

SPECIFICATION CV.4095

ISSUE 1 DATED 8.1.59

AMENDMENT No. 1

Page 2 GROUP C

Immediately following the test for "Mutual Conductance (3)"

Add new test as follows:-

<u>Test</u>	<u>Test Conditions</u>	<u>AQL %</u>	<u>Insp. Level</u>	<u>Sym- bol</u>	<u>Limits</u>		<u>Units</u>
					<u>Min.</u>	<u>Max.</u>	
Mutual Conductance (4)	Vf = 0.8V	2.5	I	gm	1.1	-	mA/V

April, 1959.  
N.54789/D.

T.V.C. for S.R.D.E.

ELECTRONIC VALVE SPECIFICATIONS

SPECIFICATION MOS/CV4095  
ISSUE NO.1 DATED 8.1.59.

AMENDMENT NO.2

On Page 4, under GROUP F

(Cont'd)

Intermittent  
Life Test

(1) Delete

Life Test  
End Point  
(500 hours)

(2)

Immediately following the above, in column headed "Test"

Amend Life Test to read

End Point  
(1,000 hours)

Life Test  
End Point  
(500 hours)

August, 1959.

TVC for SRDE

N.71076/D

ELECTRONIC VALVE SPECIFICATION

CV4095 Issue 1 Dated 8.1.59

AMENDMENT No. 3

Page 1 Base

Delete:- See Appendix 1 to CV2237

Dimensions

Delete:- See Appendix 1 to CV2237

Signals Radio Development  
Establishment

December 1961

Specification MOS/CV4095 Issue 1 Dated 8.1.59 To be read in conjunction with K.1001, BS448 and BS1409.		<u>SECURITY</u>	
		<u>Specification</u> Unclassified	<u>Valve</u> Unclassified
—————> Indicates a change			
Type of Valve - Reliable R.F. Beam Tetrode Sharp Cut-Off Cathode - Directly Heated Envelope - Glass Unmetallised Prototype - VX 9186 Mod.		<u>MARKING</u>	
		See K1001/4 except that the valve shall only be marked with the CV No., factory and date code.	
<u>RATING</u> (All limiting values are absolute)		<u>BASE</u>	
		See App. 1 to CV2237 BS 448/B5G/F	
		<u>CONNECTIONS</u>	
		<u>PIN</u>	<u>ELECTRODE</u>
Filament Voltage (V)	1.25		
Filament Current (mA)	100		
Max. Anode Voltage (V)	100		
Max. Screen Voltage (V)	100		
Max. Cathode Current (mA)	7.0		
Max. Bulb Temperature (°C)	100		
Max. Shock (Short Duration) (g)	4.50		
Max. Acceleration (Continuous Operation) (g)	5		
		1	a (red dot)
		2	g <sub>2</sub>
		3	f (-), bp <sub>1</sub>
		4	g <sub>1</sub>
		5	f (+), bp <sub>2</sub>
<u>Typical Operating Conditions</u>		<u>DIMENSIONS</u>	
Measured at $V_a = V_{g2} = 45V, V_{g1} = 0$ $R_{g1} = 2 M\Omega$		See BS448/B5G/F Size Reference No. 1 See App. 1, to CV2237	
Anode Current (mA)	3.0		
Screen Current (mA)	0.9		
Mutual Conductance (mA/V)	2.0		
		Dimensions (millimetres)	Min.      Max.
<u>Capacitances (pF)</u>		A. Overall Length	-      38.15
C <sub>in</sub> (nom.)	4.0	Diameter	-      7.264
C <sub>out</sub> (nom.)	2.75	B. Minor	-      9.804
C <sub>a, g1</sub> (max.)	0.05	C. Major Lead Length	38.1
		<u>MOUNTING POSITION</u> ANY	

## TESTS

To be performed in addition to those applicable in K.1001. Tests shall be performed in the specified order unless otherwise agreed with the Inspecting Authority.

Test conditions - unless otherwise specified								
Vf(V)	Va(V)	Vg <sub>2</sub> (V)	Vg <sub>1</sub> (V)	Rg <sub>1</sub> (Megohms)				
1.25	45	45	0	2				
K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
7.1.	Glass Strain	No Voltages	6.5	I				
	<u>GROUP A</u>							
	Electrode Insulation	Vf = 0 Vg <sub>1</sub> - all = -100V Vg <sub>2</sub> - all = -100V Va - all = -100V	100%		R R R	100 100 100		MΩ MΩ MΩ
	Reverse Grid Current	Rg <sub>1</sub> = 500 kΩ max. Va = Vg <sub>2</sub> = 55V Vg <sub>1</sub> = -1.0V	100%		Ig <sub>1</sub>	-    0.5		μA
	Contact Potential	Vf = 1.25V Va = Vg <sub>2</sub> = 0 Rg <sub>1</sub> = 200kΩ	100%		Ig <sub>1</sub>	0.25		μA
	<u>GROUP B</u>	Combined AQL	1.0	II				
	Filament Current		0.65	II	If	88    112		mA
	Anode Current		0.65	II	Ia	1.9    4.1		mA
	Screen Grid Current		0.65	II	Ig <sub>2</sub>	0.5    1.3		mA
	Mutual Conductance (1)		0.65	II	gm	1.5    2.5		mA/V
	<u>GROUP C</u>	Combined AQL	6.5	I				
	Mutual Conductance (2)	Vf = 1.0V	2.5	I	gm	1.2    2.5		mA/V
	Mutual Conductance (3)	Vf = 1.0V Take reading after 15 mins.	2.5	I	gm	1.2    2.5		mA/V
	Anode Resistance		2.5	I	Ra	0.2		MΩ
	R.F. Noise	E <sub>sig</sub> = 30mVrms Ref. K.1006 (4.10.3.1)	2.5	I				

K.1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
5.12	<u>GROUP D</u>							
	Lead Fragility	Note 1	6.5	IA				
	Filament Anode Short			T.A.				
	Capacitances	Measured on a 1 Mc/s bridge with the valve mounted in a fully screened socket. No shield.	6.5	IC	$C_{a\&g}$ $C_{in}$ $C_{out}$	3 2	0.05 5 3.5	pF pF pF
	Functional Test			T.A.		The valves shall operate satisfac- torily in W.S. A4C and A41		
11.3	<u>GROUP E</u>							
	Fatigue	Acceleration = 5g peak min. Time = 99 hours Note 2		IA				
	<u>Post Fatigue Tests</u>	Combined AQL	4.0					
	R.F. Noise	As in Group C	2.5					
11.4	Mutual Conductance (1)		2.5		gm	1.2		mA/V
	Shock	No voltages. Hammer angle 30°		IA				
	<u>Post Shock Tests</u>	Combined AQL	4.0					
	R.F. Noise	As in Group C	2.5					
A VI/5 A VI/ 5.1	<u>GROUP F</u>							
	Life	$R_{g1} = 5 M?$						
	<u>Stability Life Test</u>							
	Mutual Conductance (2)	$V_f = 1.0V$	1.0	I	gm	1.2		mA/V

K. 1001 Ref.	Test	Test Conditions	AQL %	Insp. Level	Sym- bol	Limits		Units
						Min.	Max.	
A VI/ 5.3	<u>GROUP F</u> (Cont'd)							
	<u>Intermittent</u> <u>Life Test</u>							
A VI/ 5.6	<u>Life Test</u> <u>End Point</u> (500hrs.)	Combined AQL	6.5	IA				
	Inoperatives		2.5					
	Mutual Conductance (1)		2.5		gm	1.2		mA/V
	Electrode Insulation	Vf = 0 Vg <sub>1</sub> - all = -100V Vg <sub>2</sub> - all = -100V Va - all = -100V	4.0		R R R	50 50 50		MΩ MΩ MΩ
A VI/ 5.6	<u>Life Test</u> <u>End Point</u> (1,000hrs.)	Combined AQL	10	IA				
	Inoperatives		4.0					
	Mutual Conductance (1)		4.0		gm	1.2		mA/V
	Reverse Grid Current	As in Group A	4.0		Ig <sub>1</sub>	-	1.0	μA
	Contact Potential	Vf = 1.25V Va = Vg <sub>2</sub> = 0 Eg <sub>1</sub> = 200kΩ	4.0		Ig <sub>1</sub>	To be recorded		μA
	Electrode Insulation	Vf = 0 Vg <sub>1</sub> - all = -100V Vg <sub>2</sub> - all = -100V Va - all = -100V	6.5		R R R	30 30 30		MΩ MΩ MΩ
A IX/ 2.4 and 2.5	<u>GROUP G</u> Electrical retest after 28 days holding period			100%				
	A VI/ 5.6	Inoperatives	0.5					
	Mutual Conductance (1)				gm	1.5	2.5	mA/V
	Reverse Grid Current	As in Group A	0.5		Ig <sub>1</sub>	-	0.5	μA

NOTES

CV4095

1. Raise  $V_f$  until filament opens. Test for filament to anode short only. After performance of the filament burn out test, if the short circuit shall pass in excess of five times the rated filament current without burning out the short circuit, the valve shall be deemed a failure. This test shall be performed by a Service Laboratory on three valves which shall be in addition to the required number for Type Approval samples. Manufacturers' data are not required for this test.
2. Filament voltage and H.T. voltages switched simultaneously 1 min. on and 3 min. off throughout duration of test. Frequency = 170 cps. The valves to be vibrated in each of three mutually perpendicular planes in turn for periods of 30, 30 and 39 hours. One plane to include the longitudinal axis of the valve.