

VALVE ELECTRONIC

ADMIRALTY SURFACE WEAPONS ESTABLISHMENT

CV2498

Specification AD/CV2498	<u>SECURITY</u>
Issue No. 1 dated 24.3.59	<u>Specification</u> <u>Valve</u>
To be read in conjunction with K.1001	Unclassified Unclassified

<p><u>TYPE OF VALVE</u>:- Cathode Ray Tube</p> <p><u>TYPE OF DEFLECTION</u>:- Electrostatic, symmetrical or asymmetrical</p> <p><u>TYPE OF FOCUS</u>:- Electrostatic</p> <p><u>BULB</u>:- Glass internally coated with conductive coating</p> <p><u>SCREEN</u>:- BY8</p> <p><u>PROTOTYPE</u>:- DP16-22</p>	<p style="text-align: center;"><u>MARKING</u></p> <p style="text-align: center;">See K.1001/4</p> <hr/> <p style="text-align: center;"><u>BASE</u></p> <p style="text-align: center;">B14A</p> <p style="text-align: center;">See B.S.448 : 1953</p>																																																
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<p><u>NOTES</u></p> <p>A. For optimum focus quality, the potential between the internal conductive coating and a3 must not exceed 10 volts.</p>																																																	

TESTS

To be performed in addition to those applicable in K.1001

Clause	Test Conditions	Test	Limits		No. Tested
			Min.	Max.	
a	See K.1001/5A.13	<u>Capacitances</u> (pF) 1. Each x plate to all other electrodes. 2. Each y plate to all other electrodes. 3. Grid to all other electrodes. 4. Each x plate to each y plate. 5. Cathode to all other electrodes.	-	20	2%
FOR ALL TESTS GIVEN BELOW, $V_h = 6.3V$					
b		I_h (A)	0.28	0.66	100%
c	Cathode 100 volts positive to heater	Heater - Cathode Current (μA)	-	100	100%
FOR ALL TESTS GIVEN BELOW, $V_{a1} = 1.8$ kV; $V_{a3} = 5.0$ kV; $V_m = 5.0$ kV, except in test 'q'. Asymmetrical x and y deflection voltages.					
d	With a focused raster of size 100 mm x 30 mm adjust V_g for a screen brightness of 10 foot-lamberts when measured through a Wratten 15 colour filter.	1. $-V_g$ (V) 2. I_k (μA) Note value of $-V_g$ for use in tests (f) and (g).	1	-	100%
e	As in clause (d) Excitation time = 60 seconds.	<u>Persistence</u> Time to decay to 0.05 foot-lamberts (Secs.)	10	30	5%
f	With an elliptical scan of nominal dimensions 100 mm x 30 mm, and a scan frequency of 50 scans/second, adjust V_{a2} for overall optimum focus and set $-V_g$ at value noted in test (d).	1. Line width (mm) 2. V_{a2} for focus (V)	600	1.0 700	100% 100%

TESTS (Contd.)

CV2498

Clause	Test Conditions	Test	Limits		No. Tested
			Min.	Max.	
g	Va2 as in (f) Adjust Vg for cut-off. See v. 1001/5A.10.	1. -Vg for cut-off (V)	25	70	100%
		2. Increase in value of -Vg from value noted in test (d) (V)	-	30	100%
		3. Over the range of -Vg from the cut-off value to the value noted in test (d) the beam current shall increase continuously.			100%
h	1. Vg = -80 or 2. As in K.1001/5A.3.2; with Resistor = 5 megohms.	<u>Grid Insulation</u> 1. Leakage Current (μ A)	-	16	100%
		2. Increase in volt-meter reading.	-	100%	
j		<u>Deflection Sensitivities</u> 1. x plates (mm/V) 2. y plates (mm/V)	$\frac{850}{V_{a3}}$ $\frac{900}{V_{a3}}$	$\frac{1000}{V_{a3}}$ $\frac{1100}{V_{a3}}$	10%
k	See K.1001/5A.11.1	<u>Deviation of spot from centre of screen.</u> (mm)	-	7.5	100%
l		<u>Orientation of Deflection Axes</u> 1. Orientation of x axis of deflection relative to line 00' on drawing.	-2°	+2°	100%
		2. Angle between x and y axes of deflection.	88°	92°	100%

CV2498/1/3

CV2498

TESTS (Contd.)

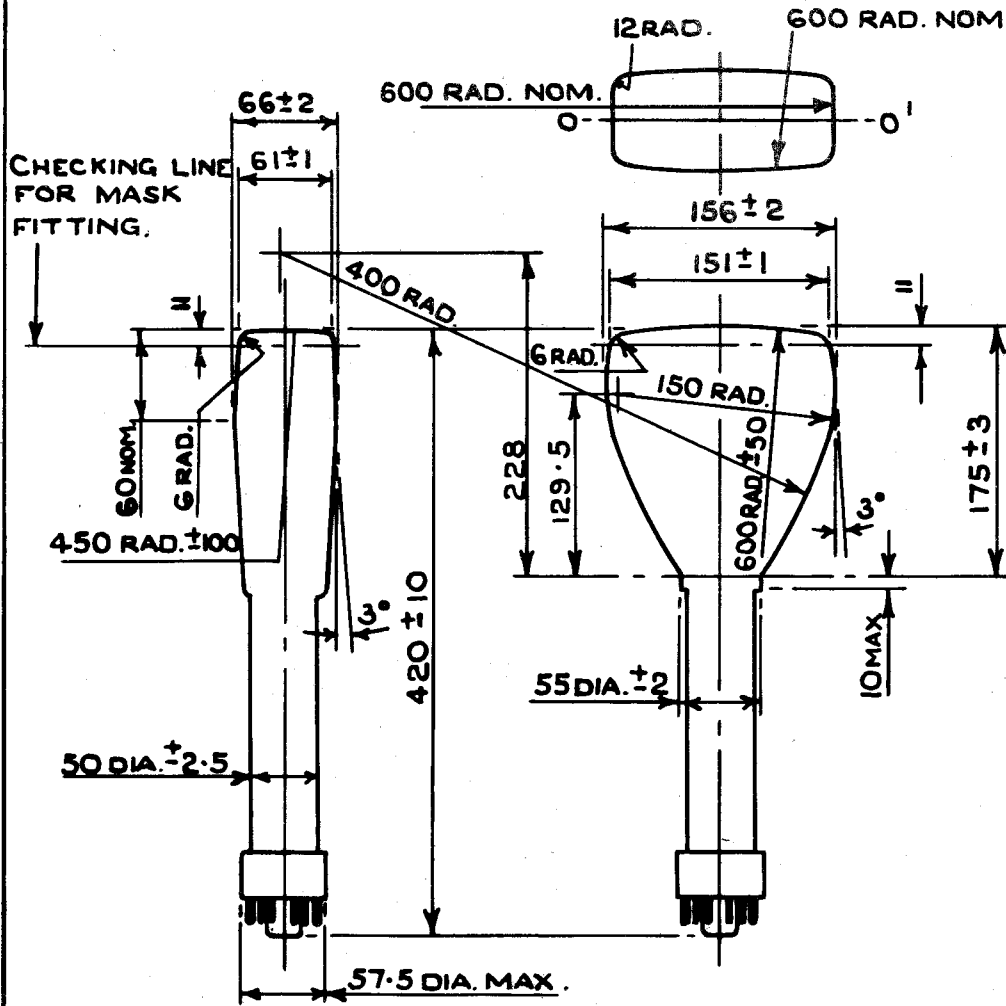
Clause	Test Conditions	Test	Limits		No. Tested
			Min.	Max.	
m	A screen area of at least 100 mm x 30 mm to be scanned.	<u>Trapezoidal Distortions</u> 1. Angle between adjacent sides. 2. Angle between opposite sides.	87° 177°	93° 183°	10%
n	Screen to be scanned with an optimum focused raster of convenient light intensity.	<u>Useful Screen Area</u> x side of raster (mm) y side of raster (mm)	125 35		100%
o	Useful screen area to be scanned with a de-focused raster of convenient light intensity.	<u>Blemishes</u> (See Note 1) 0.25 to 0.6 mm dia; (No.) 0.6 to 1.0 mm dia; (No.) greater than 1.0 mm dia; (No.)		10 5 0	100%
p	See K.1001/11.5.	Vibration			T.A.
q	With conditions as in clause 'f' above, but with the internal conductive coating, m, first at 10 volts and then at -10 volts relative to a3.	<u>Line Width</u> (mm)		1.0	T.A.

NOTE

1. If two or more blemishes, including bubbles and 'read' spots, are separated by a distance not greater than the maximum dimension of the largest blemish in a group, then the group of blemishes shall be considered as one blemish of dimension equal to the maximum overall dimension of the group.

CV2498/1/4

ALL DIMENSIONS IN MILLIMETERS.



LOOKING AT THE SCREEN WITH THE 00' LINE HORIZONTAL AND PINS 9 & 10 OF THE BASE UPPER-MOST, A POSITIVE VOLTAGE APPLIED TO TERMINAL XI SHALL DEFLECT THE SPOT TO THE LEFT & A POSITIVE VOLTAGE APPLIED TO THE TERMINAL YI SHALL DEFLECT THE SPOT UPWARDS.

LIMITING POSITIONS OF ORIENTATION OF 00' WITH RESPECT TO BASE.

