



March 6, 2001

ERRATA

TO: Recipients of the February 2001 Reaffirmed ANSI/EIA-503-A "Recommended Practice for the Measurement of X-Radiation from Direct-View Television Picture Tubes"

NOTE: Please replace pages 5 and 6 with the pages attached. Part of the text on page 6, Section 6.5.1 did not print after converting from Word Perfect to Word format when the document was reaffirmed.

We are sorry for any inconvenience this may have caused.

Sincerely,



Phil. Cotton
Publications Office
Technology Strategy & Standards Department



6.2.1 Neck Radiation

High voltage breakdown may occur at the electron gun under the stress of extremely high anode voltage. The resultant arcing or leakage, or both, may cause spurious x-radiation, which is independent of beam current, to emanate through the glass neck of the picture tube. When making measurements at anode voltage above the maximum rating of the tube, and it is desired to determine the exposure rate resulting from the beam current only, the x-radiation from the neck of the tube should be shielded from the survey meter.

6.3 Radiation Emitted Through the Anode Contact

Radiation emitted through the anode contact shall be measured with the effective center of the detector 5 cm from the surface of the hypothetical cabinet.

- (a) Electrical connection to the anode contact shall be made with a non-attenuating wire connector shown in Figure 1,

and

- (b) all of the glass surface of the anode contact side of the funnel portion (including the frit seal area) shall be covered with an apertured shield of 6 mm maximum thickness, spaced a maximum of 3 mm from the funnel surface at the anode contact. A 2.5 cm diameter hole in the shield is centered around the anode contact. The minimum x-ray absorption of the shield shall be equivalent to at least 0.25 mm of lead.

6.4 Hypothetical Cabinet

The hypothetical cabinet is shown in Figure 2, the sides of the hypothetical cabinet shall be 2.5 cm from the outside surface of the tube (excluding the extra thickness of any applied safety system, such as the tension band) at the ends of the major and minor axes of the face.

The back shall be formed in part by a vertical circular surface of 8.5 cm diameter concentric with the axis through the neck of the tube. This circular surface is to be located 2.5 cm behind the published maximum protrusion of the base of the tube, which is to be measured relative to the center of the front face of the tube. The rear circular surface of the hypothetical cabinet is then at a fixed distance behind the front face of the tube (for any given tube type), the actual distance being the maximum published overall length of the tube plus 2.5 cm. From the outer circumference of this circular surface, a concentric conical surface is to extend forward at 45° to the tube axis until the diameter of the conical section is increased to 28.5 cm. A vertical plane is then constructed radiating out from this maximum diameter of the cone, to form the remainder of the back of the cabinet as shown in Figure 2A.

Exceptions: The conical section will be completely removed for all tube sizes with a minimum registered screen diagonal of less than 21.5 cm, and the back of the cabinet will be a flat vertical surface located 2.5 cm behind the published maximum protrusion of the base of the tube as shown in Figure 2C. For all other sizes, where the resultant cabinet height is less than 28.5 cm, the maximum diameter of the conical section coincides with the maximum height of the cabinet. The vertical plane forming the remainder of the back of the cabinet is then constructed radiating from the maximum diameter of this shortened conical section as shown in Figure 2B.

For convenience in locating the x-radiation search and measuring instruments with respect to the hypothetical surfaces, a box, or parts of a box, of the size specified may be constructed. However, while measurements are made in the vicinity of the maximum diameter of the conical section of the back of the cabinet, either the flat surface radiating from the maximum diameter of the cone, or the conical section will have to be removed to allow the x-radiation measuring instrument to be placed on any part of that surface without hindrance from the other parts of the box.

The constructed box, or parts of the box, should be of a low absorbing material to prevent loss of measurement sensitivity. Unless the box is removed while measurements are being made, a correction factor must be determined over the voltage range used for each meter location on the box being used and the x-radiation data adjusted accordingly.

6.5 Reading Technique

6.5.1 Model 440 RF/C - it is recommended that the 0-1 scale not be used. The measurement period should not be less than 30 seconds. The lowest reading during the measurement period should be recorded, ignoring sporadic downscale pulses. Background should be determined using the same technique.

6.5.2 During the test exposure period, the anode voltage and current shall be constantly monitored and the lowest observed values of each recorded.

7. REPORT

7.1 Origin

- Date
- Observer's Name
- Laboratory
- Procedure Used

7.2 Tube Identification

7.3 External shielding and components, including deflection yokes, if used, shall be specified together with their critical dimensions and their location on the tube.

7.4 The following equipment information shall be on record:

- Manufacturer
- Serial Number
- Accuracy Specification
- Correction Factors, if applicable
- Calibration Date
- Calibration Source and Accuracy
- Any other pertinent information to qualify the results.

The following information is required for at least:

- The anode voltage metering source.
- The anode current metering source.
- The principal x-radiation measuring instrument.





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EIA STANDARD

Recommended Practice for the Measurement of X-Radiation from Direct-View Television Picture Tubes

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