ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS/CV2482

ISSUE 1 DATED 18TH JUNE, 1958

AMENDMENT NO.1

Page 2. Acceptance Tests

4.18.15.1 Recovery Time (3dB)

In column headed "Limits Min."

Amend "3" µS to "2" µS

June 1960
N.17241/D

TVC for R.R.E.

MINISTRY OF SUPPLY, D.L.R.D./R.R.E. VALVE ELECTRONIC **CV2482**

Specification M.O.S./CV2482	SECURITY	
Issue 1 - dated 18th June, 1958	Specification	Valve
To be read in conjunction with K1006	Unclassified	Unclassified

TYPE OF VALVE Microwave gas switch (Pre T.R. tube)

ENVELOPE Silica

PROTOTYPE VX9058/VX9179

MARKING

See K1001/4, except that the valve shall be marked CV Factory Identification and Date Codes only.

RATING

			Note
Operating Frequency Range,	(kMc/s)	2.5-12	A
Max. Peak Power Input,	(KW)	500	B, E
Max. Mean Power Input, W	(W)	500	B
Min. Peak Power	(KW)	2-25	C

DIMENSIONS

See drawing on Page 2

MOUNTING POSITION

Any (Note D)

NOTES

A. The tube is intended to be inserted across a suitable waveguide mount at any frequency in this range. The bandwidth and matching are determined by the mount design.

B. For a single tube operating across both waveguides of a balanced duplexer.

C. Minimum breakdown power depends upon mount design. When the tube is mounted across W.G.16 breakdown occurs at peak incident power levels above 10 KW, the ionisation time being about 0.02 microseconds. At S-Band, mounted across a resonant iris having a loaded Q of 2, breakdown occurs at less than 2 KW incident power, when a short circuit is placed $\lambda/4$ behind the tube.

D. The hole through which the tube is mounted should be 0.3576 inches $\pm$ 0.0005 dia.

E. In all high power applications adequate choking is required where the tube passes through the waveguide walls and the tube should be in contact with the transmitter side of the mount.

TYPICAL OPERATION

Primary Switch at 9-10 KMc/s Balanced Duplexer

A single tube mounted across WG16 gives a V.S.W.R. of less than 1.1 over a band in excess of 1000 Mc/s with an insertion loss of less than 0.1 dbs. For a line power of 250 KW peak, leakage to the receiver is about 200 ergs spike and 200 watts peak flat. Life is in excess of 3,000 hours and recovery time less than 8 microsecs.

Primary Switch in W.G.11 Phase Shift Duplexer

Two tubes may be used across an iris structure to form the phase shifting element of the duplexer. A bandwidth of 10% to a V.S.W.R. of 1.1 can be obtained for an insertion loss of less than 0.2 dbs. With a line power of 1 MW the arc loss is about 0.15 dbs. and recovery time less than 20 microseconds. The leakage power is about 5 KW peak depending upon the directivity of the first hybrid.

Primary Switch in W.G.16 Phase Shift Duplexer

A single tube may be used across W.G.16 to form the phase shifting element of the duplexer. For a line power of 800 KW peak, 600 watts mean, arc loss is about 0.1 dbs. and leakage power to the receiver about 3 KW peak. The short circuit position is between 0.100 and 0.130 inches forward of the tube axis. Life is in excess of 3,000 hours for operating pulse widths of 1 microsecond and less.

Z.17999.R.

TESTS

To be performed in addition to those applicable in K1006

TEST CONDITIONS - UNLESS OTHERWISE SPECIFIED

tp = 0.2 μsec ± 10% Test mount - Note 1
Du = 0.0002 ± 10% Test circuit - Note 2

K1006 ref.	Test	Test Conditions	Insp. Level	Limits Min.	Limits Max.	Units
	Qualification Approval Tests					
3.1	Qualification Approval Required					
K1005 4.9.19.2	Carton Drop					
4.9.20.5	Vibration	No voltages Note 4				
	Shock	No Voltages Note 4 Shock to be applied along axis only. Hammer angle = 30°.				
	Acceptance Tests					
4.18.15.1	Recovery Time (3dB)	pi, RF = 50 KW ± 10% F = 9.5 ± 0.5 K Mc/s Note 3	100%	3	8	μ S
	Breakdown Power	Adjust pi, RF from low value until tube strikes	100%	-	20	K W

NOTES

1. The tube shall be tested in a balanced duplexer of approved design in waveguide W.G.16.
2. Looking outwards from the balanced duplexer the V.S.W.R. on any arm shall not exceed 1.2
3. The tube shall be moved up and down in duplexer through all positions for which the ground section is completely through both waveguides.
4. Valve shall pass Acceptance Tests after vibration and shock.

OUTLINE DRAWING