

Specification MAP/CV1138/Issue 3 Dated 22.3.48 To be read in conjunction with K1003.	<u>SECURITY</u>	
	<u>Specification</u> RESTRICTED	<u>Valve</u> UNCLASSIFIED

→ Indicates a change

<u>TYPE OF DEFLECTION:</u> Electrostatic. Suitable for both symmetrical and asymmetrical deflection voltages.		<u>MARKING</u> VCR.138 10E/407	
<u>BULB:</u> Internally coated with conductive coating.		<u>BASE</u> 12 Contact Key Base	
<u>SCREEN:</u> GGM1/28/35		<u>Pin</u>	<u>Electrode</u>
<u>RATING</u>		Note	
Heater Voltage (V)	4.0		1 G
Heater Current (A)	1.0		2 C
Max. Final Anode Voltage (kV)	2.5		3 H
X-plate Sensitivity (mm/V)	$\frac{357}{\sqrt{a_3}}$		4 H
Y-plate Sensitivity (mm/V)	$\frac{780}{\sqrt{a_3}}$		5 A ₁
Desirable Spot Size (mm)	1.0		6 A ₂
<u>TYPICAL OPERATING CONDITIONS</u>			7 Internal conductive coating (See Note C)
Final Anode Voltage (kV)	1.2		8 Y ₂
Second Anode Voltage (V)	200		9 X ₂
Beam Current (μA)	15.0		10 A ₃
			11 X ₁
			12 Y ₁
			<u>DIMENSIONS</u> See drawing on page 4

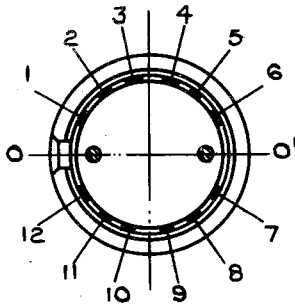
NOTES

- A. The tube shall be adequately free from microphony.
- B. No objectionable fluorescence shall be produced at the screen or glass by ultra-violet light of the wavelength transmitted by nickel-oxide glass.
- C. The tube will normally be operated with A₁, A₃ and conductive coating tied, and if a manufacturer so desires, any or all of these electrodes may be strapped internally, with the connections omitted from contacts marked:- "Internal conductive coating" or "A₁".

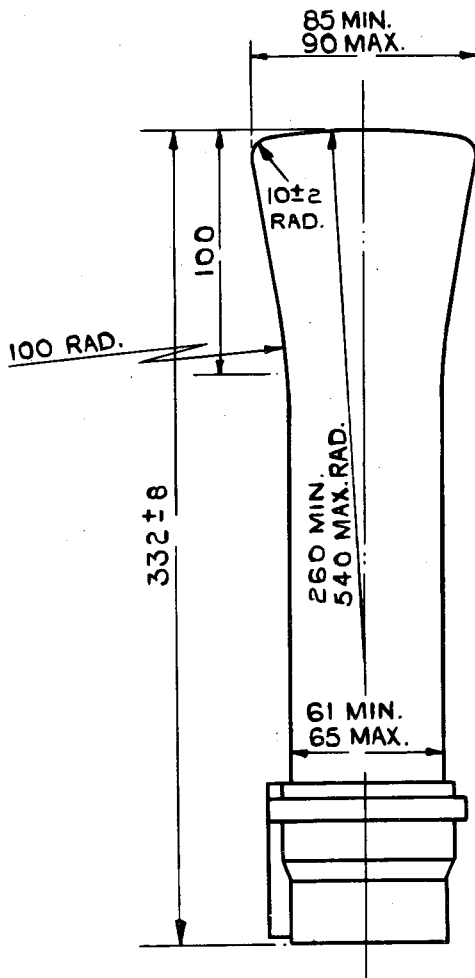
To be performed in addition to those applicable in K1003.

	Test Conditions				TEST	Limits		No. Tested
	Vh	Va3	Va2	Vg		Min.	Max.	
Deflection voltages shall be applied asymmetrically in all cases.								
a					<u>CAPACITANCES (pF)</u> 1. Each X or Y plate to all other electrodes. 2. Grid to all other electrodes 3. One X to one Y plate	-	25	5%(10)
b	4.0	0	0	0	Ih (A)	0.8	1.3	100%
c	4.0	1200	Adjusted	Adjusted	1. The line width shall not be greater than that of a standard tube. 2. Va2 (V) 3. Vg (V)	130	270	100%
						To be at least 3V -ve to cathode		100%
d	4.0	1200	As in test 'c'	Adjusted to give cut-off	1. Vg (V) 2. Increase in -ve Vg compared with value in 'c'	-	-48	100%
						8	25	100%
e	4.0	1200	As in test 'c'	-48	<u>GRID INSULATION</u> Leakage Current (μA) Increase in voltmeter reading	-	5.0	100%
						-	100%	100%
f	4.0	1200	As in test 'c'	Any convenient value	<u>DEFLECTION SENSITIVITIES</u> 1. X-plate (mm/V) 2. Y-plate (mm/V)	$\frac{300}{Va3}$	$\frac{415}{Va3}$	10%(10)
						$\frac{660}{Va3}$	$\frac{900}{Va3}$	10%(10)

	Test Conditions				TEST	Limits		No. Tested
	Vh	Va3	Va2	Vg		Min.	Max.	
g	4.0	1200	As in test 'c'	Any convenient value	Deviation of spot from centre of screen (mm)	-	6.0	100%
h	4.0	1200	As in test 'c'	Any convenient value	<u>USEFUL SCREEN AREA</u> 1. X Deflection (mm) 2. Y Deflection (mm)	±35 ±22.5	- -	100% 100%
	Deflections measured from the centre of the screen							
j	4.0	1200	As in test 'c'	Any convenient value	<u>ORIENTATION OF AXES OF DEFLECTION</u> 1. X axis 2. Y axis	80° -10°	100° +10°	100% 100%
	Angles measured relative to axis 0-0' on drawing on page 4							
k	4.0	1200	As in test 'c'	Any convenient value	<u>TRAPEZOIDAL DISTORTION</u> 1. Angles between adjacent sides 2. Angles between opposite sides	85° 175°	95° 185°	100% 100%
	A screen area of at least 70mm x 45 mm to be scanned.							



VIEW OF UNDERSIDE OF BASE



ALL DIMENSIONS IN MILLIMETRES

NOTES

1. THE INTERNAL CONDUCTIVE COATING SHALL BE OF SUCH DIMENSIONS THAT IT FUNCTIONS EFFECTIVELY BUT DOES NOT OBSCURE THE REQUIRED USEFUL SCREEN AREA.
2. WHEN VIEWING THE SCREEN WITH THE TUBE POSITIONED SUCH THAT THE BASE SPIGOT IS UPPERMOST, A POSITIVE VOLTAGE APPLIED TO THE TERMINAL X_1 SHALL DEFLECT THE SPOT TO THE LEFT AND A POSITIVE VOLTAGE APPLIED TO THE TERMINAL Y_1 SHALL DEFLECT THE SPOT UPWARDS.