

Spot Radio News

★ Presenting latest information on the Radio Industry.

By RADIO & TELEVISION NEWS'
WASHINGTON EDITOR

TV, still enmeshed in the most sizzling battle of words in technical history, has now entered the roaring phase of the fury with operation CD and CCD at hand. "Operation CD" or color demonstration covering all available systems began in the early fall and "Operation CCD" or comparative color demonstration, was scheduled to begin as this column was being prepared.

The CD days were riotous ones with invectives bouncing all over the crowded hearing and look-in ballrooms in uptown and downtown Washington, where the tests were held. There was substantial evidence that the look-and-see-what-we-have days would be exciting when the FCC prepared its notice covering the procedure CBS would follow during its trial moves.

Said the notice: "On this day camera equipment, color television receivers, monochrome receivers, and converted monochrome receivers will be demonstrated. The receivers to be demonstrated will include four receivers receiving color only in 6 megacycle channel width, one receiver for demonstration of 6 megacycle color versus wider channel color off-the-line, one conventional black and white receiver converted for color reception and probably one combination black and white receiver. . . . The demonstration will be divided into seven sections: Introduction, image brightness and flicker, compatibility, color breakup and fringing, image registration and definition, including tests over a coax cable of 2.7 megacycle bandwidth and over radio relay circuits of 4 megacycle width, ghosts and noise, and color fidelity and camera light sensitivity. . . . In these demonstrations, program material will include slides and test patterns, dancing, singing, juggling, fashions, near and far shots, different types of lighting and backgrounds. . . . In one demonstration the camera equipment will be located at a local high school football field."

The tests were quite impressive, with the Commissioners and over one hundred and fifty industry representatives looking on at the Hotel Carlton ballroom. Particularly interesting was the first attempt to try a remote pickup of the football game from the Woodrow Wilson High School field. Although the skies were overcast and there was even

a heavy rain during the final moments of play, the results were comparatively satisfactory.

Much of the equipment was basically similar to that displayed in '47. There were, however, available this time, special converters for black and white receivers. These were quite large and consisted of an enclosed spinning disc, speed control, and glass-type enlarger, which could be slid into position.

Several days after the CBS show, RCA presented their version of color TV with an all-electronic system, the operation of which was described by your correspondent in a previous report. This demonstration originated in the NBC studios at WNBW in the Wardman Park Hotel. Employed were two cameras for live subjects in the studio, one camera for color motion picture film and one camera for color slides. In the control room were two color monitors and a control-room console, plus a specially-built sixteen-inch color receiver. The color camera was equipped with three separate tubes, each equipped with a color filter to receive the three primary colors—red, blue, and yellow. The receivers were large, requiring three picture tubes arranged to transmit images to dichroic type mirrors and then to a viewing screen.

The program was very elaborate and ranged from solo performances by network favorites to a musical display by a nineteen-piece orchestra, all attired in brightly colored costumes.

Some of the results were satisfactory and others disappointing, RCA engineers indicating that there were quite a few *bugs* still to be ironed out before consistently perfect performances could be provided. The degree of compatibility displayed by this system in monochrome reception of color signals on standard TV models impressed observers.

Tests were held by RCA during the entire week and as the days passed on, some of the pickup problems were solved and the pictures improved considerably. In fact, when one of the later demonstrations was viewed by Senator Edwin C. Johnson, chairman of the Senate Interstate and Foreign Commerce Committee who sparked the color TV investigation, the Senator appeared quite pleased. He commented

RADIO & TELEVISION NEWS

that he was indeed surprised at the reproduction, predicting that the *RCA* method appears to have some very vital acceptance features.

During a subsequent review of the color situation, the Senator revealed that side-by-side tests would permit the Commission to determine just what type of standards we should have and as a result, within a year, we could have color TV on the air. When queried about the survey results collected by the impartial TV color committee the Bureau of Standards set up at his request, he replied that their report would not be submitted until the conclusion of the color hearings. The Senator told FCC Commissioner Robert Jones that the findings of this committee would "... sustain the position of those Commissioners who do not have a closed mind on color TV and will make impossible again the FCC action in the last hearing, when it shut the door on television progress."

In another statement on standards, the fiery Senator emphasized that the Commission should not decide in an arbitrary manner as to the virtues of any particular system. Instead, he said, they should set up a flexible type of standard which would permit the art to develop in the customary manner of all American industry.

THE DEMONSTRATIONS apparently piqued representatives of *DuMont*, who have contended that color TV is still in its breadboard stage, and a few days after the two color shows, they put on a demonstration that will be remembered for years and years. With a specially constructed 700-pound mechanical-type adapter, six and a half feet long, four and a half feet thick and four and a half feet high, and a separate generator and motor, the boys from *DuMont* presented their version of the equipment required to convert a twenty-inch tube set for color reception at present. When the huge four-foot color wheel, speeding at a rate of 210 miles an hour began to spin, and a fuse blew because of the load, FCC Headman Coy became riled and roared at Dr. Goldsmith, conducting the test, to stop the test which he called a "sideshow." Commissioner Frieda Henneck also blasted Goldsmith, citing the *demonstration* as one of ridicule and completely unfair to *CBS*. She pointed out that *Columbia* at no time stated that its system could be used for receivers having tubes larger than 12½ inches. An adjournment followed the abrupt halt and when the recess was over, only Commissioners Jones and Sterling were in their seats. With permission to continue the show, Goldsmith set the cumbersome affair into motion. Explaining the purpose of this admittedly noisy and complex setup, Goldsmith said: "We just got sick and tired of all the claims about easy conversion of present receivers to *CBS* type color and decided to show folks how ridiculous such conversions really are."

CBS attorney Richard S. Salant eyed Goldsmith and accused *DuMont* of setting up "... a publicity gag at considerable expense."

At the conclusion of this circus, Commissioner Henneck resumed her tirade against *DuMont* and asked Dr. *DuMont* how many of the deluxe 20-inch receivers, like the type he had used in the test, were in use. Dr. *DuMont* explained that while the model used was a \$2500 type, the same unwieldy assortment of apparatus would be required for any 20-inch type set, many of which are selling for \$500 or less. And incidentally, he added, *DuMont* is currently producing about 10,000 such models a month.

During one of the sessions, when Dr. Goldmark of *CBS* appeared on the stand, the question of projection was raised by Ed Wheeler, counsel for RMA. He asked Goldmark why the FCC had not been shown any projection type sets by *CBS*, and Goldmark smiled, and said quite frankly: "I was ashamed of our projection tests, but after seeing its performance with other systems (*apparently referring to RCA*) I feel it was not too bad."

The tests did little to clarify the basic issues and FCC decided to probe a bit deeper by requesting that the three color developers submit receivers to the Commission's laboratories at Laurel, Maryland for test. This edict brought forth a storm of protest, even from *CBS* who claimed that its equipment was on tour with the medical conferences and it would be difficult to alter that program. *RCA* indicated that it would probably send its receivers, although they felt that the equipment hadn't been sufficiently developed to warrant a full-scale intensive viewing test.

Shortly after the Laurel request was fired at industry, FCC hit the color boys with another test shell. This time they said that they wanted to hold a series of comparative tests within a few weeks in Washington. *RCA* revolted at this demand and raced a healthy reply to FCC, stating in part that "... The only purpose of demonstrations, comparative or otherwise, is to demonstrate to the Commission the principles and operating characteristics of the color systems which have been proposed. If a comparative demonstration is to be held and is to accomplish its purpose, the demonstration must be made with apparatus which will fairly reflect the principles and operating characteristics of the various systems, must provide an opportunity for the parties to demonstrate their systems with comparable types of receivers and must provide an opportunity for all proponents of color television systems to demonstrate their systems simultaneously. . . . Unless these basic requirements are met, no useful purpose will have been served. To conduct comparative demonstrations on any other basis would not provide a fair hearing to the parties con-

(Continued on page 135)

Spot Radio News

(Continued from page 18)

cerned." *RCA* felt that the demonstrations should be postponed for at least sixty days to provide a reasonable opportunity for field testing its system "... to a point when the comparative demonstration would be meaningful."

AS USUAL *CBS* did not agree with *RCA* and in a blunt rebuttal said: "The *RCA* petition on its face, and the actual facts and circumstances surrounding the petition, require the conclusions that the reasons assigned for postponement of the comparative demonstration are specious, and that the actual reasons for its desire for delay lie elsewhere. . . . *Columbia* suggests that any one of the following may well be true, though unstated, basis for *RCA's* petition: Either *RCA* now realizes the inadequacy of its proposed system and hopes that somehow and in some way before January, 1950, its experts and technicians will come upon something which will rescue *RCA* from its present embarrassed position, or *RCA* now realizes that a comparative demonstration of its color television with the *CBS* system will show, even more clearly than . . . the separate demonstrations, the markedly inferior performance of the *RCA* system, and hence *RCA* wishes to put off as long as possible the day of direct comparison."

RCA wasn't too meek in its reply to *CBS*, stating that "... The arguments set forth in the *CBS* opposition consist of no more than efforts on the part of *CBS* to obtain a premature decision, based on inadequate facts, in favor of its system. It completely ignores the fact that the public interest can be served only by a sound decision and not necessarily by a quick decision."

When the smoke cleared, the Commissioners began to ponder, aware perhaps that they were all riding on an infuriated lion and a tactful move was necessary. Thus came about another decision, that two comparative tests would be held, one which we mentioned was being held as this column was being typed and the second during the new year.

A comprehensive two-day program was authorized for the first test, with program material on the air from nine in the morning until nearly three in the afternoon and viewing in three rooms with nine types of receivers: *DuMont* 12-inch black and white, *CBS* converter (10 inch) and 10-inch table model, and *RCA* black and white of the 12-inch or smaller variety; *RCA* color model with a 10-inch screen, *CBS* color with a 12-inch viewer and a *DuMont* 12-inch black and white; *RCA* and *CBS* 16-inch or less color receivers and *DuMont* 16-inch or less black and white. Direct and coax and radio relay circuits were scheduled, with direct programs consisting of wrestling or boxing, choirs or chorus, slides, paint-

ings, films, short plays and a women's program including a session in a cooking class, fashion setups, etc. Interview type programs were scheduled for some of the coax tests and a variety show for the radio relay, which was to be routed from Baltimore on a 4 megacycle circuit. Even a commercial potentiality type of program was arranged with toweling, canned goods, breakfast foods, such as bananas and strawberries and cream, and cigarette packages set up for screening. Lighting was also to be studied, particularly during the women's colorcasts, with light to be reduced to approximately ten footcandles during one portion of the transmission.

The *DuMont* contingent was not too keen about the first set of demonstrations, but did feel that the new-year tests might be productive. *DuMont* indicated that *Color Television, Inc.*, of San Francisco would not be able to participate in the current tests and *RCA* and *CBS* were handicapped by equipment problems. These experts felt that the tests would not produce any conclusive information, and would in the main duplicate the unconvincing tests of '47 which proved that color was still a test-tube project. Dr. Goldsmith stressed that before any color could be practical a single tube would be required. He then referred to the experimental work being conducted on one such type of tube, a trichroscope, based on the designs of Professor Arthur B. Bronwell of the Northwestern University Technological Institute, who described the basic concepts during a National Electronics Conference at the

Edgewater Beach Hotel in Chicago, two years ago. At that time Professor Bronwell called his system a composite viewing tube with a single electron gun. Describing its design, he said: "By coating three screens with a different color phosphor which corresponds with the three primary colors, we have a composite image screen which enables the viewer to see the programs in natural color. The three screens are optically superimposed upon each other but are separated by a microscopic distance and electrically insulated from each other."

By controlling the voltage on the screens automatically, each screen may be made to fluoresce in red, blue, and green color sequence, the Professor reported.

Philco also objected to the tests and presented a five-point program which they believed would permit orderly development that "will protect the public." *Philco's* approach to the problem, presented by David B. Smith, vice-president in charge of research and development, stated that: "The standards must be such as to permit the public individually, and at their personal option, to be able to have either black and white or color reception with no loss of program service either way. . . . Both color and black and white must be transmitted on a single set of standards so that each type of signal can be received interchangeably on either black and white or color receiver. . . . The standards must provide a quality of service at least as good as that now provided by the present commercial standards. . . . The continuity