

JOINT SERVICE SPECIFICATION K1001

APPENDIX XV

CATHODE RAY TUBES:-

ENVELOPE FACE PLATE AND SCREEN QUALITY

1. SCOPE This Appendix describes defects which may be present in individual tubes.
2. GENERAL INSTRUCTIONS
Inspection is to be made with the unaided eye unless magnification is specified.
3. DEFINITIONS OF GENERAL DEFECTS

3.1 General

Blister - A bubble in the glass due to the inclusion of air having a maximum dimension in excess of that specified in paragraph 5.2 of this Appendix.

Bruise - Crushed or cracked surface, spot or area on glass resulting from an impact with another object.

Bubble - See Blister.

Bulls Eye Top - A thickening of the glass in the centre of the top of a bulb resulting in optical distortion.

Check or Crack - A fissure extending into or through the glass.

Chill Wrinkle - Rippled or wavy surface caused by non-uniform glass flow in the pressing operation.

Cluster - Two or more stones or knots when the minimum separation is not greater than 1/16 inch.

Cord - An attenuated transparent inclusion possessing optical or other properties differing from the parent glass.

Glass Knot - A small transparent area of incompletely assimilated glass having an irregular, knotty or tangled appearance; a transparent stone. The "size" of a knot refers to the maximum linear dimension in its most distinct contour. A "cluster" of knots is a group of two or more knots that are spaced not more than 1/16 inch apart. A cluster is considered as one knot. The size of a cluster shall be considered as the maximum overall dimension of the group.

Lap - A fold in the surface of the glass.

Loading Mark - Imperfections in the outer surface glass of a bulb caused by Lehr stands, pokers, etc.

Plunger Pull - See Suck Up.

Rouge or Rust - See Scale.

Run Down - This is caused by plastic glass running down into the dome of a blown bulb after release from the mould.

Scale - A small piece of metallic oxide or carbon embedded in the glass. Not to be confused with allowable slight blackening of seal area caused by reduced lead in the glass.

Scuff - Small scratches or abrasions in the surface of the glass.

Shear Mark - A scar in the glass caused by cutting with shears.

Stone - An opaque or white spot caused by undissolved or foreign material.

Suck Up - or Plunger Pull - A distortion or deviation from the intended shape, caused by the plastic glass following the plunger as it is withdrawn from the mould.

3.2. Screen and Face Plate Defects

Definitions

Bright spot - A small area or point source of light on the tube screen with an intensity (fluorescent or phosphorescent) at least twice the brightness of the surrounding area.

Colour - Unless otherwise stated, this refers to the colour observed with the screen activated as specified in paragraph 4.1 of this Appendix.

Colour Spot - A small area which is noticeably dis-coloured and which has fluorescent or phosphorescent intensity less than one-half or greater than one and one half times that of the surrounding area.

Combination Spots - Spots which appear to have combinations of the characteristics of dead, bright and colour spots shall be classified as the type they most resemble.

Dead Spot - A small area which emits practically no light. For example, holes and non-fluorescent or non-phosphorescent spots in the screen and opaque particles, open blisters and bruises in the face-plate glass.

Face Contour Variation - Variation in the inside or outside face surface contour, such as Bulls Eye Top or Suck Up.

Quality Area - The area specified as the minimum useful screen area.

Shaded or Mottled Areas - Minor gradation in colour or luminous intensity with respect to the overall screen background, such as may be caused by uneven screen distribution, water marks, loading marks or scum.

Surface Blemish - Inside or Outside surface defects such as Spot, Chill Wrinkle and Cord.

4. CLASSIFICATION OF GLASS DEFECTS

All face-plate defects shall be classified into one or the following groups:-

Dead Spot - Blister (except that clear buried or unbroken surface blisters which meet the requirements of paragraph 4.5 of this Appendix shall not be considered as defects), Bruise, Check, Scale.

Shaded or Mottled Area - Scum (de-vitrification) or Shear Mark.

Face Contour Variation - Bulls Eye Top, Chill Wrinkle (flow line), Loading Mark, Suck Up or Plunger Pull, Run Down.

Surface Blemish - Cord, Lap (inside surface).

Colour Spot - Bright spot or other colour spot.

NOTE: The criteria for Acceptance and Rejection will be published later.