

# Today's RCA HI-LITE Color Picture Tubes



*Enable you to offer your customers the latest results of RCA's unequalled experience in Color TV:*

**THE BRIGHTEST TUBES IN RCA'S HISTORY**  
**WITH UNITY CURRENT RATIOS**  
**WITH BUILT-IN PERMA-CHROME**  
**WITH UNMATCHED DEPENDABILITY**



RCA's comprehensive line of **HI-LITE** color picture tubes include the 15-inch, 19-inch, 22-inch and 25-inch rectangular sizes, all with RCA's new red phosphor, Unity Current Ratios, and Perma-Chrome shadow mask assembly. Also included in the **RCA HI-LITE** line is the all-new 21-inch round tube with rare earth phosphor.

**1** *The brightest picture tube ever from the leader in Color TV*  
38% brighter highlights than RCA ever before attained.

**2** *The tube that achieves Unity Current Ratios*  
thereby eliminating color fringing due to red blooming.

**3** *The tube that offers built-in Perma-Chrome*  
the temperature-compensated shadow-mask construction for rectangular tubes.

**4** *The tube that offers unmatched dependability*  
based on RCA's unmatched experience in color picture tube manufacture.



*To give the most to  
your service customers... specify*

*RCA HI-LITE Color Picture Tubes*

... the same tube that goes into millions of today's original equipment sets.

# 1

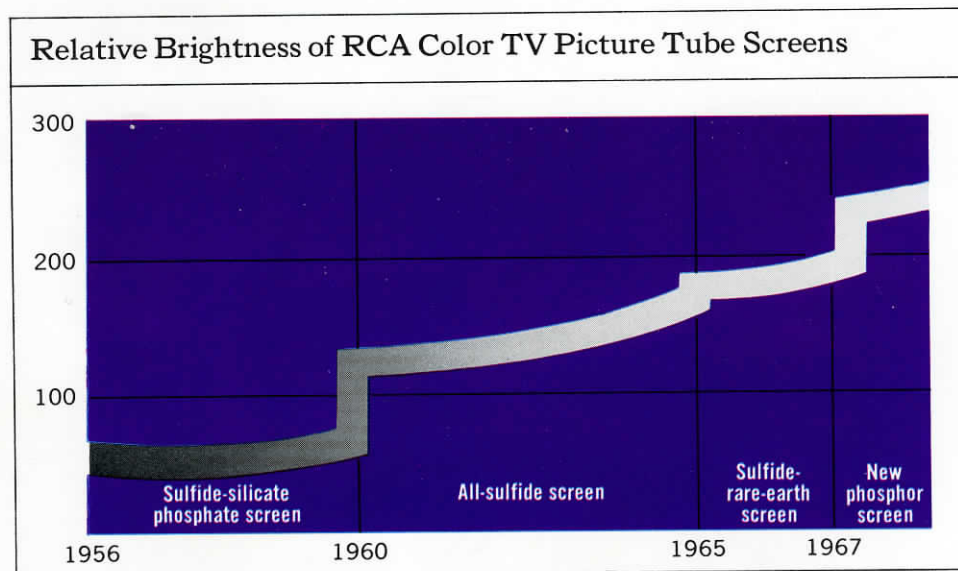
# RCA HI-LITE

...the brightest tube ever from  
the leader in Color TV

Under low ambient-light conditions, color television has always been able to reproduce the spectrum of colors as well as, or better than, other reproduction processes.

However, not until the introduction of RCA's new rare-earth red phosphor—Europium-Activated Yttrium Oxysulfide—has any color picture tube had sufficient brightness to hold true saturated colors at *high ambient-light levels*.

Compared with typical rare-earth phosphors in prior RCA tubes, this latest red phosphor provides a 40% increase in red-field brightness—a 20% increase in the brightness of picture tube whites—and a 38% increase in highlight brightness.



This new HI-LITE tube is the color picture tube of tomorrow . . . available today. RCA believes its new red phosphor results in color television performance that never before has been more brilliant . . . even in the full light of day. As a technician in the field, you'll have easy opportunity to test that opinion. Compare RCA HI-LITE—for both hue and color brightness—to any other color tube on the market and prove it to yourself.

What does it really take to provide full, living color at high ambient-light levels? It takes high brightness *plus* picture contrast and good color fidelity.

Some manufacturers sacrifice contrast in color picture tubes in order to gain brightness. Their method: reduce filterglass absorption. The penalty: "washed-out" color pictures at high ambient-light levels. Others gain white brightness by accepting a greenish-blue off-white caused by a low-brightness red phosphor.

With today's RCA HI-LITE picture tubes, you can offer your customers UNCOMPROMISED BRIGHTNESS

- **BRIGHTNESS with improved contrast**  
Higher intrinsic brightness of phosphor screen gives higher contrast to pictures. No "wash-out" at high ambient-light levels . . . or in other words, today's typical living room conditions.
- **BRIGHTNESS with high color saturation**  
Highly efficient phosphors assure true, full hues in high ambient-light levels.
- **BRIGHTNESS with white\* highlights**  
Higher efficiency red phosphor permits adjustment to the standard shade of white in picture highlights, with no compromise necessary as in the case with a weaker red phosphor.

\*AT THE INDUSTRY'S STANDARDIZED WHITE OF 9300°K + 27 M.P.C.D.

## *What makes the difference?*

RCA Research and Engineering.

**FIRST**—the development of a high-efficiency rare-earth red phosphor to go with the highly efficient sulfide blue and green phosphors which were available.

**SECOND**—developing the "Aqua-Flo" slurry process for depositing these phosphors on the face panel of the picture tube . . . a process that retains the full light-output efficiency of the phosphors.

## *What a difference it makes!*

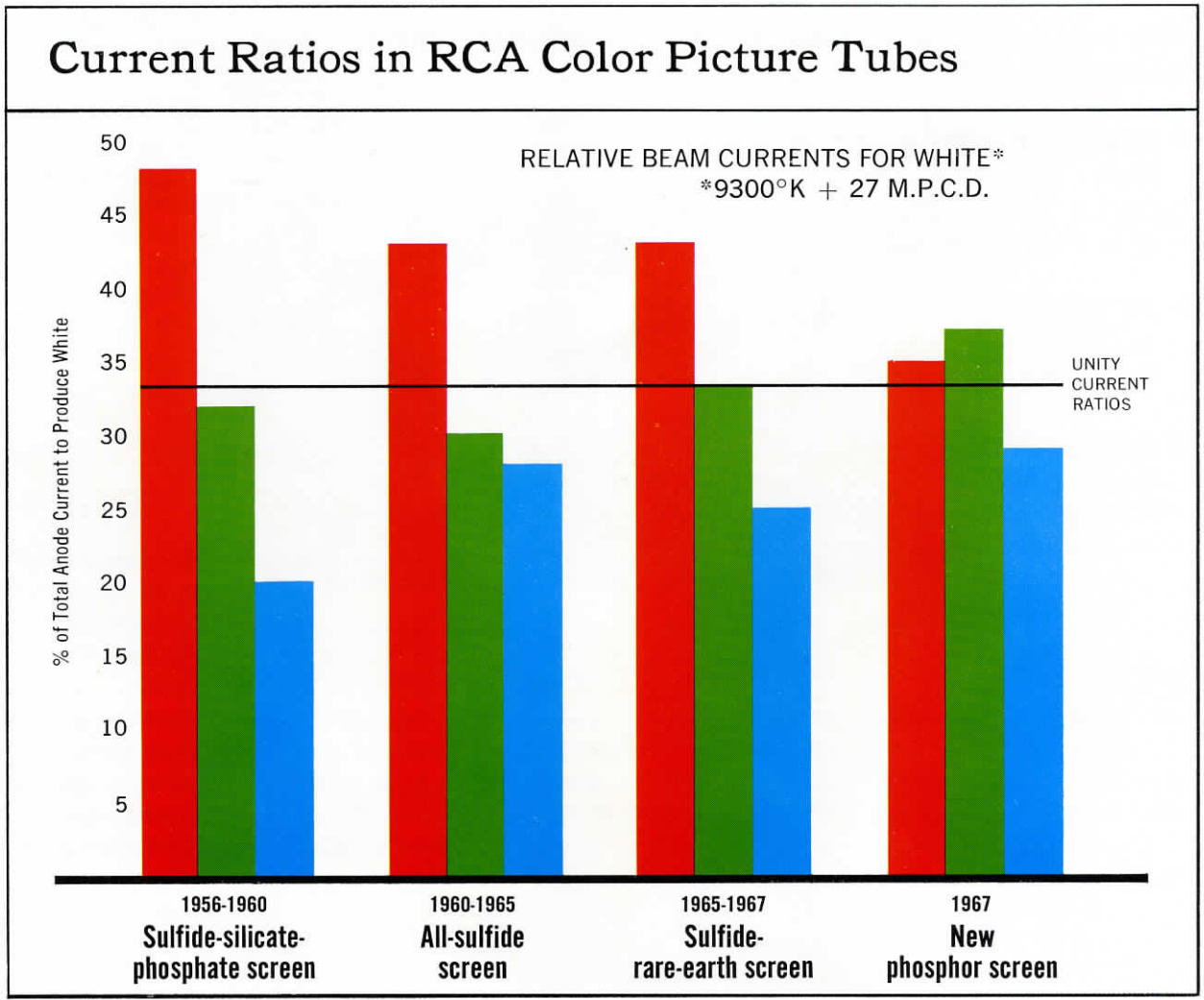
TV viewing will be more natural, more comfortable, for now your customers will have high picture contrast even at high ambient-light levels . . . the normally prevailing situation in today's living room.

Both factors contribute to increased viewing satisfaction, and the greater the viewer's satisfaction, the better your servicing reputation.



# RCA HI-LITE...the rectangular color TV picture tube that achieves Unity Current Ratios

Ever since the invention of color television, the available red phosphors have been less efficient than either the green or blue. Consequently, to compensate for this, the red electron-beam current has always been greater than that for the green or blue to produce white light. Such an imbalance in beam currents causes the red spot to be larger than either the green or blue. This results in red blooming or color fringing. RCA's new rare-earth red phosphor has put an end to this shortcoming.





Color fringing due to red blooming\*..



...eliminated by Unity Current Ratios

## *What makes the difference?*

RCA Technology.

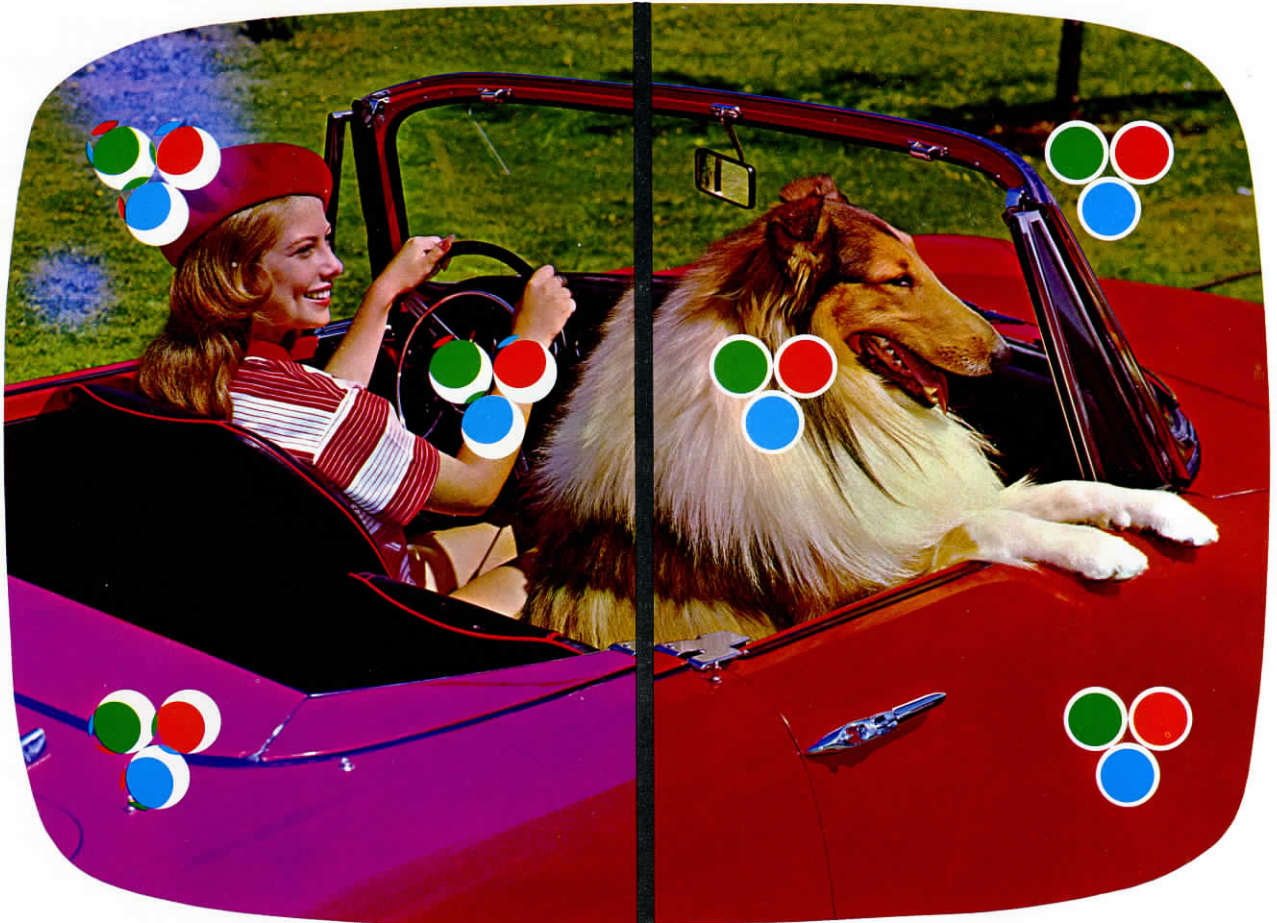
The HI-LITE picture tube's new red phosphor is so efficient, so effective, that it achieves unity current ratios—equal beam current from each electron gun for white-light output.

## *What a difference it makes!*

Unity Current Ratios eliminate color fringing due to red blooming at high drive conditions for both color and black and white pictures.

**3****RCA HI-LITE***...the rectangular color picture tube  
with Perma-Chrome*

No longer need you warm-up the shadow-mask a pre-determined time to achieve acceptable performance in a color TV set. Now RCA's Perma-Chrome lets you quickly, positively and accurately adjust a HI-LITE rectangular Color TV picture tube to the full potential of its rare-earth phosphor screen, from picture-on throughout normal operation at temperature equilibrium, while providing optimum color purity . . . optimum white uniformity . . . maximum rotational tolerance.

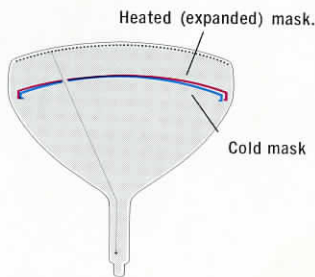


Register without Perma-Chrome

Register with Perma-Chrome

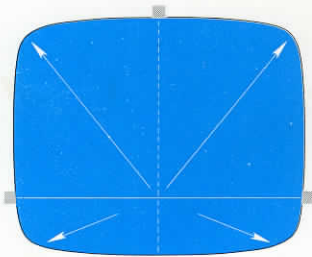


## Brand X Tube without Perma-Chrome



### UNEVEN SHADOW-MASK EXPANSION

Exaggerated drawing of cross-section of rectangular Brand "X" tube shows the expansion of the shadow mask and the change in beam-landing register.



### NON SYMMETRICAL 3-POSITION MOUNTING

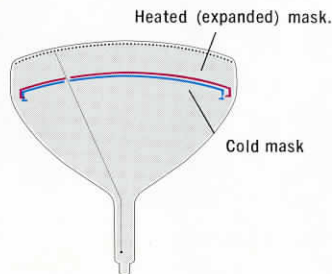
Non-uniform temperature expansion of the shadow mask is caused by the design limitations of 3-position non-symmetrical mounting in Brand "X" rectangular picture tubes. Shadow mask expansion thereby develops from a point other than the geometric center of the mask.



### SIGNIFICANT CHANGE IN REGISTER

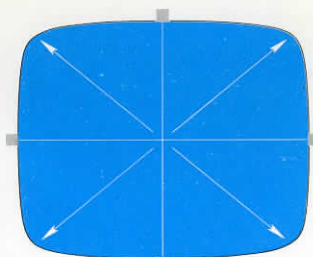
Change in register of electron beam and phosphor dot versus time for rectangular Brand "X" tube using three-position shadow-mask mounting.

## RCA HI-LITE Tube with Perma-Chrome



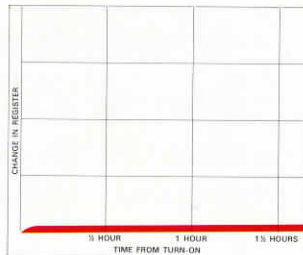
### UNIFORM SHADOW-MASK EXPANSION

Exaggerated drawing shows locked-in register of beam with phosphor dot as shadow mask is heated. NOTE: Mask moves toward face of tube as it expands. Apertures in shadow mask move along paths of electron beam as mask expands or contracts with rise and fall of tube temperature.



### SYMMETRICAL 4-POSITION MOUNTING

RCA's 4-position mounting makes possible the successful achievement of a temperature-compensated shadow mask assembly. RCA Hi-Lite rectangular tubes with PERMA-CHROME, lock the apertures of the mask "on target" with their respective phosphor-dot trios.



### MINIMAL CHANGE IN REGISTER

Change in register of electron beam and phosphor dot versus time for RCA Hi-Lite rectangular color picture tube with PERMA-CHROME.

## What makes the difference?

### RCA Innovation.

Here is a true temperature-compensating shadow-mask construction. This unique design innovation locks-in the register of the electron beams and phosphor dot trios from cold turn-on through temperature equilibrium in the color tube. It eliminates the detrimental effects of the movement of the shadow-mask assembly due to thermal expansion.

## What a difference it makes!

It makes life easier for you ... more satisfying for your customer. Tube set-up errors which result from shadow-mask expansion are a thing of the past ... and your customer gets the full benefits from the set's "auto-degauss" feature.

It makes servicing faster for you ... no more set-up time lag ... no more "guesstimated" yoke positions. Within minutes you can set an optimum color picture on a rectangular HI-LITE picture tube and be sure of customer satisfaction whether the set is operated for half an hour or half a day.

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*RCA HiLite...the picture tube  
of unmatched dependability*



The finest color picture tubes made today come from the company that made compatible Color TV possible . . . RCA. And for good reason. RCA has more experience with color picture tubes than any other company in the business. To the quarter century of RCA research and development that made color TV a reality, add RCA's mass production experience that is already well into its second decade.



*Enjoy the confidence of offering the finest. Rely on RCA picture tubes to protect your service reputation. They're designed to protect the biggest reputation in the Color TV industry.*

## *What makes the difference?*

### RCA Experience.

The three-gun, shadow-mask color picture tube that's standard throughout the industry today was pioneered by RCA.

The new red phosphor and the Perma-Chrome shadow-mask assembly in today's RCA HI-LITE tubes are the latest innovations in a technology that RCA has advanced continuously since it introduced Color TV commercially back in 1954.

## *What a difference it makes!*

Your service reputation very often rests on the quality of the replacement picture tubes you install. So depend on an RCA HI-LITE for picture brightness and color fidelity at its finest. Odds are anytime you install one, you're "updating" your customer's set with the same quality ... the same tube ... that goes into millions of today's original equipment sets.

*Your Authorized RCA Color Picture Tube Distributor*

RCA Electronic Components and Devices, Harrison, New Jersey



The Most Trusted Name in Electronics