

MINISTRY OF SUPPLY (S.R.D.E.)

Specification: MOS/CV41/Issue 6 Dated: 21.4.48 To be read in conjunction with K1001 ignoring clauses 5.2, 5.3, 5.7 and 5.8	<u>SECURITY</u>
	Specification Restricted      Valve Unclassified ←

→ indicates a change

<u>TYPE OF VALVE:-</u> Resonant magnetron air-cooled.	<u>MARKING</u>
<u>CATHODE:-</u> Indirectly heated.	See K1001/4
<u>ENVELOPE:-</u> Metal-Glass.	Additional marking:-
<u>PROTOTYPE:-</u> E1267	Serial No ..... (Note A)

<u>RATING</u>		<u>BASE</u>
	Note	None
Heater voltage (V) 6.0		<u>CONNECTIONS</u> & <u>DIMENSIONS</u>  See Drawings  Pages 4 & 5
Heater current (A) 7.0		
Max anode dissipation (W) 1000		
Wavelength (cms) 10.70 ± 0.2	A	
<u>Typical Operating Conditions.</u>		
Peak anode voltage (KV) 25	B	
Peak anode current (A) 40	B	
Average output peak power (KW) 170	B	
Magnetic field. (oersteds) 860	B	
Approximate Air blast (cub.ft /min) 100	B	

NOTES

A: The valve shall be marked according to the wave-length band in which it falls, viz:-

Wavelength.	Marking
10.56 ± 0.07 cms.	CV41A
10.70 ± 0.07 cms	CV41B
10.84 ± 0.07 cms	CV41C

where CV41 is specified without qualification, valves with any of these markings will be accepted.

B: These operation conditions refer to a sensibly square pulse shape, 1 microsec duration, repetition rate 500 cycles per second (max), and during operating and testing air must be blown through a fitting surrounding the fins. In no case shall the temperature of the anode exceed 140° C.

TESTS

To be performed in addition to those applicable in K1001

	Test conditions	Test	Limits		No. tested	Notes
			Min.	Max.		
a	Filament voltage 6.0 V.	If (A)	6.3	7.7	100%	
b	Peak Ia 40A, magnetic field 860 oersteds	Peak Va (KV)	-	27	100%	1
c	Peak Ia 40A, magnetic field 860 oersteds	(i) Value of wavelength (ohms)	10.49	10.91	100%	1a
		(ii) Presence of one wavelength	With matching adjusting adjustments as in Note 1 below, only 1 wavelength shall be generated either during each pulse or during successive pulses, and this wavelength shall be within the limits of wavelength laid down in C(i)		100%	1
d	Peak Ia 40A, magnetic field 860 oersteds	Value of power output (KW)	100	220	100%	1
e	(a) Peak Ia 40A. Magnetic field varied from 820 to 900 oersteds. (b) Magnetic field 860 oersteds. Peak Ia varied from 30 to 50A	Wavelength continuity	Wavelength shall show no sudden discontinuities		5%	1 2

NOTES

- The test equipment is to be subject to approval by R.R.D.E., Ministry of Supply. The modulator is required to give sensibly square pulses of 1 microsec duration and a repetition frequency of  $420 \pm 40$  c.p.s. and modulators type A453 or AS442 are recommended as giving a suitable waveform. In all tests (a) filament voltage = 6 volts, (b) air is to be blown through the anode fins to maintain the anode temperature below  $140^{\circ}$  C, (c) serious or continued flashing (external or internal) must not occur.

NOTES (Cont)

1. The power output shall be measured in a high frequency load system of a type consisting of a matching section electrically similar to that used in A.A. No. 3 Mk. II equipment followed by a length of concentric line of 40 ohms impedance (internal diameter of outer tubing 15/16 inch), terminated to give a standing wave ratio in voltage of less than 1.3 to 1. The matching section shall be adjusted to give highest power output, and tests "b", "c", "d" and "e" must be done with this setting. (If this adjustment of the matching sections leads to a serious number of rejections on tests "c" (ii) and "e", the test specification may be modified to allow a limited variation about this setting. In such cases, the valve would have to satisfy tests "b", "c", "d" and "e" for a single setting of the matching section controls).
2. The figure of 5% may be modified depending on the number of rejects.



