

<p>Min Tech Specification MSB(A)/CV2167 Issue 2 Dated 15.1.53 To be read in conjunction with K1001, excluding clauses 5.2, 5.3 and 5.8.</p>	<p><u>SECURITY</u></p> <table> <tr> <td><u>Specification</u></td><td><u>Valve</u></td></tr> <tr> <td>UNCLASSIFIED</td><td>UNCLASSIFIED</td></tr> </table>	<u>Specification</u>	<u>Valve</u>	UNCLASSIFIED	UNCLASSIFIED
<u>Specification</u>	<u>Valve</u>				
UNCLASSIFIED	UNCLASSIFIED				

—————> Indicates a change

TYPE OF VALVE - Magnetron	<u>MARKING</u>		
CATHODE - Indirectly-heated	See K1001/4.		
ENVELOPE - Copper	<u>BASE</u>		
PROTOTYPE - VX4080	None		
<u>RATING</u>			
Heater Voltage	(V)	6.3	Note B
Heater Current	(A)	0.8	
Operating Frequency	(Mc/s)	9080	
Max. Mean Input Power	(W)	120	
<u>TYPICAL OPERATING CONDITIONS</u>			
Peak Anode Voltage	(kV)	12	AC
Peak Anode Current	(A)	9	AC
Field Strength	(Gauss)	5000	AC
Peak Power Output	(kW)	30	AC
<u>CONNECTIONS & DIMENSIONS</u>			
See Drawing on Page 4.			

NOTES

- When operating under these conditions the magnetron must be air-cooled so that the temperature of the block does not exceed 140°C.
- A mechanical tuning adjustment is provided so that the valve can be set to operate precisely at this frequency.
- These operating conditions apply for

$$T_p = 0.2 \mu\text{sec.}$$

$$\text{prf} = 3500 \text{ pps.}$$

$$\text{VSWR} = 1.5 : 1 \text{ max. in No. 16 waveguide.}$$

Under these conditions the heater voltage should be reduced to 4V when the HT is applied.

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TESTS

To be performed in addition to those applicable in K1001

Test Conditions							Test	Limits		No. Tested	Note
Field Strength (Gauss)	V _f (V)	Pulse Length (μsec)	Rep. Freq. (pps)	Freq. (Mc/s)	Peak I _a (A)			Min.	Max.		
a	0	6.3	0	0	0	0	Heater Current (A)	0.7	0.9	100%	3
b	5000 ± 50.5%	4.0	0.5	1400	See Note 1	9	Peak Anode Voltage (kV)	10	14	100%	1,3, 5,10
c	5000 ± 50.5%	4.0	0.5	1400	Adjust	9	Frequency (Mc/s) HF Limit LF Limit	9120 - 9040	-	100%	5,10
d	5000 ± 50.5%	4.0	0.5	1400	9080	9	Efficiency (%)	25	-	100%	1,5 10
e	5000 ± 50.5%	4.0	0.5	1400	9080	9	Frequency Pulling (Mc/s)	-	15 20	100%	6,10
f	5000 ± 50.5%	4.0	0.5	1400	9080	9	Bandwidth (Mc/s)	-	5	TA	4,5, 7,9,10
g	5000 ± 50.5%	4.0	0.5	1400	9080	Peak current varied from 6 to 12	There shall be no mode change			TA	4,5, 8,10
h	5000 ± 50.5%	4.0	0.2	3500	9080	9	Efficiency (%)	25	-	TA	5,10
j	5000 ± 50.5%	4.0	0.2	3500	9080	9	Bandwidth (%)	-	12.5	TA	4,5, 7,9,10
k	5000 ± 50.5%	4.0	0.2	3500	9080	Peak current varied from 6 to 12	There shall be no mode change			TA	4,5, 8,10

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NOTES

1. Applicable over whole tuning range. Tests shall be performed at HF, LF limits and at the nominal centre frequency as in Test (c).
2. For the above tests, the temperature of the anode block shall not exceed 140°C .
3. The valve shall be operated with full heater voltage applied for not more than 2 mins. before the application of HT and then reduced to 4V.
4. The max. rate of rise of the voltage pulse shall not be less than $120 \text{ kV}/\mu\text{sec}$ at the operating voltage.
5. The valve shall be coupled by means of Coupling I-S Cat. No. Z830003 to Waveguide No. WG16, which shall be terminated in a resistive load giving a VSWR better than 1.1 : 1.
6. Measured with a VSWR of 1.5 : 1 varied through all phases.
7. The RF bandwidth shall be measured at one-quarter power by means of the Spectrum Analyser.
8. No pulse shall be missing when viewed on the Spectrum Analyser. No double traces of voltage and current shall appear during a 5 sec. interval while the peak current is varied over the specified range.
9. The time of fall of the current pulse shall be less than $0.2 \mu\text{sec}$ when measured between the points where the amplitude is 20% and 80% of the average amplitude over 80% of the flat portion of the pulse.
10. The " $\pm 5\%$ " tolerance on the magnetic field strength allows for measurement uncertainties of $\pm 2\%$ and a setting tolerance of $\pm 3\%$.

[illegible]

THIRD ANGLE PROJECTION

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS(A)/CV2167
ISSUE 2 DATED 15.1.53

AMENDMENT NO.1

Page 2 Clause e Frequency Pulling

in column headed "Limits Max."
Amend "15" to "20".

June 1960
N.17178/D.

AS 11/60
T.V.C. for R.A.E.

ELECTRONIC VALVE SPECIFICATIONS
SPECIFICATION MOS(A)/CV2167, ISSUE 2, DATED 15.1.53

AMENDMENT No. 2

1. Page 1.

- (i) Specification Authority (top of page).

Delete "MINISTRY OF SUPPLY - DLRD(A)/TRE" and substitute "MINISTRY OF TECHNOLOGY - DLRD/RRE".

- (ii) Specification Title (top left hand box).

Delete "Specification MOS(A)/CV2167" and substitute "Specification Min. Tech./CV2167".

2. Page 2. Test clauses (b) to (k) inclusive.

- (i) In the column headed "Field Strength (Gauss)" amend "5000 \pm 50" to read "5000 \pm 5%".

- (ii) In the column headed "Note" insert "10".

3. Page 3. Insert new note 10 as follows:-

"10. The " \pm 5%" tolerance on the magnetic field strength allows for measurement uncertainties of \pm 2% and a setting tolerance of \pm 3%".

August 1967

T.V.C. for R.R.E.

AAJ 6/3/68