



From an elevated seat on a dolly, an NBC cameraman focuses the color TV camera on a Paris street scene in the studio.

## *RCA and NBC Petition FCC to Adopt Standards for Commercial Broadcasting of Compatible Color Television*

**R**ADIO Corporation of America and the National Broadcasting Company, on June 25, petitioned the Federal Communications Commission to adopt compatible technical standards permitting the commercial broadcasting of color television, it was announced by Brig. General David Sarnoff, Chairman of the Board of RCA.

The 697-page petition states that the color standards proposed by RCA and NBC are the signal specifications approved by the industry's National Television System Committee; that the RCA system which operates on these standards meets all criteria established by the FCC for a satisfactory color television system; and that, because of its compatibility, color programs broadcast on the RCA system can be received in black-and-white on the millions of sets now in use without any adjustments or additions.

"Our position as a pioneer imposes upon us the responsibility to do our best to bring about the early

introduction and orderly development of compatible color television in the interests of the viewing public, our sponsors, and the independent stations affiliated with our network," General Sarnoff said. "RCA and NBC are prepared to invest as much as \$15 million during color television's introductory year to establish this new service on a solid foundation. This would be in addition to the \$25 million RCA will have spent by the end of 1953 in pioneering research and development of compatible color television."

When the FCC adopts the proposed color standards, the petition states, RCA and NBC will:

1. Expedite production of color receivers, tri-color tubes, and broadcasting and studio equipment for sale to the public, to television manufacturers and to broadcasters. (It is estimated that the first sets produced will sell for \$800 to \$1000, and when mass production is achieved prices will be substantially reduced.)

2. Commence broadcasting compatible color television programs which NBC will offer to commercial sponsors and its affiliated stations throughout the United States. (Already, 41 independent stations affiliated with NBC have agreed to a prompt start in broadcasting network color programs and others are planning to do the same.)

"RCA and NBC have the know-how to broadcast color programs, to build equipment for color broadcasting and to build sets that will receive these color programs," the petition asserts. "In addition, RCA and NBC have a nucleus of trained personnel ready to do the job."

General Sarnoff pointed out that in the development of any great new service to the American public, someone must always take the lead and incur the initial capital risk. "For example," he said, "RCA and NBC risked \$50 million in developing and introducing black-and-white television before getting a cent in return. We are now spending \$40 million in creating this new industry of color television. This is an expenditure that must precede the achievement of mass production in manufacturing and substantial broadcasting of color programs."

"The next task is to translate the achievements of our scientists and engineers into color programs on the

air and color sets in the nation's homes. This calls for a broad-scale effort by the entire radio-television industry."

General Sarnoff said there are approximately 210 set manufacturers and 70 tube manufacturers in the radio-television industry, and approximately 190 television stations now on the air. "It is my great hope," he said, "that all of them will participate in the effort to take the color television 'baby' out of the cradle and teach it to walk."

#### *RCA Inventions Available to Entire Industry*

"RCA is following the same policy in introducing color as it did in black-and-white television, making its inventions available to the entire industry. In addition, we will manufacture and sell component parts, including the tri-color tube, to competing manufacturers and will make and sell broadcasting equipment to any station, regardless of whether or not it is affiliated with NBC."

"The radio-television industry can avail itself of the scientific inventions and technical 'know-how' that are the fruits of RCA's color television investment, without incurring any of the major capital risks. This means that it is economically practical for other members of this highly competitive industry to get into the color television field quickly."

"I am confident that those members of the industry, who help to advance color television in its early stages, will be proud of the part they play in the development of this new service. Once black-and-white television was off to a good start, some of those who feared and opposed it the most, soon became television's most enthusiastic supporters. We can expect the same thing to happen in the case of color television."

General Sarnoff said that the standards proposed to the FCC were sufficiently high to leave ample room for future developments. "Like the tracks of a railroad," he continued, "these standards provide color television with a gauge for a high-quality right-of-way. Like railroad cars, color television receivers can be changed and improved in the future, and still operate on the same standards or tracks."

"Color television is a major step forward in the science and art of seeing by radio. It will be revolutionary in its effect upon communications. Color greatly enhances the beauty and attractiveness of objects and scenes. It gives more information and increases our powers of memory and identification. It is a powerful aid to advertising. It is a new dimension that will in-

Color cameras, microphone boom and spot-lights are set up for a color TV program in RCA-NBC's Colonial Theatre, New York.



Color TV control console at Colonial Theatre.



crease the public's enjoyment of news events, entertainment and education."

*Pilot Production of Color Sets Possible  
by Spring of 1954*

Dr. C. B. Jolliffe, Vice President and Technical Director of RCA, estimated, in a statement included in the RCA petition, that if the FCC approves the proposed new standards by the end of the Summer of 1953, a pilot production of color receivers can start during the Spring of 1954.

In addition, Dr. Jolliffe said, to facilitate the introduction of commercial color television broadcasting, RCA's initial plans are to produce appropriate broadcast equipment on a custom basis. "This will enable broadcasters," he stated, "to proceed with color television early in 1954."

*RCA System is Compatible*

The RCA color system is compatible with the present black-and-white television, the petition continues, and programs broadcast using the RCA system can be received in natural color on color receivers and in high definition black-and-white on the more than 24,000,000 black-and-white receivers already in the hands of the American public without changing them or adding to them in any way.

The petition states the belief that the present field sequential color television standards based upon an in-

compatible color television system are "sterile and that their continuance is not in the public interest."

It is pointed out in the petition that the black-and-white sets now in use, "representing an investment of billions of dollars, would be 'blind' to incompatible color broadcasts." The petition also points out that RCA and NBC know of no one who plans to manufacture or broadcast incompatible color television.

Regarding the proposed new standards for compatible color television, the petition states that they are "technical signal specifications approved February 2, 1953, by outstanding engineers and scientists of the radio and television industry, including members of Petitioners' staffs, through the National Television System Committee. Petitioner knows of no responsible engineer or scientist in the radio and television field who proposes adoption of any other color standards."

For testing the RCA color television system and the proposed new standards, RCA and NBC offered to "make their laboratory, studios, transmitter, test equipment and other facilities freely available" to the FCC and members of its staff.

*RCA System Meets FCC Criteria*

The petition states that extensive field tests, including thousands of hours of color transmissions, and public reaction studies show that the RCA system satisfied all the criteria previously specified (June 11, 1951) for color television by the FCC. These criteria include color

fidelity, picture definition and brightness, simplicity of operation in broadcasting and receiving equipment, costs, freedom from interference, and networking.

#### *Price of Color Receivers*

Dr. Jolliffe said that the introductory retail price of the first RCA color television receivers will be between \$800 and \$1000. The picture size of the first color television receivers will be equal to a 14-inch black-and-white tube.

For comparison, Dr. Jolliffe pointed out that the retail price of a 12-inch black-and-white television set introduced in 1939, was approximately \$560. However, he said, taking into account the change in price levels—based on the Bureau of Labor Statistics Price Index—this 1939 price would be approximately \$1,050 in terms of 1953 dollars.

#### *Price Reductions Foreseen*

"A major item in the price of a color television receiver is the tri-color kinescope," he continued. "The price and size history of black-and-white kinescopes will be followed in color kinescopes. Prices will be reduced and sizes and quality increased as quantity production is attained by manufacturers of kinescopes.

"If standards for commercial broadcasting of compatible color television are adopted by the Commission thus enabling compatible color receivers to be manu-

factured on a mass production basis, experience and competition will inevitably result in bringing about substantial reductions in the price of color receivers."

Dr. Jolliffe said that the cost of station apparatus for the RCA color television system successfully meets the FCC criterion that it should not be "so high as unduly to restrict the class of persons who can afford to operate a television station."

"A television station does not need to equip color studios in order to broadcast network color programs," Dr. Jolliffe said. "The station can take color programs from the network by making relatively minor expenditures for equipment and standard stock items, plus in most cases certain additional sums for test equipment. The station operator may expand his operations by adding a color slide camera, color film equipment and color cameras if he desires to provide programs from local sources. The amount and total cost of such equipment will depend on the kind and extent of local color program material the broadcast station owner elects to provide.

"The present prices are preliminary estimates based on existing conditions, present equipment designs and limited production. Provided other conditions remain the same, it is anticipated that substantial price reductions will be made when commercial product designs are finalized and the production of color equipment increases."

Tri-color TV kinescopes are inspected during a pilot-production run at RCA's tube plant, Lancaster, Pennsylvania.



#### RCA's Manufacturing Plans

Dr. Jolliffe said that RCA has established a pilot plant for the production of RCA tri-color kinescopes within its tube plant at Lancaster, Pennsylvania. Within a few months, he continued, this pilot operation can attain a production rate of 2,000 tubes per month.

"In response to demand for more tri-color kinescopes than can be produced in the pilot production unit," he pointed out, "operations can be expanded into existing black-and-white kinescope production facilities, with suitable modification of such facilities and the addition of the specialized items needed for tri-color kinescope production.

"Factory space for producing RCA color television receivers is available and necessary test equipment has been determined. Manufacturing personnel has examined the engineering samples of model RCA color television receivers and are agreed that no unusual manufacturing problems are involved.

"While a substantially increased number of component parts are required for a color television receiver as compared with a black-and-white receiver, and circuits require a greater degree of testing and adjustment, manufacturing techniques will be basically the same as for black-and-white television receivers."

Dr. Jolliffe said that the proposed technical signal specifications make provision for future improvements in equipment at both transmitter and receiver without requiring a change in standards or obsoleting receivers in the public's hands.

#### NBC Color Telecasting Plans and Policies

The National Broadcasting Company's color television programming plans and policies are outlined in the petition. Highlights of these plans and policies are:

The first immediate proposal of NBC consists of starting "an introductory year," in the course of which all the engineering and programming groups of NBC will have a chance to get direct experience in color-casting, it was said, because they will produce their present black-and-white television shows in color premieres.

The petition stated:

"We have now worked out a rough schedule of colorcasts from the Colonial Theatre in New York, and 3H in our Radio City studios, which are the two present color-equipped studios of the National Broadcasting Company . . . We expect to average two shows a week from the Colonial, and the two shows will average an hour together. 3H will be reserved for continued technical experiment.

"We will schedule the color premieres, out of the



Facade of Colonial Theatre, New York, originating point of the majority of color TV programs broadcast experimentally by RCA and NBC.

Colonial Theatre, on a rotational basis of all our black-and-white attractions, so that each show is seen in color at least once, in a specially-devised color show, which will still be great in black and white, but we hope superb in color. We will include the NBC opera in English, Toscanini, Great Conversations, and other occasional as well as regular shows.

"When the great shows and the regular shows of NBC are offered in their color premieres at the average rate of two a week from the Colonial, the advertiser will offer his advertising in color with the show. In the case of multiple sponsors, we hope to offer all advertisers the same opportunity.

"Local events and exhibits and celebrations can all be covered in color. When important enough, we would hope to use our remote equipment to bring the scene on a special event pick-up basis."

The petition points up the fact, now that a practical

(Continued on page 31)

## *RCA and NBC Petition FCC to Adopt Compatible Color TV Standards*

*(Continued from page 7)*

compatible color television system has been developed technically, the next big step is to translate these scientific accomplishments into a regular color program service to the public.

"In black-and-white," the petition states, "the vast amounts of money spent in television development by the RCA-NBC scientific and technical groups was followed by a vast amount of money spent by the company to develop programming techniques and skills, to find the proper use of showmanship in this new medium. Our plan to repeat this formula in color will cost additional sums.

"With this in mind, during the introductory year NBC will set up procedures to give technical and program people from our affiliated stations, and our owned and operated stations, experience in color broadcasting and color problems.

"Under our plans, by the time the manufacturers have tooled up for mass distribution of color receivers, and a large audience watches our programming work, we will have learned the program technology just as our engineers have learned the proper use of their new tools. Meanwhile, the art of entertainment and the presentation of reality, in color, will have progressed far."

### **RCA-NBC Met Heavy Schedule of Color TV Tests During Past Year**

In the months prior to the filing of the petition, RCA and NBC met a heavy schedule of color television field tests and broadcast demonstrations.

On April 14, members of the Committee on Interstate and Foreign Commerce of the House of Representatives witnessed RCA color television on receivers at the David Sarnoff Research Center, Princeton, N. J. A twenty-minute program, featuring a variety of entertainment, was broadcast over Channel 4 in New York City using experimental license KE2XJV. Three weeks earlier, RCA had told the Committee in Washington that RCA and NBC were ready to start color television broadcasting and recommended that the FCC immediately authorize commercial broadcasts of compatible color television signals.

The demonstration for the House Committee also included outdoor pickup of color television pictures with the NBC mobile color television unit. RCA Laboratories Division research men showed in operation experimental models of an improved color television projection receiver, a focus-mask tricolor receiving tube and a color camera that functions with one camera tube instead of the three in present-day equipment. The committee later inspected the Colonial Theater color television studio in New York.

Similar demonstrations were held on April 16, for members of the NTSC; on May 19, for members of the FCC and staff; on May 21, for RCA licensees, and on May 26, for NBC network affiliates. On June 22, the Committee on Interstate and Foreign Commerce of the U. S. Senate witnessed a color program originating in the Colonial Theater and beamed to Washington over microwave facilities.

### **Sarnoff Receives Honorary Degrees**

Two honorary degrees were conferred during June upon Brig. General David Sarnoff, Board Chairman of RCA, by educational institutions in New Jersey and Pennsylvania. On June 2, he received an honorary degree of Doctor of Laws from Fairleigh Dickinson College, Rutherford, N. J., and on June 13, he was the recipient of the honorary degree of Doctor of Engineering from Drexel Institute of Technology at Philadelphia.

"Fifty years from now our descendants will say that we were very slow in 1953," he told the Fairleigh Dickinson graduating class. "Their automobiles, locomotives and ships may be powered by atomic energy. Their systems of transportation will surpass in safety, speed and comfort anything we have today. Those who may wish to stay at home and see the world will be able to look around the globe by color television."

In his commencement address at Drexel Institute, General Sarnoff declared that America's strength and leadership must be maintained as the great outpost of freedom. Until society finds the wisdom to abolish war there is no alternative, he said, but to keep America strong enough to resist aggression. "The surest way to discourage an attack upon us," he continued, "is to be adequately prepared to meet it successfully . . . if it does come."

RADIO AGE 31

RCA Radio Age, July 1953

Courtesy of Steve Dichter