

BRITISH STANDARDS INSTITUTION
2, PARK STREET, LONDON W1A 2BS

Specification available from:- AS SHOWN IN PD 9002,
CECC 00 200 AND

RANK CINTEL LIMITED,
RANK ELECTRONIC TUBES,
SIDCUP BY-PASS,
SIDCUP, KENT.

TELEPHONE 01-302-0271

TELEX 896215

BS CECC 11.001 - 020

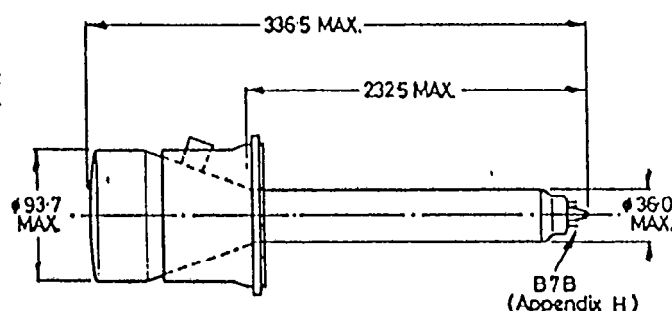
ISSUE 1 MAY 1983



Page 1 of 20

ELECTRONIC COMPONENTS OF ASSESSED QUALITY : DETAIL
SPECIFICATION IN ACCORDANCE WITH BS CECC 11 000 : 1980

Outline and dimensions (not for inspection purposes)



Dimensions in mm

For detail dimensions and base connections
see Appendix E.

Marking information see Clause 3.

MANUFACTURER'S TYPE NUMBER

P0907-C10

NATO Stock No.

5960-99-037-2729

SEE PD 9002 and CECC 00 200

For ordering information
see Clause 4.

PROJECTION CATHODE RAY TUBE

DEFLECTION : MAGNETIC

FOCUS : MAGNETIC

SCREEN : 84 mm DIA.

PHOSPHOR : C10 (JEDEC P11)

COLOUR : BLUE

x = 0.137 y = 0.148

PERSISTENCE: MEDIUM SHORT

TUBE POTTED INTO MOUNTING
COLLAR (SEE APPENDIX G)

FULL ASSESSMENT
(ADDITIONAL)

1. DATA (not for inspection purposes)

Mechanical

Mounting position : Unrestricted

Mass (weight)

0.85 kg max.

Environmental

Temperature (storage)

Min.	Max.	Units
-20	+70	°C

Electrical - Limiting values (absolute maximum rating system - IEC 134)

	Min.	Max.	Units
Heater voltage	5.8	6.8	V
Heater to cathode, positive voltage		100	V
Heater to cathode, negative voltage		200	V
Intensity modulator electrode negative voltage	1	400	V
Intensity modulator electrode positive voltage	Must never become positive		V
Final anode voltage	15	30	kV
Intensity modulator electrode cathode circuit resistance		1.5	Ω

Refer to Qualified Products List PD 9002 and/or CECC 00 200 for details of
manufacturers approved for this specification

BS CECC 11 001 - 020
ISSUE 1 MAY 1983

2. OPERATING CONDITIONS AND TYPICAL CHARACTERISTICS

When the tube is operated under the conditions given below, the characteristic value which follow them are attainable:

$V_h = 6.3$ Vac; $V_{g2} = 28$ kV.

Focus coil: Cintel type GA7023B or equivalent.

Deflection coil: Cintel type GAA 5130 or equivalent.

	Min.	Max.	Units
Heater current ($V_h = 6.3$ V)	0.440	0.660	A
Focusing requirements	Dependent on coil used		
Voltage required on the intensity modulator electrode for cut-off (negative)	100	200	-V
Useful screen dimensions	84 dia.		mm
Resolution (line width) measured to 20 % peak luminance		0.25	mm

3. MARKING

Each tube and package shall bear the following markings:

- (a) Manufacturer's type number.
- (b) NATO Stock Number.
- (c) Special marking relating to hazards. Each tube and/or package contains a warning of hazards with respect to handling, implosion and X-rays.
- (d) Factory Identification code.
- (e) Date code.
- (f) To BS CECC 11 001 - 020 Issue 1 May 1983.
- (g) Manufacturer's serial number.

4. ORDERING INFORMATION

Orders for components to this specification shall include the following minimum information:-

- (1) Quantity.
- (2) Manufacturer's type number.
- (3) NATO Stock Number.
- (4) BS CECC 11 001 - 020 Issue 1 May 1983.
- (5) Any special requirements and packaging instructions shall be included in the order.

5. RELATED DOCUMENTS

BS 6001	Sampling procedures and tables for inspection by attributes.
BS 9000	General requirements for a system of electronic components of assessed quality.
BS CECC 11 000	Generic Specifications : Cathode ray tubes.
CECC 00 200	CECC Qualified Products List.

BS CECC 11 001 - 020
ISSUE 1 MAY 1983

TEST CONDITIONS AND INSPECTION REQUIREMENTS

GROUP A - Lot by Lot

GENERAL TEST CONDITIONS. (unless stated otherwise for a particular test)

V_h 6.3 V Final anode voltage 28 kV All other electrodes as required.

Focus coil details: Cintel type GA7023B or equivalent. Position coil on tube neck so that the centre of focus is 120 mm from the 38 mm ring gauge reference line.

Deflection coil details: Cintel type GAA 5130 or equivalent.

Raster details: An interlaced 405 line raster. Number of lines per field 202.5. Field repetition frequency 50 Hz. (A standard TV scanning waveform is suitable). Horizontal and vertical dimensions of the display to be beyond the edge of phosphor screen. (overscanned).

Pre-heating: Apply V_h only, 6.3 V for 60 s minimum.

All electrode voltages are with respect to cathode unless otherwise stated.

Astigmatism correction is not applied.

Samples submitted to tests which are marked '(D)' shall not be accepted for release.

INSPECTION OR TEST	REFERENCE BS CECC 11 000	CONDITIONS OF TEST	INSPECTION REQUIREMENTS			
			MIN.	MAX.	UNITS	IL AQL
Subgroup A1						
-Visual inspection	4.3	No voltages				100 %
-Non-operating endurance	4.9.1	Duration = 24 h minimum				
-Post non-operating endurance tests						
-Cathode emission	4.6.3	Minimum cathode factor $K = 2.2$. Modulator voltage equal to half the value found in 4.6.2 of BS CECC 11 000. Defocused raster.	+	-	μA	
					$Ik = K(-V_{gl})^{3/2} / \sqrt{128}$	
-Quality of fluorescent screen and faceplate and	4.6.10/1	Adjust modulator electrode voltage for convenient screen luminance			As blemish specification (Appendix A)	
-Useful screen area and		Measured as diameter centered on axis of locating collar.	79	-	mm	
-Uniformity of brightness		Visual inspection				No significant variation in brightness within the useful screen area.

To be calculated



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GROUP A (continued)

INSPECTION OR TEST	REFERENCE BS CECC 11 000	CONDITIONS OF TEST	INSPECTION REQUIREMENTS		
			MIN.	MAX.	UNITS IL AQL
Subgroup A1 (cont'd)					
-Gas content coefficient	4.6.1	Not applicable (Triode Gun)			
-Intensity modulator cut-off voltage (negative)	4.6.2		100	200	-V (Record value)
-Luminance characteristics	4.6.4	Raster size 25 x 25 mm. Pulse modulator electrode from the cut-off value found in 4.6.2 of BS CECC 11 000 to $V_{g1} = -5$ V. Pulse duration = 10 μ s. Pulse repetition frequency = 2 kHz. Pulse rise & fall times within 10 % of pulse duration. Droop within 1 % of pulse amplitude. Adjust focus to give minimum brightness of the raster. Photodetector/filter combination shall correspond to that given in Appendix C for the measurement of Actinic Intensity. Final anode = 32 kV. $-V_{g1} = 300$ V. Plane of screen vertical. Tube not tapped. Line length 75 mm. Modulator drive voltage equal to one tenth of the cut-off value found in 4.6.2 of BS CECC 11 000. Tube or coil may be rotated through 90° instead of interchanging the line & field scanning voltages. Test method as Appendix K. Coil assembly to be in position on tube. Focused spot. Inspection drawing Appendix E and Appendix D			
-Stray emission and flashover	4.6.6 and 4.6.7				Performance requirements as in 4.6.6 & 4.6.7
-Resolution (line width measured to 20 % peak luminance at screen centre only)	4.6.14.1		-	0.25	mm
-Mechanical spot displacement			-	5	mm
-Dimensions					As inspection drawing (Group A)



GROUP A (continued)

INSPECTION OR TEST	REFERENCE BS CECC 11 000	CONDITIONS OF TEST	INSPECTION REQUIREMENTS			
			MIN.	MAX.	UNITS	IL AQL
Subgroup A2						
-Mechanical spot displacement	4.6.5	Method B. No raster	-	5	mm	II 1.0
Subgroup A3						
-Heater current	4.6.8	Apply V_h only	440	660	mA	S4 6.5
-Heater to cathode leakage	4.6.9	V_h -k (heater positive) = 200 V V_k -h (heater negative) = 200 V and V_h only	-	50	μ A	
			-	50	μ A	
-Intensity modulator electrode total negative current	4.6.12A or 4.6.12B	Set - V_{g1} to 200 V	-	20	μ A	
		$R_{mod} = 10 \text{ M}\Omega$	-	100	%	
-Electrode leakage current	4.6.11	Final anode = 30 kV	-			
-Final anode			-	20	μ A	

GROUP B - Lot by Lot

General test conditions - as for Group A						
Only tests marked (D) are destructive						
INSPECTION OR TEST	REFERENCE BS CECC 11 000	CONDITIONS OF TEST	INSPECTION REQUIREMENTS			
			MIN.	MAX.	UNITS	IL AQL
Subgroup B1						
-Dimensions	4.4	Inspection drawing (See Appendix E)				S4 4.0
			As inspection drawing (Group B)			

GROUP C - PERIODIC

General test conditions - as for Group A						
Only tests marked (D) are destructive						
INSPECTION OR TEST	REFERENCE BS CECC 11 000	CONDITIONS OF TEST	INSPECTION REQUIREMENTS			
			MIN.	MAX.	UNITS	IL AQL
Subgroup C1						
-Dimensions	4.4	Inspection drawing (See Appendix E)				S3 6.5
			As inspection drawing (Group C)			

GROUP C (continued)

INSPECTION OR TEST	REFERENCE BS CECC 11 000	CONDITIONS OF TEST	INSPECTION REQUIREMENTS				
			MIN.	MAX.	UNITS	IL	AQL
Subgroup C2 -Capacitances -Modulator to all -Cathode to all -External conductive coating resistance -Unfocused spot diameter	Periodicity up to one year					I	1.5
	IEC 100	No voltages					
	4.6.27	No external conductive coating	-	15	pF		
			-	10	pF		
	4.6.28	Zero focus coil current. Pulse modulator electrode from beyond cut-off to one tenth of the cut-off voltage measured in 4.6.2. Pulse duration = 10 μ s. Pulse repetition frequency = 2 kHz. Pulse rise & fall times within 10 % of pulse duration. Droop within 10 % of pulse amplitude.	-	33	mm		
Subgroup C3 -Mass -Heater modulation	Inspection level at three yearly intervals					S4	6.5
	4.6.31	Focused raster nonsynchronized with heater supply frequency. Heater supply frequency = 50 Hz.	-	0.85	kg		
	Inspection level at three yearly intervals						
Subgroup C4 -Damp heat (steady state) Post conditioning test -Visual inspection -External conductive coating resistance	IEC 68	Test Ca. Duration 4 days. No voltages				S2	6.5
	4.3	No voltages					
	4.6.27	Not applicable					



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