



TEST SPECIFICATIONS FOR TYPE T4533 SERIES CATHODE RAY TUBE

All the given specifications refer to the following test voltages (measured with respect to cathode).

<u>Electrode</u>	<u>Pin Number</u>	<u>Voltages</u>
Post-accelerator		14,000 VDC \pm 2%
Lower helix) Isolation shield)	12	1,840 VDC \pm 1%
D3 D4 Shield) Accelerator Electrode)	7	2,000 VDC \pm 1%
Post accelerator grid	10	1,960 VDC \pm 1%
D1D2 Shield	9	1,975 to 2,050 VDC*
Average of Deflection) D1 D2 Plates) D3 D4		2,025 VDC \pm 1% 2,000 VDC \pm 1%
Astigmatism electrode	5	1,985 to 2,060 VDC**
Focusing electrode	4	180 to 450 VDC**
Heater voltage	1,14	6.3 VAC \pm 3% R.M.S.

* Recommended range. Adjust for best geometry.

** Recommended range. Adjust for best overall focus.

For test procedures, see P.S.8-0595.

CAUTION: AT NO TIME SHOULD CATHODE CURRENT EXCEED 1.5 mA.

REVISIONS	Orig. P.							
Mod. No.	3775							
Date	2-1-71							
Pages Changed	All (4)							

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Test Characteristics	P.S. 8-0595 Step	Conditions	Specification Limit
Helix current	2.0		40 μ A maximum 2 μ A minimum
Phosphor defects and opaque spots from frame grid defects	3.0		See P.S.8-0598
Gun-graticule alignment. Grat: Internal fixed	4.3	Align trace on left side of graticule. <u>NOTE</u> : alignment is to be maintained during following steps.	+ 2.7 degrees (\pm 2.25 minor division)
Trace alignment	4.3		
High-voltage connection to screen	4.4		See P.S.8-0595
Cathode interface	4.5 & 20.1.2		See P.S. 8-0595
H-K leakage	4.6 & 20.1.2		See P.S. 8-0595
Trace orthogonality	6.1		\pm 1.5 $^{\circ}$ (1.0 minor divisions)
Geometry	6.2	With a normal 8 x 10 division square raster or time markers.	Maximum deviation from straight line. Horiz: 0.5 minor division. Vert: 0.5 minor division
Horizontal resolution	6.3	Resolution is checked with time mark generator set at 100 μ s and time/sweep switch at 5.0 ms. $I_b = 2\mu$ A	150 markers visible in 10 major divisions. No distorted lines visible in 10 major divisions.
Spot centering	7.1	Horizontal	Within \pm 0.5 major divisions from geometric center.
		Vertical	Within \pm 0.5 major divisions of geometric center.

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Test Characteristics	P.S. 8-0595 Step	Conditions	Specification Limit														
D3 D4 scan (vertical)	8.1	At 8 divisions scan, maximum beam interception per plate. $I_b = 10 \mu A$	35%														
D1 D2 scan (horizontal)	8.2	At 10 division scan, maximum beam interception per plate $I_b = 10 \mu A$	50%														
D3 D4 deflection factor (vertical)	9.1	At optimum geometry and fixed shield voltage. Range meter setting = 50	3.2 - 3.7 V/division (25.6 - 29.6 V/scan)														
D1 D2 deflection factor (horizontal)	9.2	At optimum geometry and shield voltage at average plate. Range meter setting = 100	10.2 - 11.8 V/division (102 - 118 V/scan)														
Grid #1 cutoff	10.0	Visual extinction of undeflected focused spot (unblanking off)	75 - 105 V														
Cathode current	11.0	With grid #1 drive of 50 V from cutoff, use following table: <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">V_{co} (85% of $K = 3.2$)</td> <td style="text-align: center;">I_k</td> </tr> <tr> <td style="text-align: center;">75 - 80</td> <td style="text-align: center;">.48 mA minimum</td> </tr> <tr> <td style="text-align: center;">81 - 85</td> <td style="text-align: center;">.43 " "</td> </tr> <tr> <td style="text-align: center;">86 - 90</td> <td style="text-align: center;">.40 " "</td> </tr> <tr> <td style="text-align: center;">91 - 95</td> <td style="text-align: center;">.37 " "</td> </tr> <tr> <td style="text-align: center;">96 - 100</td> <td style="text-align: center;">.34 " "</td> </tr> <tr> <td style="text-align: center;">101 - 105</td> <td style="text-align: center;">.32 " "</td> </tr> </table>	V_{co} (85% of $K = 3.2$)	I_k	75 - 80	.48 mA minimum	81 - 85	.43 " "	86 - 90	.40 " "	91 - 95	.37 " "	96 - 100	.34 " "	101 - 105	.32 " "	
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Beam current	12.0	With a small display approximately 2 x 2 divisions to avoid current interception by the deflection plates and erroneous reading of $I_k = 0.5$ mA.	$I_b \geq 20 \mu A$														
Linearity	14.0	Maximum (with 2 horizontal lines 2 major divisions apart vertically.)	0.5 minor divisions														

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Test Characteristics	P.S.5-0595 Step	Conditions	Specification Limit
Burrs	15.0		See P.S.8-0595
Helix flare (use hood)	16.0		See P.S.8-0595
Gun flare	16.0		See P.S.8-0595
Grid emission	17.0		See P.S.8-0595
Vertical trace width	18.0	Signal - 1 kHz square wave (triggered). Amplitude - 2 major divisions. Time/sweep switch at 5.0 ms $I_b = 2 \mu A$ 8 x 10 div. <div data-bbox="638 877 1101 1218" style="text-align: center;"> </div>	Area A = .040" maximum Area B = .050" maximum
Rod charge	19.1		See P.S.8-0595
After test phosphor check	20.1.3		See P.S.8-0595
D1 D2 effective capacitance		Measure on QA sample <u>only</u> .	9.8 μF maximum
D3 D4 effective capacitance		Measure on QA sample <u>only</u> .	6.8 μF maximum