TELEVISION

A Look at What Has Gone Before and a Preview of the Developments to Come

Television
Is Important
In The War Effort

Its Coming
Possibilities
Are Tremendous

For Television
Developments
Read
Radio Daily
Regularly

TELEVISION TODAY AND TOMORROW

By Ben Kaufman

Staff Writer, RADIO DAILY

TOTAL war has failed to blot television from the horizon. In fact, technological improvements by the armed forces have opened up shining post-war vistas for the 15-year-old electronic prodigy. Coupled with growing demand, the new medium awaits only the peace to swell the quota of employment and entertainment in our time.

Progress of post-war television was generally interpreted in March, 1944, as dependent on the precocious fledgling's eventual place in the spectrum. Allocation problems were then being mulled by the Radio Technical Planning Board, whose recommendations were expected to be signposts for future action by the Federal Communications Commission.

Frequency Problems

Opinion was divided as to whether television would benefit from being moved to the higher frequencies. Many telecasters indicated that such a change would delay the development of the new art. Another problem for the tele broadcaster was posed by the demands of commercial frequency-modulation interests for a greater number of channels. Granting of the FM requests by the FCC, the tele group largely believed, would drive television farther up in the spectrum to frequencies, which tele engineers were unable to use for sight-and-sound broadcasting.

Forerunner of the RTPB was the National Television Systems Committee. This independent organization was formed in 1940 under the sponsorship of the Radio Manufacturers Association with the blessing of the FCC. Purpose of the Committee was to settle the chaotic condition of independent television systems and resolve them into a universal set of standards. Adoption of the NTSC's recommendations for commercial standards by the FCC gave television the green light. The Committee's work, which was overcast by U. S. entry into the war, planted the thought that resulted in the formation of the RTPB.

Intensive preparations for almost a year preceded the launching of the Planning Board in September, 1943. Originally sponsored by the Institute of Radio Engineers and the Radio Manufacturers Association, the RTPB in March, 1944, consisted of representatives from 16 sponsoring non-profit organizations. Acting in the same manner as a board of directors, the Planning Board supervised the work of 13 panels to which engineers were nominated by top companies in the radio industry. At that time the work of the RTPB involved more than 125 companies and a personnel of about 450. Of the Board's panels, the television panel then had six subcommittees. Recommendations of the tele unit were scheduled to be submitted to the RTPB, which was to report its findings, on request, to the FCC, other governmental agencies and industrial and professional organizations.

Television Organizes

Significant, too, was the formation in January, 1944, of the Television Broadcasters Association, Inc. After several months of organizational preliminaries, telecasters, advertising agencies and equipment companies banded together at a meeting in Chicago's Palmer House to promote the development of television broadcasting.

Establishment of TBAI was envisioned as a prelude to the post-war growth of large-scale television. Eligibility for voting memberships was restricted to tele broadcasters, construction-permit holders and active applicants for licenses. Non-voting members were to consist of all others interested in television.

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TELEVISION HIGHLIGHTS—1943

(From the Files of RADIO DAILY)

A review of the past year's television events indicates the tremendous post-war possibilities of the sight-and-sound medium. Increasing momentum is evident from the upward surge of activity reported in the columns of RADIO DAILY, *especially during the last six months. The following pages contain the recorded highlights of the year in television.*

•

JANUARY

Jan. 10—Philco's Philadelphia tele outlet, WPTZ, resumed broadcasts after a seven-week absence from the spectrum since the closing of the football remotes from Franklin Field.

Jan. 14—Dr. Walter R. G. Baker, vice-president of General Electric in charge of electronics, told a luncheon session of the American Marketing Association in New York that it would take about ten years after the war for television to digest current developments.

Jan. 19—Robert B. Stone was reported new program manager of WRGB, GE tele unit in Schenectady, N. Y., succeeding John G. T. Gilmour, who resigned to accept a commission in the Army.

FEBRUARY

Feb. 9—Western Defense Area was reported to have instituted semi-weekly tele broadcasts over W6XYZ, Paramount-owned studio on the film-company lot, for the training of civilian-defense personnel. . . Listing of stockholders of Scophony Corp. of America revealed that two major film companies had bought into the new equipment firm—Paramount, through its subsidiary, Television Productions, Inc., and Twentieth Century-Fox, through General Precision Equipment Corp. . . Irvin Ray Baker, tele pioneer and head of RCA's broadcast transmitter sales, died at work in Camden, N. J.

Feb. 24—Arthur Levey, founder, director and major stockholder in Scophony, Ltd., was signed to a five-year contract as president of Scophony Corp. of America. . . FCC ruled that holders of construction permits for tele outlets might obtain licenses during the war to operate existing facilities on either an experimental or commercial basis, provided construction had reached a point where the station was capable of rendering a substantial service.

MARCH

Mar. 8—FCC Chairman James L. Fly forecast chain operation for tele by radio relay.

APRIL

Apr. 19—Government control over some of the more valuable tele patents, which had resulted from wartime experimentation, was predicted by FCC chief James L. Fly.

Apr. 20—Tele images in color and three dimensions were reported to have been produced in England since the war, according to John L. Baird, inventor.

MAY

May 5—Major part of televising will be spot-news broadcasting from scenes of action, even if broadcasters have to promote a sports event or two, stated Noran E. Kersta, manager of NBC's tele department. . . Experimental tele series for production staffs of ad agencies at W2XWV, Du Mont's New York studio, teed off before a large agency attendance.

May 13—Television must adequately develop a unique capacity in presenting something better than what exists today before it can establish the selling point of television, stated Worthington C. Miner, CBS tele official, in a published interview . . . Post-war tele expansion and the establishment of hundreds of television theaters were forecast by Will Baltin, program director of W2XWV, in an address before the American Television Society.

JUNE

June 2—Automatic radio-relay outlets were described as the key to network tele by Ralph R. Beal, research director of RCA Laboratories, in a speech before the Institute of Finance at the New York Stock Exchange.

June 4—Stockholders of Allen B. Du Mont Laboratories, Inc., voted to split up each share of Class-A common stock into ten shares of Class-A common, and each share of Class-B common stock into ten shares of Class-B common.

June 22—WOR, Mutual's New York outlet, arranged a production tie-up with Du Mont for a weekly one-hour telecast.

June 24—American Television Society notified General Electric that it will be presented with the Society's plaque for "the greatest contribution to television of the year," and similarly informed NBC that it will receive the award for "the greatest contribution to the use of television as a public service."

JULY

July 8—Local 802 of the American Federation of Musicians began an investigation of rates and working arrangements at W2XWV, New York, with a union exec. stating that the regular Class-A standard broadcast rates for single engagements applied to tele.

July 13—WOR, New York, inaugurated a regular one-hour weekly tele program over W2XWV, the Du Mont outlet, in lieu of its own facilities, application for which has been pending before the FCC since August, 1939.

July 21—New York afternoon papers played up the statement by Ralph R. Beal, RCA Lab.'s research director, that tele for family use would be ready immediately after the war.

July 29—Royal Crown Cola sponsored its first tele flyer, running about three minutes, on WRGB, Schenectady, General Electric's news bureau announced. . . Advertisers and ad agencies were seen as setting the rules for commercial presentation of tele after the war, Sam Cuff, of W2XWV, New York, told a meeting of the American Television Society.

AUGUST

Aug. 2—BBD&O scheduled three accounts to take part in a one-hour weekly telecast over WRGB, Schenectady. Clients were B. F. Goodrich Rubber Co., Lever Bros. (for Vimms) and Hamilton Watch Co.

Aug. 10—Seven new tele outlets would be built on the Coast in the post-war period, it was reported in a speech by William M. Boland, manager of General Electric's western-region electronics department, before the San Francisco Advertising Club. Plans, he said, called for three transmitters in San Francisco and four in the Los Angeles area.

Aug. 17—Lower-priced tele receivers after the war were predicted by Paul L. Chamberlain, of General Electric, due to manufacturing experience gained in wartime production of electronic equipment.

Aug. 19—Arthur Levey, president of Scophony Corp. of America, said that the skiatron method of tele would be developed in this country by his company in addition to the supersonic method controlled by Scophony.

Aug. 23—Post-war expansion of NBC tele was announced by Niles Trammell, the network's president, with the appointment of a special committee to keep abreast of such activities. Committee consisted of: John Royal, vice-president in charge of the international, shortwave and tele divisions, chairman; William S. Hedges, vice-president in charge of stations; O. B. Hanson, vice-president and chief engineer, and Clarence L. Menser, vice-president and manager of the program department. John T. Williams, assistant to Noran Kersta, now in the Marines, was named secretary.

Aug. 30—Cheaper tele receivers covering greater distances, and including color, were forecast for the post-war period by Gilbert Seldes, CBS tele program chief, in a recent interview at Montreal before he sailed on a vacation cruise.

SEPTEMBER

Sept. 7—New musicians' scale for tele was reported in effect by the AFM on orders of James C. Petrillo, international president. Rates were announced as $18 per man for broadcasts of one hour or fraction thereof, and $6 for similar rehearsal periods, with the leader's fee double these amounts—all services figured on a single-engagement scale.

Sept. 13—Nat Wolff, West Coast chief of the OWI Radio Bureau, was reported to have resigned to join M-G-M as head of the film company's new tele department.

Sept. 14—Post-war planning committee was established by the American Television Society to work with the Radio Technical Planning Board and to make recommendations to the FCC, tele manufacturers and operators.

Sept. 16—Columbia Concerts, Inc., announced the appointment of Walter Preston as director of the agency's radio-television department.

Sept. 21—Farnsworth Television and Radio Corp. was reported to have received WPB authorization for expanding its engineering, laboratory and manufacturing facilities at a cost of about $250,000.

Sept. 21—Two basic patents involving large-scale tele, both in black-and-white and natural color, were granted to Scophony Corp. of America, according to Arthur Levey, president of SCA.

Sept. 24—Botany Worsted Mills, one of NBC's pioneer tele commercials, was reported to have resumed on WNBT, New York, after having been off the outlet for a year and a half due to the station's cut in time schedule from 15 to four hours weekly.

OCTOBER

Oct. 3—Practical use of tele as an aid to police detection was demonstrated for the first time when the Missing Persons Bureau of the New York City Police Department flashed pictures of missing people over W2XWV, the Du Mont tele outlet in Gotham.

Oct. 12—Arrangements were completed by NBC to pick up major sports events and other spectacles from Madison Square Garden for the enjoyment of hospitalized servicemen in the metropolitan area. Receivers were installed by the web in service hospitals.

Oct. 14—Tele set survey was reported under way by NBC within the range of WNBT, New York.

Oct. 18—RKO Corp. appointed Ralph B. Austrian, a former assistant vice-president of RCA Manufacturing Co., Inc., to make a survey of the tele and radio fields.

Oct. 22—Klaus Landsberg, tele director of W6XYZ, subsidiary of Paramount Pictures in Hollywood, Calif., was reported urging post-war tele planning at the convention of the Society of Motion Picture Engineers in the film capital. Television would encounter difficulties in moving to higher frequencies, he emphasized.

Oct. 25—NBC televised the eighteenth annual world-championship rodeo from Madison Square Garden, New York.

NOVEMBER

Nov. 4—Theater tele was forecast as a post-war certainty by Ewell K. Jett, chief engineer of the FCC. Its main function, he added, would be to report special events, such as football games or other spectacles, rather than replace the motion picture. . . Telecast of a special ten-page edition of the Albany (N. Y.) "Times-Union" was presented by General Electric over WRGB, Schenectady, before a jury of 50 press representatives. Show alternately reproduced printed page and tele enactment.

Nov. 9—Three-color tele process was patented by Dr. E. F. W. Alexanderson, veteran consulting engineer for General Electric and inventor of the Alexanderson alternator, which put the voice in radio.

Nov. 10—Tele was given trade impetus at the joint meeting of the American Television Society and the New York Advertising Club in the latter's headquarters. Advertisers, agency executives, tele broadcasters, equipment and film company representatives heard speeches by key figures and witnessed a demonstration of the art.

Nov. 15—American Television Society declined an invitation of membership in the Radio Technical Planning Board. Major reason given by ATS in a letter to Dr. Walter R. G. Baker, RTPB chairman, was that the primary obstacles which tele must surmount

were not of a technical nature at this time, inasmuch as technical development was far ahead of programming knowledge and experience.

Nov. 16—Blue Network affiliates in major cities were advised to file for tele licenses at the web's Chicago meeting of station owners and managers. The network, it was announced, would shortly apply for tele and FM licenses in New York, Chicago, Los Angeles and San Francisco. . . Publication of a survey by RADIO DAILY indicated a high commercial potential in the post-war period for both tele and FM. Conesnsus chose tele as the important factor for long-range development, gave sponsored FM airings the edge for the period directly following the war.

Nov. 17—Operating condition of more than 80 per cent of 1,434 tele receivers, which were tabulated by NBC out of a total of about 5,000 in the New York area, was revealed as fair or better in the net's set survey made public by John T. Williams, manager of the tele department.

Nov. 19—Application for an experimental tele outlet in Salt Lake City was announced as filed with the FCC by KDYL, which was said to have been experimenting with RCA demonstration equipment for several years.

Nov. 29—Tele film was produced and televised in eight hours for the premiere of "The Voice of Firestone Televues," a half-hour commercial series over NBC's WNBT, New York. . . Dr. Palmer H. Craig, head of the University of Florida's electrical engineering department, announced his invention of a new system of tele broadcasting via standard radio channels.

DECEMBER

Dec. 1—Replacement of "B" film theater fare by tele was forecast by Gilbert Seldes, director of CBS tele programs, in a speech before the Dayton Kiwanis Club. The Columbia executive also stated that it might take between five and 15 years following the war until tele could be put into every home. . . Television, like radio, would find its great fulfillment in the home, Clarence L. Menser, NBC vice-president in charge of programs, told the Public Relations Clinics of the United States Savings and Loan League in Chicago.

Dec. 7—Present FCC regulations imposed a strait jacket on the creation of tele networks by prohibiting ownership of more than three tele stations by any one company, Niles Trammell, NBC president, told the Senate Interstate Commerce Committee. NBC plans for post-war tele development, he disclosed, were to begin network operations in the East, with stations in Boston, New York, Philadelphia, Baltimore and Washington, then open a similar web on the Pacific Coast and others centering around Denver, Cleveland and other large cities. In order to carry out this plan, however, it would be necessary for NBC to own more than three tele outlets, since Trammell felt it essential that the network own the key station in each of these projected networks. . . Film transcription of one-reel serial installments for future tele use was revealed as a feasible project in an interview with Ralph B. Austrian, RKO tele and radio consultant.

Dec. 9—Classroom tele for Chicago schools was announced to have been planned on a weekly schedule over W9XBK, the Balaban & Katz outlet, by the Radio Council of Public Schools in the Windy City.

Dec. 10—Operation of 1,000 tele outlets and 25,000,000 receiving sets within the next ten years was predicted by O. B. Hanson, NBC v.-p. and chief engineer, in testimony before the Senate Interstate Commerce Committee. Theater tele was forecast by Hanson for early projection in black and white as a new medium for picking up events of great national interest at the source, and transmitting them through tele networks to theaters throughout the country. . . Modification of the FCC's three-station limitation on network tele ownership was urged by the American Television Society in a wire reported sent to Burton K. Wheeler, chairman of the Senate Interstate Commerce Committee.

Dec. 13—Official Marine Corps newsreel of the battle of Tarawa was televised over NBC. On the same program was the Army Signal Corps film of the historic Cairo Conference.

Dec. 15—Nationwide advertising campaign in behalf of NBC's telecast of the Tehran Conference film got under way in the New York press, with full-page layouts by RCA, the parent company. Prediction was made, in the copy, that great events of future years would be televised while they were happening.

Dec. 27—Tele receivers in the post-war period would sell from $200 to $300, according to the reported review of the year by David Sarnoff, RCA president. It might require a year after approval of standards, he said, and full authorization of commercialization of tele broadcasting by the FCC before tele sets were available within the $200-to-$300 range. However, he indicated, that the erection of transmitters, planning of interesting programs and construction of relay links were more than a one-year job.

Dec. 28—Plans were reported for the erection of powerful tele and FM stations on Cucamonga Peak, 9,000 feet above San Bernardino, Calif. Construction permits for the twin project to service more than five million people in California, Southern Nevada and Western Arizona were sought by the Broadcasting Corp. of America, operator of KPRO, Blue net outlet in Riverside.

THE PROBLEMS OF TELEVISION

By Paul Raibourn

Chairman, Postwar Planning Committee of Television Broadcasters Association, Inc.

THERE seems to be almost universal agreement on the prediction that 20 years from now use of television will have materially modified the way of life of all of us, particularly as to our amusements; perhaps as to our methods of education and probably as to those sources, such as newspapers, magazines, and radio broadcasting from which we form our impressions of what is going on in those portions of the world with which we are not in immediate contact. Even those who see little present possibility in television, speak glowingly on the fact that it will ultimately add another rich and useful medium to our existing forms of entertainment and education.

When one starts to put dates and places on the plan by which this television millenium is to be reached, one finds considerable difference of opinion among the experts as to when, how, and what with. These differences of opinion cover almost every phase of television. They do, however, fall into two classifications which are: 1, What standards and wave lengths should be used for broadcast television transmission? and 2, What commercial interests should be the ones to carry them out- Even these two are more or less inter-related.

Basic Problem

The real basic problem of broadcast television is, of course, the old one of which will come first, the chicken or the egg. This is the one about the public being unwilling to purchase large numbers of television sets at present prices until there is an ample and continuous supply of good programs, while on the other hand commercial interests will not sponsor and pay for good and expensive television programs until they are sure they will be listened to by an audience which will buy enough products to have made the effort worth while. It is the real problem of broadcast television and planning will not overcome it. Only action can hope to do so.

The argument about standards and wave lengths can best be exemplified by paraphrasing the arguments which have lately appeared in the public press.

FM or Television

The first important debate appears to be one as to whether frequency modulation or television shall have the wave lengths, roughly between 40 to 60 megacycles in frequency. The present ability to produce large amounts of power at these frequencies and the long distance transmitting ability which these waves encompass make them particularly valuable to those who have the right to use them for their own commercial purposes.

It also appears that as one goes up in frequency to about 100 megacycles that reflections from objects do play an important part in radio transmission at frequencies above this level of broadcast. Visual images have ghosts in them and broadcast sound transmissions often are either fuzzy or subject to echoes and resonance. These are caused by reflections from buildings and many other objects.

Distribution of Channels

The distribution of channels to various interested parties in the past has been largely determined by the apparatus and knowledge available at the time the allocation was made. Having made a con-

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siderable investment in apparatus for a certain channel, commercial interests naturally oppose any changes.

The present state of our knowledge seems to indicate that from the technical standpoint there are a great many reasons why frequencies below one hundred megacycles should first be made available for broadcast use and that point to point communication should be above one hundred megacycles, because of present holders of various channels hopes that this engineers' Nirvana can be realized seem small.

On the other hand, there are interests claiming to represent the interests of the show business, and to be interested primarily in show values, that state the time has come when, television being fairly successful technically at present standards, we should put considerable improvement into the picture. They suggest that finally such improvement in quality, including color, will be made so why have the public buy sets on any basis but the most perfect? The public will know it, so goes the argument, and television will be chopping off its own head by premature selling of an inferior type of result. After the public has bought because of the novelty, interest will lag and television will be back in the doldrums. They say wide bands for television should be provided above the 300 megacycles range.

Public Interest

This public interest theory is simple in that it says that John Q. Public deserves the best and that until it is available, nothing should be sold to him. Such an attitude has considerable altruistic merit but it takes only a moment of careful thought to realize that we would still be talking about having automobiles and electric refrigerators and even radios under such a theory. Another and paramount objection is that no one has been as yet able to produce sufficient power for satisfactory broadcast at these frequencies.

It would seem, out of all this discussion, a fair prediction that engineering groups, the majority of whose members are associated with interests connected with the radio industry, will recommend standards closely approximating those now in use for commercial broadcast television. What the requirements of public and international interest will do to these recommendations are very difficult to determine until discussion has taken place with those representing such interests.

Commercial Interest

The second question, i.e., that of what commercial interests should work with broadcast television, seems even more complicated.

There is probably one basis on which some intelligent guesses can be made. Present knowledge and actual active interest in television beyond the conversational stage is limited to the radio industry and one motion picture company. The additional logical candidates for activity are other motion picture companies, newspapers, magazines, legitimate stage groups, and educational institutions. The part that these groups will play depends on how rapidly the present radio industry makes broadcast television a commercial success and develops a satisfactory pattern of operation. The longer such developments are delayed the more likely is it that these sources of programs will have absorbed possible physical facilities and radio spectrum.

No matter how broadcast television starts it is going to have plenty of ups and downs, but unless it is started on the road, and the first use is attained, it is doubtful if enough of the way will be clear to warrant the economic venture of trying to attain the next farther objective.

TELEVISION BROADCASTERS ASSOCIATION, INC.

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Executive Office

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Don Lee Broadcasting System
5515 Melrose Avenue, Hollywood, Calif.; Hollywood 8111

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Functions

Founded Jan. 1944, as a non-profit organization of television broadcasters and others engaged in any business directly connected with television broadcasting. Objects, as stated in the by-laws, are "to foster and promote the development of the art of television broadcasting; to protect its members in every lawful and proper manner; to foster, encourage and promote laws, rules, regulations, customs and practices which will be in the best interest of the public; to protect the interests of the members of the Association by opposing the enactment or adoption of any laws, rules, regulations, customs or practices which would discriminate against or in any way injure the members of this Association."

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TELEVISION
BROADCASTING STATIONS

As of January 1, 1944

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

Licensee and Location	Call Letters	Frequency (kc)	ESR (Effective Signal Radiated)	
Balaban & Katz Corp. Chicago, Ill.	WBKB	60000-66000 Ch. 2	550	Condl. Cl.
Columbia Broadcasting System, Inc. New York, N. Y.	WCBW	60000-66000 Ch. 2	1000	
Don Lee Broadcasting System Hollywood, Calif.	KTSL	50000-56000 Ch. 1	5600	(CP only)
General Electric Co. Schenectady, N. Y. Transmitter: New Scotland, N. Y.	WRGB	66000-72000 Ch. 3	3100	S.A. rebroadcast WNBT aural and location announcements
The Journal Co. Milwaukee, Wisc.	WMJT	66000-72000 Ch. 3	1200	(CP only)
National Broadcasting Co. New York, N. Y.	WNBT	50000-56000 Ch. 1	1800	
Philco Radio & Television Corp. Philadelphia, Pa. Transmitter: Springfield Twp., Pa.	WPTZ	66000-72000 Ch. 3	500	
Zenith Radio Corp. Chicago, Ill.	WTZR	50000-56000 Ch. 1	1270	(CP only)

Pending Commercial Applications

Licensee and Location	Call Letters	Frequency (kc)	POWER Visual	POWER Aural
Hughes Production Division of Hughes Tool Co. San Francisco, Calif.	———	60000-66000	740	
Hughes Productions Division of Hughes Tool Co. Los Angeles, Calif.	———	60000-66000	500	
WCAU Broadcasting Co. Philadelphia, Pa.	———	84000-90000	1128	

Experimental

Licensee and Location	*Call Letters*	*Frequency (kc)*	*POWER Visual*	*Aural*
Balaban & Katz Corp. Chicago, Ill.	W9XBK	60000-66000 Ch. 2	4 kw	2 kw
Balaban & Katz Corp. Portable—Area of Chicago, Ill.	W9XBT	204000-216000 Ch. 11 & 12	40 w	
		(Television Relay Station with W9XBK)		
Balaban & Katz Corp. Portable—Area of Chicago, Ill.	W9XBB	384000-396000	10 w	
		(Television relay station with W9XBK)		
Balaban & Katz Corp. Chicago, Ill.	W9XPR	384000-396000	10 w	
Columbia Broadcasting System, Inc. Portable—Area of New York, N. Y.	W2XCB	346000-358000	25 w (peak)	(CP only)
		(Television relay station with WCBW)		
The Crosley Corp. Cincinnati, Ohio	W8XCT	50000-56000 Ch. 1	1000 w	1000 w (CP only)
Allen B. DuMont Laboratories, Inc. Passaic, N. J.	W2XVT	78000-84000 Ch. 4	50 w	50 w
Allen B. DuMont Laboratories, Inc. New York, N. Y.	W2XWV	78000-84000 Ch. 4	1000 w	1000 w
Allen B. DuMont Laboratories, Inc. Portable—Area of New York, N. Y.	W10XKT	258000-270000 Ch. 15, 16	50 w	
		(Television relay station with W2XVT)		
Allen B. DuMont Laboratories, Inc. Washington, D. C.	W3XWT	50000-56000 Ch. 1	1000 w	1000 w (CP only)
General Electric Co. New Scotland, N. Y. S.A. Relay to WRGB	W2XI	162000-168000 Ch. 8	50 w Peak	
		(Television relay station with WRGB)		
General Electric Co. Schenectady, N. Y.	W2XGE	162000-168000 Ch. 8	60 w Peak	50 w
		(Television relay station with WRGB)		
Don Lee Broadcasting System Los Angeles, Calif.	W6XAO	50000-56000 Ch. 1	1000 w	150 w
Don Lee Broadcasting System Portable—Area of Los Angeles, Calif.	W6XDU	318000-330000	6.5 w	50 w
		(Television relay station with W6XAO)		
Metropolitan Television, Inc. New York, N. Y.	W2XMT	162000-168000 Ch. 8	50 w Peak	50 w (CP only)

Licensee and Location	Call Letters	Frequency (kc)	POWER Visual	Aural
National Broadcasting Co., Inc. Portable—Area of New York, N. Y.	W2XBT	162000-168000 Ch. 8 (Television relay station with WNBT)	400 w	
National Broadcasting Co., Inc. Portable—Area of New York, N. Y.	W2XBU	282000-294000 Ch. 17 & 18 (Television relay station with WNBT)	15 w	
Philco Radio & Television Corp. Springfield Twp., Penna. S.A. Rebroadcast Program of WNBT	W3XE	66000-72000 Ch. 3	10000 w Peak	11000 w
Philco Radio & Television Corp. Portable—Area of Philadelphia, Pa.	W3XP	230000-242000 Ch. 13 & 14 (Television relay station with W3XE)	15 w	
Philco Radio & Television Corp. Portable—Area of Philadelphia, Pa.	W3XPR	230000-242000 Ch. 13 & 14 (Television relay station with WPTZ)	60 w (peak)	
Philco Radio & Television Corp. Portable—Mobile Area of Philadelphia, Pa.	W3XPA	230000-242000 Ch. 13 & 14 (Television relay station with WPTZ and W3XE)	15 w	
Philco Radio & Television Corp. Philadelphia, Pa.	W3XPC	230000-242000 Ch. 13 & 14 (Television relay station with WPTZ and W3XE)	15 w	
Purdue University West Lafayette, Ind.	W9XG	66000-72000 Ch. 3	750 w	750 w (CP only)
State University of Iowa Iowa City, Iowa	W9XUI	50000-56000 Ch. 1 & 12 210000-216000	100 w	
Television Productions, Inc., Portable-Mobile Area of Los Angeles, Calif	W6XLA	204000-216000 Ch. 11 & 12 (CP only, television relay station with W6XYZ)	100 w Peak	
Television Productions, Inc. Los Angeles, Calif.	W6XYZ	78000-84000 Ch. 4	4 kw Peak	1000 w
Zenith Radio Corp. Chicago, Ill.	W9XZV	50000-56000 Ch. 1	1000 w	1000 w

COMMERCIAL TELEVISION STATIONS

PERSONNEL • FACILITIES • ACTIVITIES

WBKB

CHICAGO

CHANNEL 2

Frequency.....60000-66000 Kc.
Power.....4 Kw.; 2 Kw.
Effective Signal Radiated.....796
Owned-Operated By....Balaban & Katz Corp.
Business Address.....190 N. State St.
Phone Number.....Franklin 5025
Transmitter & Antenna Location.190 N. State St.
Time on the Air: Monday and Wednesday, 3:00 to 4:00 p.m.; Tuesday, Thursday and Friday, 7:15 to 9:00 p.m.

Personnel

Chief Engineer.....A. H. Brolly
Four Technicians
Program Director.....Helen Carson
Ten Girls in the Program Department Who Operate Cameras and All Equipment.

FACILITIES

One studio, three camera chains (two for live talent and one for film), one mobile unit for outdoor pickups (not being used for the duration).

ACTIVITIES

News, fashion shows, sports (indoor) such as judo, fencing, boxing; dramatic shows; musical comedies; operettas; music and variety acts such as ventriloquists, puppets, marionettes, magicians, etc.; quiz shows; educational: lessons in dancing, Spanish, exercises for health and beauty.

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WTZR

CHICAGO

CHANNEL 1

Frequency: 50000-56000 Kc.; Power: Sight and Sound, 4500 Watts
Effective Radiated Signal.....1270
Owned-Operated By.....Zenith Radio Corp.
Business-Studio Address....6001 Dickens Ave.
Phone Number.....Berkshire 7500
Transmitter & Antenna Location....135 S. La Salle St.
Time on the Air.....Unlimited license

Personnel

President.....E. F. McDonald, Jr.
Asst. Vice-President.....J. E. Brown

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KTSL

LOS ANGELES (HOLLYWOOD)—

EST. 1931

CHANNEL 1

Frequency.....50000-56000 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: Alternate Mondays, 7 to 10 p.m.

Personnel

President.....Thomas S. Lee
Vice-President and General Manager, Lewis Allen Weiss
Director of Television.....Harry R. Lubcke
Assistant Director of Television, Harold W. Jury
Television Engineer.....William S. Klein
Television Engineer.....Gilbert P. Wyland
Television Engineer.....Joseph N. Dean
Television Engineer.....Fred W. Mueller
Television Producer.....Jack Stewart
Film Director.....Marjorie Campbell
Building Superintendent.....Paul Marshall

FACILITIES

SYSTEM IN USE: 525 line 30-60 frame F.C.C., Standard, all electronic cathode-ray. Horizontal Polarization. Three Studio Cameras and film equipment. Two cameras of Orthicon type. 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.

K6XDU (experimental television relay station operating with KTSL) operates on 324 megacycles and is a beam relay type television transmitter used for outside pickups.

DEVELOPMENTS of 1943: W6XAO (experimental call letters of KTSL).

An uninterrupted schedule of television programs has been maintained during 1943, largely directed to bolster public morale in the War Effort. Specially written and produced dramas have been televised with living actors in the interests of the Red Cross Blood Donor appeals, War Bonds, USO entertainment and many others. Vaudeville shows have also been televised in which well-known Hollywood talent has appeared.

The Pasadena Community Playhouse and other organizations have presented plays such as Ibsen's "Master Builder," "Alice in Wonderland" and others.

Film subjects have included cartoons from Walt Disney and others, OWI war films, shorts, musicals, and occasionally a feature.

RECEIVERS: There are some 400 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.

WMJT
MILWAUKEE

CHANNEL 3
(C. P. Only)

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

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WCBW
NEW YORK CITY

CHANNEL 2

Frequency: 60000-66000 Kc.; Sight, 61250; Sound, 65700

Owned-Operated By...Columbia Broadcasting System

Business Address.....485 Madison Ave.

Phone Number.....Wickersham 2-2000

Studio Address.....15 Vanderbilt Ave.

Transmitter & Antenna Location.....Chrysler Building

Time on the Air: 4 hours (or more) weekly

Personnel

Manager.....Worthington Miner

Program Director.....Gilbert Seldes

Chief Engineer.....Dr. Peter C. Goldmark

ACTIVITIES

With production of equipment halted during the National Emergency, the development of Television was suspended, pending the freeing of production facilities. Station WCBW reduced its broadcasting periods to a total of four hours a week. The studio and equipment which were previously used for full scale broadcasts of 15 hours a week were maintained and further improvements made. Technical experiments continued, though a major part of the CBS Television engineering staff devoted its time to Government work.

Now that more channels can be made available to Television in the higher frequencies, Columbia Broadcasting states that it looks forward with optimism to the time when reallocation of band widths and frequencies will offer Television the sound and healthy surroundings necessary for its full development.

WNBT

NEW YORK CITY

CHANNEL 1

Frequency: 50000-56000 Kc. (Sight, 51250; Sound, 55750); Power: Sight, 5000 Watts; Sound, 3250 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
John T. Williams
Chief Television Engineer....Robert E. Shelby

ACTIVITIES

Limited in its activities by the shortage of engineering talent and the necessity to conserve existing equipment, NBC operated its television station throughout most of 1943 at the minimum of 4 hours weekly permitted by the FCC. This time was filled entirely by films. During the year, several advertisers continued to use television cartoons to promote their products.

Beginning in November, NBC expanded its program service by adding occasional pickups from Madison Square Garden. About fifty television sets, contributed by RCA, NBC, and General Electric were installed in hospital recreation rooms to permit the veterans to witness events that otherwise would have been denied them because of their hospitalization. Many of the programs have been re-telecast by WRGB, Schenectady, by direct overland pickup from the Empire State Building transmitter.

Early in 1944, NBC's television service was scheduled for further expansion by reopening studio 3-H for live productions. In a statement to affiliates outlining the Company's postwar television plans, President Niles Trammell revealed that network television will be a reality. Actual operation of the network, he said, will depend on the ability of the American Telephone & Telegraph Company to obtain necessary materials and labor for the installation of coaxial cables connecting major cities or on the erection of radio relay stations.

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WPTZ

PHILADELPHIA

CHANNEL 3

Frequency: 66,000-72,000 Kc.; Sight, Approximately 2½ Kw.; Sound, Approximately 3 Kw.
Effective Signal Radiated..Approximately 335
Owned-Operated By.....Philco Radio & Television Corp.
Business Address.....Tioga and C Sts.
Phone Number.....Nebraska 5100
Transmitter & Antenna Location..Wyndmoor, Pa.
Time on the Air: Wednesday and Friday Evenings

Personnel

Chief Television Engineer.....F. J. Bingley
Station Manager.....Walter Merkle
Program Director.....Paul Knight

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WRGB

SCHENECTADY, N. Y.

CHANNEL 3

Frequency: 66000-72000 Kc.; Power: Visual, 40,000 Watts, Oral, 20,000 Watts
Owned-Operated By.....General Electric Co.
Effective Signal Radiated.....3100
Business Address.....1 River Road
Phone Number.....4-2211
Transmitter & Antenna Location....New Scotland, N. Y.
Time on the Air.....Nine Hours Weekly

Personnel

Manager of Broadcasting.....Robert S. Peare
Assistant to the Manager....Robert L. Gibson
Assistant to the Manager.....B. J. Rowan
Program Manager.....Robert B. Stone
Chief Engineer.....W. J. Purcell

FACILITIES

Technical facilities of Station WRGB include a direct pickup studio for live talent productions, located at 60 Washington Ave., Schenectady. It is fitted with five camera channels. A film scanning room has two cameras and three motion picture projectors—two for 35 mm. and one for 16 mm. films. Film slide, lantern slide and projectors of small opaque pictures and objects are also available.

Signals from the WRGB transmitter, located in the Helderberg mountains, New Scotland, N. Y., near Schenectady, are received over a service area with a radius of approximately 50 miles, which includes the Troy-Albany-Schenectady area.

WRGB claims the first television relay station, picking up programs from NBC in New York City, 129 miles away, and relaying them to the Capitol district area. A minimum weekly program service of nine hours is offered viewers in the area.

ACTIVITIES

During 1943 WRGB's program activities have been varied. Among the programs various types have been tried, including a bridge game by champions, dog shows, boxing and wrest-

ing matches, barn dances, Shakespearean plays, Gilbert and Sullivan operettas, modern comedies, news reporters and analysts. Several commercials have also been presented by the station during the past year. On November 5, WRGB presented a demonstration of how television might cover the news by televising a ten-page special edition of the Albany Times-Union.

ACTIVE EXPERIMENTAL STATIONS

W6XYZ

HOLLYWOOD

(Paramount Studio Lot)

CHANNEL 4

Frequency: 78,000-84,000 Kc; Power, Visual, 1,000 W; Oral, 1,000 W.
Owned-Operated By....Television Productions, Inc.
Business Address.....5451 Marathon St., Hollywood 38
Phone Number.....HOllywood 2411
Transmitter and Antenna Location, 5451 Marathon St., Hollywood 38
Time on the Air.....Six Hours Per Week

Personnel

President.....Paul Raibourn
Vice-President.....Bernard Goodwin
Vice-President.....Y. Frank Freeman
Station Director.....Klaus Landsberg

FACILITIES

Equipment includes complete apparatus for studio as well as field operation. Cameras and transmitters were built by Allen B. DuMont Laboratories, Inc. and many additional units, including electronic special-effect equipment, were designed and build by Television Productions, Inc. A relay transmitter, W6XLA, to operate in conjunction with W6XYZ, was also developed and constructed by the company. A special antenna system combining a double-cone type of antenna for video and a special four di-pole antenna for audio of its own design and construction are used. Studio facilities also include a flexible lighting arrangement, slide and background projection apparatus and screens.

ACTIVITIES

W6XYZ has operated regularly since February 1 each Wednesday and Friday night and has been producing a weekly total of four to six hours of live-talent programs. These programs were entirely dedicated to the training of Civilian Defense volunteers until the summer of 1943, since which time entertainment as well as educational programs have been aired. These programs include gymnastic courses, museum visits, variety shows, dramatic skits and one-act plays. Technical development has been directed toward improvement and simplification in the operation of present equipment as well as to the design and construction of special effects and relay equipment.

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W2XWV

NEW YORK CITY

CHANNEL 4

Frequency: .....78000-84000 Kc.
Power: Sight, 5000 Watts; Sound, 1500 Watts
Owned-Operated By.....Allen B. Du Mont Laboratories, Inc.
Business-Studio Address..515 Madison Ave., N. Y. C.
Transmitter and Antenna Location.....Same
Time on the Air....6 Hours Weekly, Tuesday, Wednesday and Sunday evenings.

Personnel

President.....Allen B. Du Mont
General Manager .....Sam Cuff
Technical Director.....Walter E. Swenson
Chief Operating Engineer.....Sol Patreimo
Assistant Operating Engineer...Morris Barton
Audio Control Engineer.....Charles Lewis
Studio Managers...Ed Woodruff, Bob Jameson

FACILITIES

The 160-foot tower of W2XWV atop a 42-story building raises the antenna to 650 feet above sea level. Covering a service range of 35 to 50 miles, the station has regular viewers as distant as 75 miles. It is completely equipped by Du Mont Laboratories. W2XWV has a studio for live-talent shows as well as film-projection facilities. It operates on an experimental license pending the granting of application for a commercial license.

ACTIVITIES

This outlet serves not only as a telecast service soon to go commercial, but also as a laboratory for practical experience. Engineering, programming and advertising sponsorship aspects of television broadcasting are being worked out in actual practice. Broadcasters, engineers, producers, performers, advertisers, advertising men and others interested in television are granted the facilities of the station.

FCC REGULATIONS REGARDING BROADCAST STATIONS FOR TELEVISION AND FACSIMILE

As of January 1, 1944

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 public[1].

"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 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

[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.

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 servic 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 wi l 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 these rules 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 than one television broadcast station that would serve substantially the same service area; *and provided, further,* That the Commission will regard the owner-

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

ship, 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 the section of these rules 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 authority[3] 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 outhority,[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).

(d) Other changes, except as above provided for in this section or in Standards of Good Engineering Practice for Television Broadcast Stations prescribed

[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.

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 4 hours per week.

(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 as such either at the end of the program or immediately following the broadcast of 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.

(d) Where an antenna or antenna supporting structure(s) is required to be illuminated the licensee shall make entries in the radio station log appropriate to the requirements of Section 2.82(a), (b), and (c) as follows:

(1) The time the tower lights are turned on and off if manually controlled.

(2) The time the daily visual observation of the tower lights was made.

(3) In the event of any observed failure of a tower light.

i) Nature of such failure.

ii) Time the failure was observed.

iii) Time and nature of the adjustments, repairs or replacements made.

iv) Airways Communication Station (C.A.A.) notified of hte failure of any tower light not corrected within thirty minutes and the time such notice was given.

v) Time notice was given to the Airways Communication Station (C.A.A.) that the required illumination was resumed.

(4) Upon completion of the periodic inspection required at least once each three months.

i) The date of the inspection and the condition of all tower lights and associated tower lighting control devices.

ii) Any adjustments, replacements or repairs made to insure compliance with the lighting requirements.

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; in this volume see Rules and Regulations regarding production by Radio Broadcast stations).

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 "experimental television broadcast station" means a station licensed for experimental 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 authorize 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 and experimentation.
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 an experimental 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 announcements 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 worthwhile 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 No.		Channel No.	
1	50,000-56,000 kc	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 above 300,000 kc excluding band 400,000-401,000 kc.		16	264,000-270,000
		17	282,000-288,000
		18	288,000-294,000

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 effectiveness 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.

License Qualifications

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.