

COLORAMA

SIGNAL

GENERATOR

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Applications Engineering Laboratory
Color Kinescope Engineering
Electron Tube Division
Radio Corporation of America
Lancaster, Pa.

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COLORAMA SIGNAL GENERATOR

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I. FEATURES

The Colorama Signal Generator has many features which are useful to both the distributor and the dealer in the promotion of the sale of color television receivers. The main feature of this unit is its ability to show 35mm color slides on color receivers the same as a color program would be viewed in the home. Incorporated is an automatic slide changer capable of holding six slides. Since a flying spot system is used to generate the video signals, no registry problems exist. The ease of setup of the unit is remarkably simple since it is feasible to use a color receiver as the indicator during this procedure.

The slide changer can be operated manually or automatically by a built in timer. This timer is arranged so that as the slides are changed, four types of black and white to color modes may be used. For the first mode, as each time the slide is changed, the picture on the receiver first appears in black and white and then after a few seconds the color is literally "wiped" onto the picture from left to right so as to give a full color picture. In the second mode that is available, when a slide is changed the picture on the receiver is full color on the left side and black and white on the right side so as to give you the effect "see the difference that color makes". After a few seconds the picture is "wiped" to a full color picture. The other two modes will permit the slides to remain either in black and white or in full color at all times.

The timer circuitry is arranged so that if it is desired to remain on one slide, the first two modes mentioned above can be cycled without changing slides.

The Colorama Signal Generator contains the features of the RCA WR64A Color-Bar/Dot/Crosshatch Generator. These features include dots, crosshatch, and colorbar signals for the setup of color receivers.

The output of the Colorama Signal Generator is a modulated RF picture carrier and a sound carrier which can be distributed to as many as ten receivers. The use of an RF signal to feed the receivers permits the demonstration of these receivers as they would be used in the home. The use of an RF signal eliminates the need to remove the back of the receiver, and perhaps more important, allows the demonstration of the effects of the various controls, such as fine tuning, chroma, and tint, upon the color picture.

The total weight of two units is 115 pounds (Flying Spot Scanner Case - 59.5 pounds and Colorplexer Case - 55.5 pounds). The power input is 330 watts at its rated line voltage of 120 volts.

II. COST CONSIDERATIONS

As mentioned in the introduction, the features of the RCA WR-64A Color-Bar/Dot/Crosshatch Generator are all contained in this portable unit. The RCA WR-64A carries a net price of \$189.50,

The following is a list of the tubes and rectifiers required in this unit with their OEM prices:

1 5AUP24	\$115.00
1 6217 Photomultiplier	50.00
2 5819 Photomultiplier	78.00
6 Silicon Rectifiers	3.00
38 Receiving Tubes	80.86
	<hr/>
	\$327.86

Electronic Test Equipment Manufacturing Company of Lancaster, Penna. was requested to estimate the probable cost of constructing this unit in quantities of 2, 5, 10, 100, 500, and 1000. The estimates are based upon the prototype unit with a few cost reduction features such as a cheaper slide changer assembly. The estimates also assume the loan of the special equipment required to align the colorplexer. Such equipment is available in the Lancaster plant for temporary loan. The estimated prices are as follows:

2 units	\$2250/per unit
5 units	2000/per unit
10 units	1750/per unit
100 units	1150/per unit
500 units	1050/per unit
1000 units	1000/per unit

Delivery could start in 10-12 weeks after receipt of a purchase order.

III. COMMERCIAL POTENTIAL

It is the recommendation of the Kinescope Engineering Activity that the Colorama Signal Generator be demonstrated to the New Products Activity - Distributor Products for consideration as an advertising promotion with the distributors. It is felt that the distribution of this unit at cost would be justified by its aid to increase sales. If the distribution is handled by our Distributor Products Activity, these units could then be purchased by all distributors dealers regardless of whether or not they handle the RCA line.

There are many ideas which can be thought of regarding the method of marketing such a unit as this. One of our original thoughts, was that each RCA distributor would purchase a unit for use by his dealers. There are several ways in which he could write off the cost of such a unit:

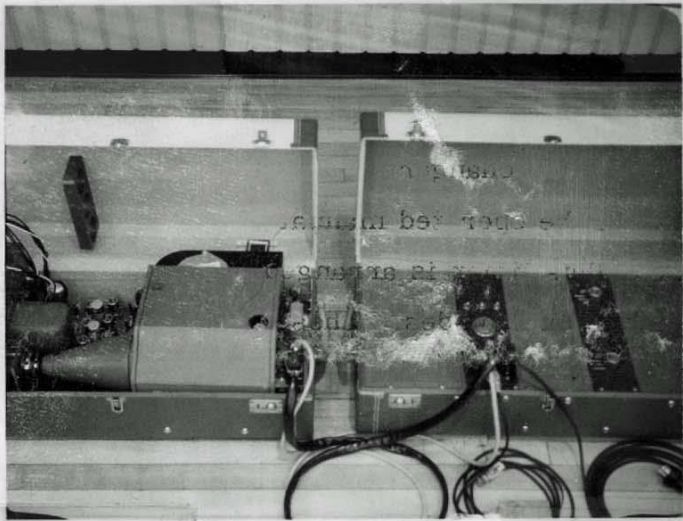
1. Consider that the increased sales quota made possible by the use of this unit by his dealers justifies its purchase price.
2. The distributor could purchase a unit and set up a rental fee by the day, week, or month so as to write off the cost in a reasonable time. The rental fee could be prorated depending upon the purchase of color sets during this period of rental such that beyond the sale of a fixed number of sets there would be no rental fee.

The above thoughts do not necessarily represent the best merchandizing techniques for this Colorama Signal Generator but are submitted as some preliminary thoughts for consideration.

IV. TECHNICAL

The Colorama Signal Generator contains a simplified RCA WR-64A color-bar dot crosshatch generator. This portion of the unit serves as a sync generator for supplying the necessary signals for the operation of the complete system. No connection to an outside antenna is required. All of the main features of the RCA WR-64A have been maintained and are available in this unit. The prototype unit built during this feasibility study is shown in the photograph below. Because of the total weight, a decision was made to use two separate carrying cases. The case on the left contains the flying spot scanner with its deflection and high voltage circuitry, optical system, and the three channel video pre-amplifier. The other case contains the low voltage power supplies, the sync, dot crosshatch, and colorbar signal generators of the RCA WR-64A unit, the colorplexer and RF modulator with output to operate 10 receivers simultaneously.





The flying spot scanner contains a slide changer and holds six 35mm slides. This changer can be operated manually or automatic by a built in timer. This timer is arranged so that the slides are changed in any of 4 modes. These modes are:

1. black and white pictures
2. full color pictures
3. half color and half black and white
4. automatic wiping from black and white to full color pictures.

The system is such that the slides can come on in either black and white or half and half momentarily and then be switched automatically to full color.

It is intended that this prototype unit be available for use by RCA groups where its features are of benefit. It appears desirable to consider this unit for demonstrations at the various conventions

1. New York IRE
2. Chicago Spring Conference
3. WESCON show

V. FIELD EVALUATION

In order to get a first hand reaction to this type of unit by TV dealers, the prototype unit was demonstrated to several dealers in the Lancaster area. Their general reaction was very good, however, the purchase price, which was quoted as approximately \$1,500, was considered to high for most of them. The unit would be attractive on a rental basis. The following typical comments were received from some of the Lancaster dealers:

"Can not exist on service alone -- need sales also -- unit very good for promoting sales -- price not to high provided life of equipment is good -- lack of programming a detriment to sales"

"Consider unit very good for sales promotion but volume of business does not warrant the purchase of one -- rental set up would be attractive -- \$50.00 per month or more would be reasonable during the peak sales months, September thru March"

"Can not afford to buy unit -- \$25.00 per week rental charge would be worth while during busy season -- unit very good for serviceman getting started as it could be used in place of the present equipment used for shop work"

"Would need to sell 15 color sets to warrant expenses -- feels that stepped up color programming and home demonstrations are the best for sales -- counting on sizable increase in programming"

"All dealers in area would benefit if such a unit was set up to operate receivers in an appropriate window in the Watt and Shand store at the city square"

VI. HISTORICAL BACKGROUND

In October 1960 C. P. Smith, at that time Manager of Kinescope Engineering, requested that the Color Applications Laboratory Group make a brief study of the various possibilities of providing a source of color television signals for use in demonstrating color receivers by dealers and distributors. Of the five approaches considered, a simplified flying spot scanner for 35mm slides was the only economical approach.

Later this same year, a prototype of a simplified color flying spot scanner signal generator was demonstrated. This unit, as demonstrated, did not make use of a colorplexer. It was a simultaneous system which required connection to the picture tube by means of an adaptor socket. It was felt that a system employing a colorplexer would offer considerable advantage since it would permit the feeding of the video signal to the receiver through an RF modulator and therefore would not require the removal of the back from the receiver.

More important, however, is that the use of a colorplexer and RF modulator permits the demonstration of a receiver as it will be used in the home in viewing a color TV "Off-the-Air" signal. As a result of these considerations, it was decided to proceed to construct a system which included both a colorplexer and an RF modulator.

As the result of other pressing engineering programs, the development of this new unit proceeded at a very slow rate. Early in 1961, word was received that H. N. Kozanowski of TV Terminal Equipment Group, Camden had been given a similar assignment. As a result of C. P. Smith's conversations with H. N. Kozanowski, G. R. Good and R. W. Hagmann made a trip to Camden to discuss this project. It was found that their approach differed somewhat from that taken by Lancaster. As a result of this meeting, the exchange of ideas have been very beneficial to the development of the Lancaster unit and credit goes to H. N. Kozanowski's group for the original design of the simplified colorplexer used.

To the best of our knowledge the Camden unit was given to the RCA TV Division for consideration but was dropped because of the shortage of manpower. This unit consisted of a color receiver chassis which was operated with a local "off-the-air" channel signal. A flying spot tube was inserted in place of the color picture tube. This unit provided the necessary sync signals for operating the other equipment. Three phototubes and associated pre-amplifiers were used to feed the three signals to the colorplexer. The output of the colorplexer was then fed to an RF modulator which in turn would be connected to the antenna terminals of receivers.