

Unlike radio programs, television shows require long hours of rehearsal to produce a polished performance. In this respect, video production resembles movies or theater shows.

By
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1948 - Year Of *Television* Progress

An up-to-the-minute survey of existing and proposed TV facilities, receiver production, and market data.

THE arrival of television on the American Scene is as certain a success as it is sudden. Only a few years ago considered a technical possibility, today television is an accomplished fact—rapidly spreading from coast-to-coast to become a permanent part of everyday life. This is an exciting period of expansion, since television is destined soon to become a billion-dollar industry, ranking among the top ten of the nation.

Television is on the march. Recent

progress in the development of broadcasting facilities and in the manufacture and distribution of TV receivers has been phenomenal. Although presently confined to the 22 large metropolitan areas which are serviced by one or more TV broadcasting stations, nearly 600,000 receivers are now in operation in homes, taverns, and other public places—according to RMA production and sales reports, current surveys, and reports from other reliable sources. More than 75,000 sets are ex-

pected to be produced during the month of November by a total of 78 different manufacturers. Seven new manufacturers are scheduled to start production of TV receivers during December and January.

Despite greatly increased production, however, the current demand for television sets far exceeds the available supply! This demand is virtually restricted to 22 urban areas. When other areas are serviced by new TV stations soon to go on the air, the demand for receivers may be of record-making magnitude.

The usefulness of any television receiver is primarily determined by the number of TV stations operating in the vicinity—within about 50 or 60

**GEOGRAPHICAL SURVEY OF
TELEVISION BROADCASTING STATIONS
(ON THE AIR AS OF NOVEMBER 1, 1948)**

Location	Call	Channel	Ownership	Location	Call	Channel	Ownership
CALIFORNIA				NEW JERSEY			
Los Angeles	KFI-TV	9	E. C. Anthony	Newark	WATV	13	Bremer Broadcasting
Los Angeles	KLAC-TV	13	KMTR Radio Corp.	NEW YORK			
Los Angeles	KTLA	5	Paramount	Buffalo	WBEN-TV	4	Evening News
Los Angeles	KTSL	2	Don Lee Broadcasting	New York	WABD	5	DuMont
CONNECTICUT				New York	WCBS-TV	2	CBS
New Haven	WNHC-TV	6	Elm City Broadcasting	New York	WJZ-TV	7	ABC
DISTRICT OF COLUMBIA				New York	WNBT	4	NBC
Washington	WMAL-TV	7	Evening Star	New York	WPIX	11	Daily News
Washington	WNBW	4	NBC	Schenectady	WRGB	4	General Electric
Washington	WTTG	5	DuMont	OHIO			
GEORGIA				Cincinnati	WLWT	4	Crosley
Atlanta	WAGA-TV	5	Fort Industry	Cleveland	WEWS	5	Scriggs-Howard
ILLINOIS				Cleveland	WNBK	4	NBC
Chicago	WBKB	4	Balaban & Katz	Toledo	WSPD-TV	13	Fort Industry
Chicago	WENR-TV	7	ABC	PENNSYLVANIA			
Chicago	WGN-TV	9	Chicago Tribune	Philadelphia	WCAU-TV	10	Phila. Bulletin
MARYLAND				Philadelphia	WFIL-TV	6	Phila. Inquirer
Baltimore	WBAL-TV	11	Hearst Radio	Philadelphia	WPTZ	3	Philo
Baltimore	WMAR-TV	2	Sunpapers	TENNESSEE			
MASSACHUSETTS				Memphis	WMCT	4	Memphis Publ. Co.
Boston	WBZ-TV	4	Westinghouse	TEXAS			
Boston	WNAC-TV	7	Yankee Network	Fort Worth	WBAP-TV	5	Star Telegram
MICHIGAN				UTAH			
Detroit	WJBK-TV	2	Fort Industry	Salt Lake City	KDYL-TV	2	Intermountain
Detroit	WWJ-TV	4	Evening News	VIRGINIA			
Detroit	WXYZ-TV	7	King Trendel Broadcasting	Richmond	WTVR	6	Havens & Martin
MINNESOTA				WISCONSIN			
St. Paul	KSTP-TV	5	KSTP, Inc.	Milwaukee	WTMJ-TV	3	Milwaukee Journal
MISSOURI							
St. Louis	KSD-TV	5	Post Dispatch				

Table 1.

miles—of the receiving site. Stations at greater distances normally cannot be seen or heard satisfactorily with even the most expensive sets. For this reason, the owner of a set in Cleveland, for example, cannot receive programs direct from the TV stations in New York or Chicago. Similarly, a television set is useless in any small town, or in any rural district, which is beyond the normal range (about 50 to 60 miles) of TV transmitters operating in large cities and metropolitan areas. This inherent limitation of every

TV receiver—regardless of make or price—can only be overcome by the construction of more and more local TV broadcasting stations within range of such receivers. Within one year (December 1949), at least one TV station will be operating in all cities of fairly large population. In thickly populated metropolitan areas—such as New York, Chicago, and Los Angeles—as many as five TV stations will be in operation. But potential viewers in isolated rural districts, in remote mountainous regions, and even in some

The newest thing in portable pick-up equipment for television is this General Electric mobile TV truck which provides complete facilities for on-the-spot telecasting.



small cities may not see-and-hear TV programs for six or seven years (post-1955). This might be due to either (or both) of two reasons: (1) the enormously high cost of operating a TV station, or (2) the lack of an available TV channel to be authorized by the FCC.

Television receivers are normally not sold in regions or areas which are not serviced by TV broadcasting stations. Once a station has been placed in operation in a new area, however, market-wise distributors and sales organizations are quick to provide TV sets capable of receiving programs from the station.

Status of Stations

Unlike the early days of radio broadcasting with haywire equipment and low-cost operation, running a modern television station is no shoe-string enterprise. Every new TV broadcasting station invariably requires an initial investment of close to one million dollars for transmitter and technical equipment, suitable studios, lighting and other facilities—long before actual operations commence.

Despite this economic hazard, more and more TV stations are being constructed in principal cities all across the country. As of November 1st, 1948, there were 42 stations operating on regular schedules and averaging about 25 hours per week on the air. A geographical survey of these stations is given in Table 1 with data on the assigned call letters, channel number, and ownership of each station.

This by no means constitutes the eventual total of TV stations operating on channels 2 through 13.

Construction permits have been granted by the FCC for an additional 87 TV stations, and at present these are in various stages of completion. A survey of these stations now under construction is given in Table 2 with an indication of the approximate date each station is expected to go on the air with scheduled programs.

Of immediate concern to owners and to potential owners of television receivers are the TV stations now on the air (see Table 1). Of future concern are the TV stations now under construction (see Table 2), which constitute the only stations likely to be constructed at the designated locations for a period of at least two years.

Upon completion, all of the stations now under construction will be authorized to operate on their assigned channels as indicated in Table 2. There is a possibility that no other TV stations will ever be assigned or authorized to operate on any of the channels 2 through 13. The reason for this is the extremely crowded condition of the twelve standard television channels, coupled with the fact that interference problems are increasing, requiring greater spacing between co-channel and adjacent-channel stations.

Future Stations

As early as January, 1948, it was evident that the channels originally

earmarked for television transmission were insufficient in number to accommodate all future stations. Despite the fact that TV signals are normally limited in range to about 50 or 60 miles, there is sporadic image interference between two stations using the same channel even when the two stations are separated by a considerable distance—exceeding several hundred miles. To further complicate the problem of channel allocation, more and more applications to construct new TV stations began to pour into the FCC offices in Washington.

In line with the continued expansion of the entire television industry, month by month the number of station applications increased at an alarming rate. Finally, on September 30th, 1948, with a backlog of 303 station applications still pending, the FCC officially "froze" the granting of further construction permits for a period of six months; until March 31st, 1949. Some idea of the magnitude of this chaotic condition is indicated by the graphs in Fig. 2.

This abrupt suspension of action on the huge number of pending or prospective applications was the immediate result of a technical hearing held by the FCC in Washington a week earlier, at which time technical experts representing all of the leading television corporations advanced the plea for utilizing ultra-high frequency channels in addition to the presently assigned channels 2 through 13.

Any shift to the higher frequencies would provide about 34 new television channels in the frequency band between 475 and 890 megacycles. Because of the nature of radio waves at such high frequencies, such a shift is more easily talked about than accomplished. Before channels in the band could be utilized effectively, entirely new techniques of generating and transmitting a television signal must be developed and perfected using altogether different types of tubes and other technical equipment. For the same reason, reception of channels in the ultra-high region would require TV receivers of an entirely new design. Present-day TV sets are incapable of receiving such signals, and would be limited to reception of only the channels 2 through 13.

The mechanics of incorporating the proposed ultra-high frequency channels are long and tedious, however. Even longer will be required to develop suitable tubes, transmitters, and receivers for operation in the 475-890 mc band. It is unlikely that a shift to the high frequencies could be accomplished in less than two years, and probably it will take much longer.

Television Reception

Despite future consequences of any shift to high-frequency channels, the boom in television transmitters and receivers continues unabated. An indication of the accelerated production of receiving sets is shown by the figures in Table 5 which presents total pro-

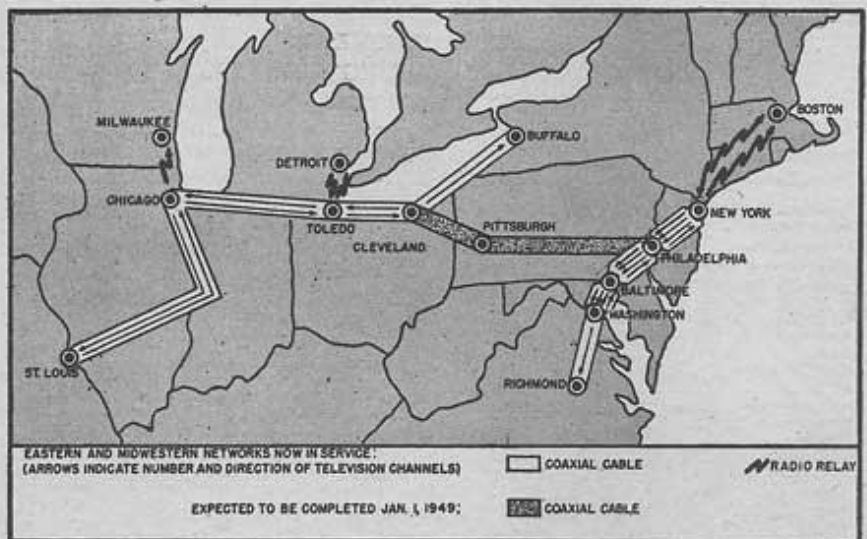


Fig. 1. Bell System TV network map showing coaxial cable and relay facilities as of Nov. 1948.

duction and which was obtained by carefully evaluating data from reliable sources. A total production of 748,367

receivers will be reached early in October; by the end of the month almost 860,000 sets will have been made.

Table 2.

GEOGRAPHICAL SURVEY OF TELEVISION BROADCASTING STATIONS UNDER CONSTRUCTION							
(ALL STATIONS LISTED WERE GRANTED FCC CONSTRUCTION PERMITS PRIOR TO SEPTEMBER 30, 1948)							
Location	Call	Channel	Expected to Go on Air	Location	Call	Channel	Expected to Go on Air
ALABAMA				MASSACHUSETTS			
Birmingham	WAFM-TV	13	Indefinite	Waltham	WRTB	2	Early 1950
Birmingham	WBRC-TV	4	July, 1949	MICHIGAN			
ARIZONA				Grand Rapids	WLAV-TV	7	Fall 1949
Phoenix	KTLX	5	Indefinite	Kalamazoo	WKZO-TV	3	Indefinite
CALIFORNIA				Lansing	WJIM-TV	6	Fall 1949
Los Angeles	KECA-TV	7	Dec., 1948	MINNESOTA			
Los Angeles	KNBH	4	Dec., 1948	Minneapolis	KTRV	9	Spring 1949
Los Angeles	KTTV	11	Indefinite	Minneapolis	WTCN-TV	4	Spring 1949
Riverside	KARD	13	Spring 1949	MISSOURI			
San Diego	KFMB-TV	8	Indefinite	Kansas City	WDAF-TV	4	Fall 1949
San Francisco	KGO-TV	7	Jan., 1949	NEBRASKA			
San Francisco	KPIX	5	Dec., 1948	Omaha	KMA-TV	3	Jan., 1949
San Francisco	KRON-TV	4	Dec., 1948	Omaha	WOW-TV	6	Spring 1949
Stockton	KGDM-TV	8	Indefinite	NEW MEXICO			
DELAWARE				Albuquerque	KOB-TV	4	Dec., 1948
Wilmington	WDEL-TV	7	Dec., 1948	NEW YORK			
DISTRICT OF COLUMBIA				Binghamton	WNBF-TV	12	Indefinite
Washington	WOIC	9	Jan., 1949	New York	WOR-TV	9	Spring 1949
FLORIDA				Rochester	WHTM	8	Early 1950
Jacksonville	WJAX-TV	2	Late 1949	Rome	WKAL-TV	13	Indefinite
Jacksonville	WJHP-TV	8	Indefinite	Syracuse	WJTV	8	Fall 1949
Jacksonville	WBRR-TV	4	Late 1949	Syracuse	WTTE	5	Indefinite
Jacksonville	WPDQ-TV	6	Fall 1949	Syracuse	WAGE-TV	10	Fall 1949
Miami	WTVJ	4	Spring 1949	Utica	WVTL	3	Indefinite
St. Petersburg	WSEE	7	Late 1949	NORTH CAROLINA			
GEORGIA				Charlotte	WBT-TV	3	Fall 1949
Atlanta	WCON-TV	2	Fall 1949	Greensboro	WTLE	2	Indefinite
Atlanta	WSB-TV	8	Fall 1949	OHIO			
ILLINOIS				Cincinnati	WKRC-TV	11	Spring 1949
Chicago	WNBO	5	Dec., 1948	Cincinnati	WCPO-TV	7	March, 1949
Peoria	WEEK-TV	12	Indefinite	Cleveland	WXEL	9	Fall 1949
Peoria	WBMD-TV	6	Fall 1949	Columbus	WLWC	3	Dec., 1948
Rock Island	WBHF-TV	4	Indefinite	Columbus	WTVN	6	Spring 1949
INDIANA				Columbus	WBNT	10	Fall 1949
Bloomington	WTTV	10	Spring 1949	Dayton	WLWD	5	Dec., 1948
Indianapolis	WFBM-TV	6	Spring 1949	Dayton	WHIO-TV	13	Fall 1949
Indianapolis	WUTV	3	Jan., 1949	OKLAHOMA			
IOWA				Oklahoma City	WKY-TV	4	Indefinite
Ames	WOI-TV	4	Fall 1949	Tulsa	KOVN	6	Fall 1949
Davenport	WOC-TV	5	Indefinite	OREGON			
KENTUCKY				Portland	KTVU	3	Indefinite
Louisville	WHAS-TV	9	May, 1949	PENNSYLVANIA			
Louisville	WAVE-TV	5	Dec., 1948	Erie	WICU	12	Dec., 1948
LOUISIANA				Johnstown	WJAC-TV	13	Fall 1949
New Orleans	WDSU-TV	6	Jan., 1949	Lancaster	WGAL-TV	4	Jan., 1949
New Orleans	WRTV	4	Dec., 1948	Pittsburgh	WDTV	3	Dec., 1948
New Orleans	WTSP-TV	7	Fall 1949	RHODE ISLAND			
MARYLAND				Providence	WJAR-TV	11	Feb., 1949
Baltimore	WAAM-TV	13	Nov. 2, 1948	TENNESSEE			
				Nashville	WSM-TV	4	Fall 1949