvement in the art of television broadcasting.

Frequency Assignment

(a) The following groups of channels are available for assignment to television broadcast stations licensed experimentally:

Group A		Group B	
Channel		Channel	
No. 1	50,000-56,000 kc	No. 8	162,000-168,000 kc
2	60,000-66,000	9	180,000-186,000
3	66,000-72,000	10	186,000-192,000
4	78,000-84,000	11	204,000-210,000
5	84,000-90,000	12	210,000-216,000
6	96,000-102,000	13	230,000-236,000
7	102,000-108,000	14	236,000-242,000
Group C		15	258,000-264,000
Any 6000 kc band		16	264,000-270,000
above 300,000 kc		17	282,000-288,000
excluding band		18	288,000-294,000
400,000-401,000 kc.			

No experimental television broadcast station will be authorized to use more than one channel in Group A except for good cause shown. Both aural and visual carriers with side bands for modulation are authorized but no emission shall result outside the authorized channel.

No persons (including all persons under common control) shall control directly or indirectly, two or more experimental television broadcast stations (other than television relay broadcast stations) unless a showing is made that the character of the programs of research require a licensing of two or more separate stations.

A license for an experimental television broadcast station will be issued only on the condition that no objectionable interference will result from the transmissions of the station to the regular program transmissions of television broadcast stations. It shall at all times be the duty of the licensee of an experimental television broadcast station to ascertain that no interference will result from the transmissions of its station. With regard to interference with the transmissions of an experimental television broadcast station or the experimental or test transmissions of a television broadcast

station, the licensees shall make arrangements for operations to avoid interference.

Channels in Groups B and C may be assigned to experimental television stations to serve auxiliary purposes such as television relay stations. No mobile or portable station will be licensed for the purpose of transmitting television programs to the public directly.

Power

The operating power of a television station shall be adequate for but not in excess of that necessary to carry forward the program of research and in no case in excess of the power specified in its license.

Reports

A report shall be filed with each application for renewal of station license which shall include a statement of each of the following:

1. Number of hours operated.

2. Full data on research and experimentation conducted including the type of transmitting and studio equipment used and their mode of operation.

3. Data on expense of research and operation during the period covered.

4. Power employed, field intensity measurements and visual and aural observations and the types of instruments and receivers utilized to determine the service area of the station and the efficiency of respective types of transmissions.

5. Estimated degree of public participation in reception, and the results of public observation as to the efficiency of types of transmission.

6. Conclusions, tentative and final.

7. Program for further developments in television broadcasting.

8. All developments and major changes in equipment.

9. Any other pertinent developments.

Special or progress reports shall be submitted from time to time as the Commission shall direct.

— FACSIMILE BROADCAST STATIONS —

The term "facsimile broadcast station" means a station licensed to transmit images of still objects for record reception by the general public.

A license for a facsimile broadcast station will be issued only after a satisfactory showing has been made in regard to the following, among others:

1. That the applicant has a program of research and experimentation which indicates reasonable promise of substantial contribution to the development of the facsimile broadcast service.

2. That sufficient facsimile recorders will be distributed to accomplish the experimental program proposed.

3. That the program of research and experimentation will be conducted by qualified engineers.

4. That the applicant is legally and financially qualified and possesses adequate technical facilities to carry forward the program.

5. That the public interest, convenience and/or necessity will be served through the operation of the proposed station.

Conditions of Licensing

(a) A licensee of a facsimile broadcast station shall not make any charge, directly or indirectly, for the transmission of programs.

(b) No licensee of any standard broadcast station or network shall make any additional charge, directly or indirectly,

for the transmission of some phase of the programs by a facsimile broadcast station, nor shall commercial accounts be solicited by any licensee of a standard broadcast station or network, or others acting in their behalf, upon representation that images concerning that commercial program will be transmitted by a facsimile station.

Frequencies Allotted

a. The following groups of frequencies are allocated for assignment to facsimile broadcast stations which will be licensed experimentally only:

Group A	Group B	Group C
25,025 kc	43,540 kc	Any frequency above
25,050	43,580	3 0 0, 0 0 0
25,075	43,620	kc excluding band
25,100	43,660	400,000 to
25,125	43,700	4 0 1, 0 0 0
25,150	43,740	kc.
25,175	43,780	
25,200	43,820	
25,225	43,860	
25,250	43,900	
	43,940	

b. Other broadcast or experimental frequencies may be assigned for the operation of facsimile broadcast stations on an experimental basis provided a sufficient need therefor is shown and no interference will be caused to established radio stations.

c. One frequency only will be assigned

to a facsimile station from the Groups in subsection (a) of this rule. More than one frequency may be assigned under provisions of subsection (b) of this rule if a need therefor is shown.

d. Each applicant shall specify the maximum modulating frequencies proposed to be employed.

e. The operating frequency of a facsimile broadcast station shall be maintained in accordance with the frequency tolerance of 0.05 per cent or less as required, provided, however, where a lesser tolerance is necessary to prevent interference, the Commission will specify the tolerance.

f. A facsimile broadcast station authorized to operate on frequencies regularly allocated to other stations or services shall be required to abide by all rules governing the stations regularly operating thereon, which are applicable to facsimile broadcast stations and are not in conflict with other FCC rules which apply to all stations generally.

Power Limitations

The operating power of a facsimile broadcast station shall not be in excess of that necessary to carry forward the program of research, provided, however, not more than 1000 watts will be authorized on a frequency in Group A. The operating power may be maintained at the maximum rating or less, as the conditions of operation may require.

A supplemental report shall be filed with and made a part of each application for renewal of license and shall include statements of the following:

1. Number of hours operated for transmission of facsimile programs.
2. Comprehensive report of research and experimentation conducted.
3. Conclusions and program for further developments of the facsimile broadcast service.
4. All developments and major changes in equipment.
5. Any other pertinent developments.

EXPERIMENTAL FACSIMILE BROADCAST STATIONS

<i>Licensee and Location</i>	<i>Call Letters</i>	<i>Frequency Kilocycles</i>	<i>Power Watts</i>	<i>Emission</i>
Courier-Journal & Louisville Times Co. N. E. of Eastwood, Ky.....	W9XWT	25250	500	A3 & A4
The Pulitzer Publishing Co. St. Louis, Mo.....	W9XZY	25100	100	A4
WBNS, Inc. Columbus, Ohio	W8XUM	25200	100	A4
WOKO, Inc. Albany, N. Y.....	W2XWE	25050	500	A3 & A4

BROADCAST STATIONS LICENSED FOR EXPERIMENTAL TRANSMISSION OF FACSIMILE SIGNALS

<i>Call Letters</i>	<i>Licensee and Location</i>	<i>Frequency Kilocycles</i>	<i>Power Authorized Watts</i>
WGN . .	WGN, Inc. Chicago, Ill.	720	50000
WLW . .	Crosley Corp. Cincinnati, Ohio	700	50000
WOR . .	Bamberger Broadcasting Service, Inc..... Newark, N. J.	710	50000