Facts of the Color TV Dispute

By JACK GOULD*

The television-viewing public is bewildered and bothered by all the many facets of the color controversy. It has every right to be. Color TV has been pushed so many complex issues, each one of which has the markings of a good saw in itself. These issues cover extraordinarily complicated engineering factors, economic problems, fundamental concepts as to the role of government v.s. free enterprise, and, last but not least, the individual who is, or expects to be, watching television.

Under such circumstances, put and kill statements as to what the color controversy means to John Doe are erroneous. The best that can be done is to take up the controversy step by step.

What the FCC felt the Federal Communications Commission was set up by Congress to do was to involve engineering problems upon which it was impractical to legislate.

The FCC's most important responsibility is to see that broadcasting is conducted in the public interest. Its power lies in the license which a station must have to use a wavelength that belongs to the public as a whole.

What the FCC did about color: The commission conducted lengthy hearings to investigate the merits of several color systems, of which the most publicized have been those of CBS and RCA.

The FCC finally decided that the CBS system gave pictures which were sufficiently perfect to be introduced commercially. That the pictures are extremely good and far superior to black-and-white cannot be denied. Anyway, that is an all-important point has been rather seriously overlooked in the general controversy to date.

Until there are additional demonstrations of the CBS color, it must be acknowledged that the general public has not seen with its own eyes what the FCC has introduced. Despite the manufacturing industry's unfavourable reaction to the FCC approval, the public's reaction to watching CBS color has yet to be recorded.

As for the RCA system, the commission decreed that it was inferior in quality and not readily acceptable by the average layman. It also expressed doubt that certain technical difficulties could be overcome.

The FCC's primary objective has been to bring about the introduction of a service in color. It generally has been less concerned with the maintenance of a service in black and white, upon which most manufacturers have placed major emphasis since the commission's approval of CBS color on Oct. 11.

With the FCC action comes a strong reaction: CBS, which is not a manufacturer of either receiving or transmitting equipment, played a large hand in the color hearings. The overwhelming preponderance of engineers and set manufacturers were against the CBS system on both technical and economic grounds.

The causes underlying the conflict are these:

The CBS color system: Basically, the CBS system is technically incompatible with the television that is broadcast today. To receive a CBS color picture in black and white or a present set, it is necessary to have a converter. To receive a CBS color picture in color on a present set it is necessary to have first an adapter and then a converter. The adapter alone would cost about $35, the adapter and converter, at least $100 and very possibly substantially more.

An adapter is a device which electronically alters the circuit of a set so that it can accept in black-and-white a picture transmitted by CBS in color. Without the adapter the color image appears on a present set only as a meaningless mass.

The converter is the device which introduces the actual color. Its physical appearance and operation have been matters of controversy. Under the CBS system, the ordinary TV color of red, green, and blue, are injected by a filter disk which is spun at high speed by a small motor. This disk is placed directly in front of the camera and rotating tube.

The disk is a limiting factor on the picture size. Since only half of the disk passes in front of the tube at a given moment, it must be roughly twice as large as the picture. From the practical standpoint the disk is limited to about 25 inches, which gives a picture of 12½ inches, already an outdated size in today's sets. With a magnifying lens it can be brought up to 36 inches, a more popular size.

It is possible, however, to use the rotating disc with larger screens, such as the Bell & Howell, etc. But the manufacturer...
picture still will be 12% lower before magnification.

The CBS system, however, is not dependent on the existing color set. When the primary colors are introduced by electronic means, this system can be incorporated in the CBS system, thus eliminating the disc.

Among the CBS converters, one manufacturer has implemented a device which, while it eliminates the adapter, converter, and separate tube in a single cabinet. The manufacturer's cabinet would have the following color tube:

- RCA Color System: This system is designed to be compatible with present television. To receive an RCA color program in black and white, a present receiver need no adapter is necessary.
- The same transmission will produce a black-and-white image on a black-and-white receiver and a color image on a color receiver.

To receive an RCA color program in color on a present black-and-white receiver a converter must be employed. The heart of both the system and this converter process is an electronic television set-up which converts black and white to color. The tube will provide both color and black-and-white pictures, electronically projecting on the screen whenever the two types of transmission have to be employed by the station.

The RCA color converter would look about $1,100, including the labor of the service man. The service man's set up to do the job.

The FCC has been slow in authorizing color. Its action is delayed by doubt as to the methods used in acquiring color.

Primarily, the FCC was of the opinion that the RCA and other all-electronic systems would take them off the air so a new system would be brought to the state of perfection of CBS color. Even then, it was not clear that such all-electronic systems would be free from operating difficulties. By strong implication, it was suggested that the non-CBS manufacturers were retarding the development of color television.

Accepting these premises—and each is obviously disputed by the manufacturers—the FCC has taken no action in terms of what might happen to new receivers. The non-CBS manufacturers are now preparing a new line of receivers which will be marketed in the fall of this year.

The manufacturers held that the FCC is unbiased and unprejudiced. They admitted that if it were known to improve service on the railroad, the railway would concentrate on building a new type of railroad, that is, a new type of color television set.

Television—

MATCHING PADS FOR TV SETS

Several TV sets can be operated from a common antenna in such a manner that no reflection in signal strength can be tolerated. Matching pads can be used to impose a minimum of stronger reflections between the sets. Each pad should have an input impedance of 500 ohms. The pads are inserted in the signal line and act as a match between the sets.

The pads are mounted at such a point on the transmission line from the antenna that the balance lines to the individual sets are approximately the same length. The reception may be mounted at various points along the line and will reduce the reflection of signal energy at those points.

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