

SPECIFICATION AD/CV2431

ISSUE 1 DATED 17.10.57

AMENDMENT NO. 1

- PAGE 2. 4.12.11. Deflection Factor 1D2
Under column headings:- Min. Max.
Delete:- 91 116 Vdc/In
Substitute:- 84 106 " "
- 4.10.14 At lines 5 and 6, (D1 and D2) to (D3 and D4)
Under column heading:- Max.
Delete:- 0.5 pF
Substitute:- 1.5 pF max.

May, 1960
N.16902/D

Admiralty Surface Weapon
Establishment

ADMIRALTY SIGNAL AND RADAR ESTABLISHMENT

VALVE ELECTRONIC

CV2431.

Specification AD/CV 2431 Issue No. 1 dated 17. 10. 57. To be read in conjunction with K1006 and B.S.448.	<u>SECURITY</u>	
	Specification Unclassified	Valve Unclassified

<u>TYPE OF VALVE:</u> Cathode Ray Tube <u>TYPE OF DEFLECTION:</u> Electrostatic, symmetrical. <u>TYPE OF FOCUS:</u> Electrostatic. <u>BULB:</u> Glass, internally coated with conductive coating. <u>SCREEN DIAMETER:</u> 2 $\frac{3}{4}$ inches (approx.) <u>SCREEN:</u> See Note A <u>PROTOTYPE:</u> DG7 - 32	<u>MARKING</u>	
	See K1001/4	
	<u>BASE</u>	
	See B.S.448/B12A	
	<u>CONNECTIONS</u>	
<u>RATINGS</u> (All limiting values are absolute)	Pin	Electrode
Heater Voltage (V) 6.3	1	h
Heater Current (A) 0.3	2	g
Max. Final Anode (a3) voltage. (V) 800	3	k
Min. Final Anode (a3) voltage. (V) 400	4	a2
Max. Second Anode (a2) voltage. (V) 200	5	NC
Max. First Anode (a1) voltage. (V) 800	6	D3 (y1 plate)
Max. Negative Grid Voltage. (V) 160	7	D4 (y2 plate)
Max. Grid Resistance. (M Ω) 0.5	8	a1, a3 and conductive coatings.
Min. x-plates sensitivity (mm/V) 110/ Va3	9	D1 (x1 plate)
Min. y-plates sensitivity (mm/V) 175/ Va3	10	D2 (x2 plate)
Max. Peak Voltage between x-plates (V) 750	11	NC
Max. Peak Voltage between y-plates (V) 450	12	h
Max. Resistance between deflecting plates. (M Ω) 5		
Max. Screen Dissipation (mW/cm ²) 3		
	<u>DIMENSIONS</u>	
	See drawing on page 4.	
	<u>MOUNTING POSITION</u>	
	Any	
<u>TYPICAL WORKING CONDITIONS</u>		
Third and First Anode Voltage (V) 500		
Second Anode Voltage (V) 0		
		to
		120
Negative Grid Voltage (V) 50		
		to
		100
Beam Current (μ A) 0		
		to
		50
<u>NOTES</u>		
A. The screen gives a green fluorescence and a green afterglow of medium persistence, between 10 and 100 milliseconds. A transparent conductive coating, which is connected to a3, is present between the glass and the phosphor. This makes possible application of the tube with a3 at high potential with respect to earth without the raster being distorted if the faceplate is touched.		
B. When the tube is viewed from the screen end, and is positioned so that pin 9 is uppermost, a positive voltage on D1 (pin 9) will deflect the spot to the right and a positive voltage on D4 (pin 7) will deflect the spot upwards.		
C. In no circumstances shall the grid be allowed to become positive with respect to the cathode.		

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CATHODE RAY TUBE, ELECTROSTATIC FOCUS
AND DEFLECTION
DG7 - 32

Ratings;	Ef V	Ec1 Vdc	Eb1 Vdc	Eb2 Vdc	Eb3 Vdc	Rg Meg
Absolute Maximum:	6.3 ± 10%	0	800	200	800	0.5
Minimum:	-	-160	400	-	400	
Test Conditions:	6.3	Adjust	500	Focus	500	
Fluorescent Colour:	Green (See Note A)		Persistence:		See Note A	

For miscellaneous requirements see paragraph 3.3 Inspection Instructions for Electron Tubes.

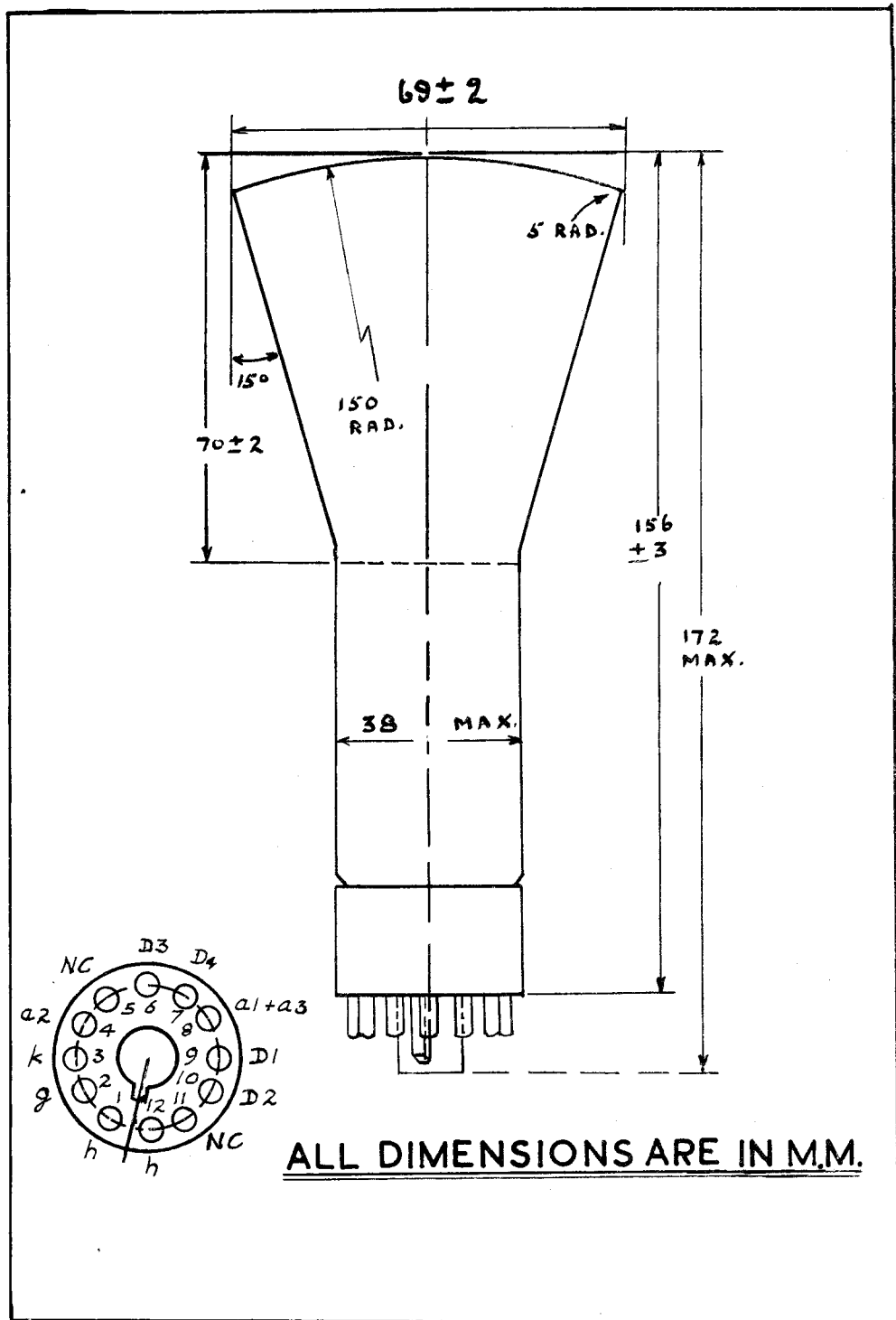
Ref;	Test	Conditions	Min.	Max.
3.1.	Qualification Approval.	Required for JAN. Marking		
4.9.2.1.	Dimensions.	Per Drawing		
4.5	Holding Period.	t = 28 days		
4.9.18.1.2.	Carton Drop.			
4.6.1.	Preheating.			
4.10.8.	Heater Current.		If: 270	330 mA d.c.
4.12.3.1.	Alignment, Base.	1D2; Pin No. 6		
4.12.3.7.	Angle between traces.		88.5	91.5 Degrees
4.12.9.	Grid cut-off Voltage.		Ec1: -100	-50 Vdc
4.12.13.	Grid Insulation.	Ec1 = -50 Vdc	Ic1: -	10/μA d.c.
4.12.13.1.	Heater-Cathode Leakage.			
.....	Light Output and Focussing Voltage.	See Note 1	Ec1: -	-1 Vdc
.....	Line Width.	Beam Current } = 0.5 μA dc } Beam Current } = 10 μA dc } See Note 2	Eb2: 0	120 Vdc
			Width: -	0.7 mm
			Width: -	1.1 mm
4.12.11.	Deflection Factor. 1D2		DF: 91	116 Vdc/In
4.12.11.	Deflection Factor. 3D4		DF: 59	73 Vdc/In
4.12.7.2.	Spot Position.	See Note 3	-	7.0 mm
.....	Useful Scan Area.		Dia: 61	- mm
.....	Trapezoidal Distortion.	Angle 1 (See Note 4) Angle 2 (See Note 4)	87.5	92.5 Degrees
			175	185 Degrees
4.10.14	Capacitances:	D1 to all except D2 D2 to all except D1 D3 to all except D4 D4 to all except D3 (D1 and D2) to (D3 and D4)	C: -	5 pF
			C: -	5 pF
			C: -	5 pF
			C: -	5 pF
		Grid to Cathode	C: -	0.5 pF
4.9.11.	Pressure.	45 lbs/sq.in. absolute	C: -	10 pF
			-	-

/Notes

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- Note 1 Adjust E_{c1} to give a light output of 0.007 candela from a focused raster of area about 40 mm by 40 mm. It is required that E_{c1} shall not be more positive than -1 volt and that the focusing value of E_{b2} shall be within the specified limits.
- Note 2 The beam current is the current recorded by a microammeter in series with the deflector plate D₁ when this plate is 450 volts positive with respect to the other three deflector plates and these are connected to A₃. The trace on the screen shall be a circle 50 mm in diameter, and the trace frequency shall be 50 traces per second. It is required that the width of the trace shall nowhere exceed the specified limits when I_{b3} has the specified values.
- Note 3 The test conditions shall be as in 4.12.7.2. except that the deflecting electrodes shall be connected to the third anode A₃ and not to the second anode as specified in 4.12.7.2.
- Note 4 Using a raster size of at least 40 mm x 40 mm.
Angle 1 is the angle between adjacent sides.
Angle 2 is the angle between opposite sides.

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