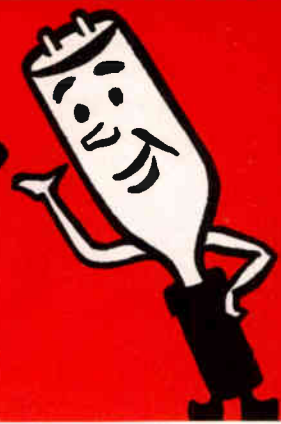




TUBE TIPS



A NEWSLETTER TO THE BROADCASTING INDUSTRY

RCA TUBE DIVISION

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Record 4 ½ - Million Watts UHF-TV Power Produced in Experiment by RCA

Four-and-one-half-million watts of UHF-TV effective radiated power at a frequency of 537 Mc (channel 23)—the highest continuous-wave power ever achieved at that frequency, and more than four times the output of the most powerful existing UHF-TV stations—were produced recently by RCA at its Lancaster, Pa., plant.

The experiment, latest development in RCA's continuing program to improve UHF-TV broadcast equipment and techniques, coupled an RCA super-power UHF antenna with a developmental super-power tube to produce the record-high effective radiated power. Although UHF-television stations are permitted a maximum of one million watts of effective radiated power under existing regulations of the Federal Communications Commission, it is hoped that this limit will be raised as technological advances reach the commercial stage.

RCA's developmental tube used in the experiment is a water-and-forced-air-cooled super-power triode. This developmental tube—now being offered to electronic equipment manufacturers for experimental work—is intended for cathode-drive operation in amplifier service at frequencies up to 900 Mc, and is capable of delivering 100 Kw at synchronizing level in UHF-TV applications.

The 4½-million watts of radiated power produced at Lancaster were obtained by feeding approximately 100 kilowatts, generated by the electron tube, into the antenna which has a gain of nearly 50. Station WBRE-TV, Wilkes-Barre, Pa., which went on the air a year ago as the nation's first million-watt UHF-TV broadcaster, utilizes a type of RCA super-power antenna similar to that used in the Lancaster experiment. The same type of antenna is in operation at UHF station KPTV, Portland, Oregon.

This test of tube and antenna establishes the engineering feasibility of ultra-high-power, ultra-high-frequency broadcasting. Radiated power in the order of four to five million watts would enable UHF-TV stations, so equipped, to extend the area of primary coverage and offer improved television service throughout the present so-called fringe or weak-signal areas.

RCA to Display Line of Industrial Tube Types at NARTB Convention

The RCA Tube Division again joins with other services of the Radio Corporation of America in inviting broadcasters to visit the RCA exhibits at the NARTB Convention, April 15th through April 19th. Be sure to see the display of RCA's line of industrial tube types at the Conrad Hilton Hotel, Chicago.

RCA Executive Discusses Company's Progress in Color-TV Picture Tube Production

In a recent statement detailing future plans relative to the production of RCA color-television picture tubes at the company's Lancaster, Pa., plant, W. W. Watts, Executive Vice-President, RCA Electronic Components, made the following announcement: "In 1955, as you may recall, we announced that RCA would be equipped to produce color tubes at the rate of 30,000 a month by the last quarter of 1956. We shall surpass that goal under our present schedules."

Speaking of RCA's expanded facilities for color-tube manufacture, Mr. Watts said: "As most of you know, RCA has never for one minute lost its faith in the round, metal-aperture-mask type of tube. Despite doubts expressed by a few others, we have gone ahead with our plans to concentrate efforts on this tube. The extensive array of new equipment which has been installed and of which there is more to come has been designed to handle this tube and this tube only. At this time, we see no reason to depart from this view. In our opinion, no other proposed color tube is near the mass-production stage.

"To begin with—and an important item it is to us and the entire industry—we have added approximately 220,000 square feet of floor space to the area set aside at Lancaster for the development and manufacture of color tubes. Employment in this operation at Lancaster will be increased by at least 50% during 1956. This, added to the 50% increase during 1955, indicates the extent of our activities—accomplished and planned in blueprint form—over a two-year period."

Emphasizing the vast degree of mechanization which has occurred in the manufacture of color tubes, Mr. Watts said that more than \$8,500,000 has been spent on this facet of production. Other major advances also have been made in all phases of production processes, quality controls, and final test methods.

"There are many more advances that I could tell you about," Mr. Watts said, "but these should give you a hint of the progress RCA is making in its promise to produce and supply satisfactory large-screen color tubes in the quantity that will be required when the industry, as a whole, goes into the production of color receivers."

New RCA Application Note Gives Conversion Factors for Tube Characteristics

A method for determining the approximate characteristics of an electron tube when all the electrode voltages are changed in the same proportion from the published or measured values is described in the new RCA Application Note AN-164. Conversion factors for the principal characteristics are given in a nomograph which is easy to use and which provides direct reading. Although these conversion factors have been available in curve form for some time, the nomograph in Application Note AN-164 is more convenient to use than the previous log-log curves.

The conversion factors obtained from the nomograph are applicable to triodes, tetrodes, pentodes, and beam power tubes when the plate voltage, grid-No. 1 voltage, and grid-No. 2 voltage are changed simultaneously by the same factor. They may be used for any class of tube operation.

Broadcasters may obtain copies of the new RCA Application Note AN-164 by writing to Commercial Engineering, RCA Tube Division, 415 S. 5th St., Harrison, N. J.

RCA Three-Vidicon Film Camera Adapted to 'Live' Commercial Colorcasts

Through the attachment of a simple extension lens system, the RCA three-Vidicon film camera--featuring three RCA-6326 Vidicon camera tubes--may now be used for direct color pickup of many types of static and action product displays and other displays practical within a limited area. Developed by RCA engineers, the lens system uses standard, inexpensive lenses and can be assembled by broadcasters.

Prior to this development, the RCA 3-V camera had already proved itself one of the most economical and flexible systems for presenting color-TV programs from filmed material. Standard studio cameras, however, had been necessary for televising "live" color commercials. Now, through the use of the new extension lens system, the 3-V camera can be used for direct color casting of artwork, charts, maps, diagrams, magazine pages, comic strips, and similar material. The modified 3-V camera thus will enable broadcasters unequipped for live color origination to provide their sponsors with full color commercial service--at the same time eliminating the time and cost required to prepare slides and avoiding the density problems involved in color-televising slides. Stations already equipped for live color origination can also use the modified 3-V camera for their commercial programmings.



The extension lens system for modifying the 3-V camera is attached to the camera's four-input multiplexer unit (TP-15). Direct pickup of product displays or demonstrations, and of opaques, can be made in open settings, under normal studio lighting, without the need of usual light covers or strobe lights.

The RCA-6326 Vidicon camera tube--with a spectral-response characteristic approaching that of the eye--has proved itself the popular choice for simple, low-cost TV film cameras. With the advent of the RCA-developed system for adapting the 3-V film camera to direct pickup, the RCA-6326 establishes itself as one of the most flexible camera tubes of its type on the market.

New Booklet Describes More Than 600 RCA Receiving Tubes and Kinescopes

An up-to-date, revised edition of the popular reference guide, "RCA Receiving Tubes for AM, FM, and Television Broadcast," was published recently by the RCA Tube Division. Packed into 28 fact-filled pages of this booklet is a reference guide on all RCA receiving tubes and picture tubes, including characteristics of more than 600 types. Picture tube information is presented in a chart which lists and describes 75 types. Base- and envelope-connection diagrams are included for all tube types.

Another time-saving feature of the new guide is a classification chart that has been arranged to permit quick determination of the type designations of RCA receiving tubes according to their functions and filament or heater voltages and RCA picture tubes according to their envelope size, focus method, and deflection method.

Priced at only 20¢ per copy, the booklet, "RCA Receiving Tubes for AM, FM, and Television Broadcast" (Form 1275-G) is available from local RCA tube distributors.



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For maximum tube performance—in power amplifiers, modulators, audio equipment, power supplies—you can rely on RCA high-quality power types. Known throughout the broadcast industry for reliable on-air service, RCA tubes provide low tube cost per hour of station operation.

Whether you have a Standard-Band or FM Station, your RCA Tube Distributor can promptly meet your tube replacement needs. For efficient service, call him.



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RADIO CORPORATION OF AMERICA