

VALVE ELECTRONIC **CV2228**

ADMIRALTY SIGNAL & RADAR ESTABLISHMENT

Specification AD/CV2228/Issue 1. Dated : 27. 8. 53. To be read in conjunction with K1001.	<u>SECURITY</u>	
	<u>Specification</u> Unclassified	<u>Valve</u> Unclassified

<u>TYPE OF VALVE:</u> Cathode Ray Tube. <u>TYPE OF DEFLECTION:</u> Electrostatic, suitable for symmetrical or asymmetrical deflection. <u>TYPE OF FOCUS:</u> Electrostatic. <u>BULB:</u> Internally coated with conductive coating. <u>SCREEN:</u> 008 <u>PROTOTYPE:</u> CV1521	<u>MARKING</u>	
	See K1001/4.1.	
	<u>BASE</u>	
	Standard 12 Contact (B12D)	
	Pin	Electrode
	1	G
	2	C
	3	H
	4	H
	5	A1
	6	A2
	7	Coating (See Note D)
	8	Y2
	9	X2
	10	A3
	11	X1
	12	Y1
	<u>DIMENSIONS</u>	
	See drawing, page 4.	
<u>RATING</u>		<u>Note</u>
Heater Voltage (V)	4.0	
" Current (A)	1.1	
Maximum Va3 (kV)	5.0	
" Va1 (kV)	2.0	
'X' Plate Sensitivity (mm/V)	357	
	Va3	
'Y' Plate Sensitivity (mm/V)	780	
	Va3	
<u>Typical Operating Conditions</u>		
Va3 (kV)	3.5	
Va2 (V)	575	
Va1 (kV)	1.6	
Ib (uA)	25	

- NOTES
- A. The tube shall be adequately free from microphony.
 - B. The tube shall be of three anode construction.
 - C. The ratings given above shall still apply under conditions of reduced pressure down to a pressure equivalent to 13 inches of mercury at 15°C.
 - D. The tube will normally be operated with A3 and conductive coating tied and if a manufacturer so desires, these electrodes may be strapped internally with the connection to contact marked "internal conductive coating" omitted.
 - E. When viewing the screen with the tube positioned such that the base spigot is uppermost, a positive voltage applied to terminal X1 shall deflect the spot to the left, and a positive voltage applied to terminal Y1 shall deflect the spot upwards.

TESTS

To be performed in addition to those applicable in K1001.

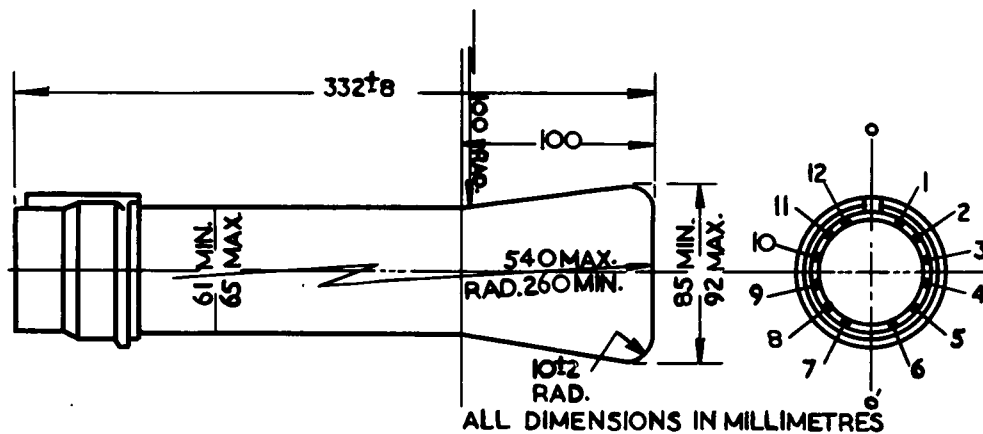
	Test Conditions					Test	Limits		No. Tested	Note
	Vh (V)	Va3 (kV)	Va2 (V)	Va1 (kV)	Vg (V)		Min.	Max.		
Deflection voltages shall be applied asymmetrically in all cases.										
a	See K1001/5A.13.					Capacitances (pF) (i) Each X or Y plate to all other electrodes (ii) Grid to all other electrodes (iii) One X to one Y plate.		25	5%	
b	4.0	-	-	-	-	Th (A)	0.8	1.3	100%	
c	4.0	3.5	Adj. for opt. focus	1.6	Adj.	(i) Line Width (mm) (ii) Va2 (V)	0 430	0.75 900	100% 100%	
With a sine wave scan of 10 Kc/s per second on a line length of 70 mm, the line will be measured at the centre of the trace. Grid volts will be adjusted to give a light output of 0.004 candles.										
d	4.0	3.5	As test 'c'	1.6	Adj.	(i) Vg (V)	To be at least 1 V negative to cathode.		100%	
Adjust Vg to give a light output of 0.02 candles on a close raster.										
e	4.0	3.5	As test 'c'	1.6	Adj. to out off	(i) Negative Vg (V) (ii) Change of value of Vg from test (d). (V)	- -	72 20	100% 100%	

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TESTS (Contd.)

	Test Conditions					Test	Limits		No. Tested	Note
	Vh (V)	Va3 (kV)	Va2 (V)	Va1 (kV)	Vg (V)		Min.	Max.		
f	4.0	3.5	As test 'c'	1.6	Varied from cut-off to value in test 'd'	The brightness of the trace on the screen shall increase continuously with decrease in Vg.	-	-	100%	
g	4.0	3.5	Any convenient value	1.6	-72	<u>Grid Insulation</u>				
						(i) Leakage Current (µA)	-	7.2	100%	
Recommended Method; See K1001/5A.3.2. Resistor = 10 MΩ						(ii) Increase in Voltmeter Reading.	-	100%	100%	
h	4.0	3.5	As test 'c'	1.6	Any convenient value	<u>Deflection Sensitivities</u>				
						(i) X plate (mm/V)	$\frac{300}{V_{a3}}$	$\frac{415}{V_{a3}}$	10%	
						(ii) Y plate (mm/V)	$\frac{660}{V_{a3}}$	$\frac{900}{V_{a3}}$	10%	
j	4.0	3.5	As test 'c'	1.6	Any convenient value	Deviation of spot from centre of screen (mm)	-	6	100%	
k	4.0	3.5	As test 'c'	1.6	Any convenient value	<u>Useful Screen Area</u>				
						Diameter (mm)	70	-	100%	
Deflection to cover the stated circle concentric with the screen.										

	Test Conditions					Test	Limits		No. Tested	Note
	V _h (V)	V _{a3} (kV)	V _{a2} (V)	V _{a1} (kV)	V _g (V)		Min.	Max.		
1	4.0	3.5	As test 'c'	1.6	Any convenient value	<u>Trapezoidal Distortion</u>	85°	95°	100%	
						(i) Angles between adjacent sides. (ii) Angles between opposite sides.				
A screen area of at least 70 mm x 45 mm to be scanned.										
m	4.0	3.5	As test 'c'	1.6	Any convenient value	(i) Orientation of X axis of deflection relative to 00' on drawing.	80°	100°	100%	
						(ii) Angle between X and Y axes of deflection.				
n	Test to be carried out in Test Set 331.					Afterglow (secs)	Results to be collated.		10%	



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