

Förderverein für Elektrotechnische Normung (FEN) e. V.
Cenelec Electronic Components Committee

CECC

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

SPECIFICATION PARTICULIERE:

**CONNECTEURS COAXIAUX
POUR FREQUENCE
RADIOELECTRIQUE
Série BNC**

Harmonized System of Quality Assessment for
Electronic Components

DETAIL SPECIFICATION:

**RADIO FREQUENCY
COAXIAL CONNECTORS
Series BNC**

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

BAUARTSPEZIFIKATION:

**HOCHFREQUENZ-
KOAXIAL-STECKVERBINDER
Serie BNC**



1 Edition
Issue
Ausgabe

CECC 22121-803

1985

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PREFACE

This detail specification (DS) was prepared by CECC Group 22: 'RF Connectors'.

It relates to Series BNC connectors covered by sectional specification CECC 22 120 and by blank detail specification CECC 22 121. These in turn are related to the generic specification CECC 22 000.

The text of this DS was circulated to the CECC for voting in the documents detailed below and was ratified by the President of the CECC for printing as a CECC specification.

<u>Document</u>	<u>Voting Date</u>	<u>Report on the Voting</u>
CECC(Secretariat)1348	August 1983	CECC(Secretariat)1464

CECC 22 121-803 Issue 1

[1]	page 1 of 5...	[2] CECC 22 121-803																														
ELECTRONIC COMPONENT OF ASSESSED [3] QUALITY IN ACCORDANCE WITH GENERIC SPECIFICATION CECC 22 000 SECTIONAL SPECIFICATION CECC 22 120	[4] Issue																															
[5] DETAIL SPECIFICATION for RADIO FREQUENCY COAXIAL CONNECTOR OF ASSESSED QUALITY SERIES BNC Style: Right angle plug Function: Solder centre contact Mass: ^{30g} (max.) Special Features: clamp outer conductor																																
[6] Assessment level : H Climatic category: 55./155./21. Characteristic impedance: 50 Ω Assessment level variation(s) :																																
[7] Outline and maximum dimensions IEC 169-8																																
The maximum envelope dimensions are in accordance with																																
[8] Variants* <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Variant Number</th> <th rowspan="2">Description of Variant</th> <th colspan="2">Relevant Cable(s)</th> <th rowspan="2">URM(UK)</th> </tr> <tr> <th>Ag</th> <th>Body finish Non tarnish alloy</th> <th>IEC</th> <th>RG</th> </tr> </thead> <tbody> <tr> <td>..-01....</td> <td>..-02....</td> <td>50-3-1, -3, -4, -6, -7</td> <td>58C/U</td> <td>43,76</td> </tr> <tr> <td>..-03....</td> <td>..-04....</td> <td>75-4-1, 4-3, 4-4, 4-5, 4-7</td> <td>59B/U, 140/U</td> <td>90,117</td> </tr> <tr> <td>..-05....</td> <td>..-06....</td> <td>75-4-6</td> <td>302/U</td> <td>104,106</td> </tr> <tr> <td>..-07....</td> <td>..-08....</td> <td>75-4-2</td> <td>-</td> <td>-</td> </tr> </tbody> </table> * NOTE - All centre contacts to be gold plated.			Variant Number		Description of Variant	Relevant Cable(s)		URM(UK)	Ag	Body finish Non tarnish alloy	IEC	RG	..-01....	..-02....	50-3-1, -3, -4, -6, -7	58C/U	43,76	..-03....	..-04....	75-4-1, 4-3, 4-4, 4-5, 4-7	59B/U, 140/U	90,117	..-05....	..-06....	75-4-6	302/U	104,106	..-07....	..-08....	75-4-2	-	-
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Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00 200: Qualified Products List																																

[9] PROPERTIES (Ratings & Characteristics - including limiting conditions of use)

TEST		CECC 22 120 PARA.	VALUE	REMARKS
ELECTRICAL				
Nominal impedance			50 Ω	
	<u>Variant No./</u> <u>Designation</u>			<u>Measurement frequency</u> <u>range</u>
Reflection factor	-01 to -02 -03 to -08	4.4.1	($\leq 0,13$ ($\leq 0,15$ na	0,01 GHz up to 3 GHz above 3 GHz to 4 GHz unmatched
+ Proof voltage at sea level	-01 to -08	4.4.5	1,5... kV	860 to 1060 mbar
+ Proof voltage at 20 km altitude	-01 to -08	4.6.5	300... V	44 mbar
+ Working voltage at sea level	-01 to -08		500... V	860 to 1060 mbar
+ Working voltage at 20 km altitude	-01 to -08		125... V	44 mbar
+ R. F. high potential withstanding voltage	-01 to -08	4.4.7	na... kV	
Screening effectiveness	-01 to -08	4.4.8	$Z_t \leq 5 \times 10^{-2} \Omega$	Providing at least 55 dB between 2 and 3 GHz
Discharge voltage (corona)	-01 to -08	4.4.9	na... V	extinction voltage

+ Voltage values are r.m.s. values of a.c. at 50-60 Hz unless otherwise specified.

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TEST	CECC 22 120 PARA.	VALUE	REMARKS
ELECTRICAL (continued)			
Centre contact resistance	4.4.2	$\leq 2,5 \text{ m}\Omega$ $\leq 7,5 \text{ m}\Omega$	Initial After conditioning
Outer conductor continuity	4.4.3	$\leq 2,5 \text{ m}\Omega$ $\leq 7,5 \text{ m}\Omega$	Initial After conditioning
Insulation resistance	4.4.4	$\geq 5 \text{ G}\Omega$ $\geq 500 \text{ M}\Omega$	Initial After conditioning
MECHANICAL			
Contact captivation - axial force - torsional force Variant No./ Designation -01 to -08	4.5.2	15... N na Nm	
Effectiveness of clamping device against cable pulling	4.5.5 (1)	180... N	
Effectiveness of clamping device against cable torsion	4.5.5 (2)	0,2... Nm	
Tensile strength of coupling mechanism	4.5.6	300... N	
Engagement & separation - axial force (insertion & withdrawal) - torque (bayonet lock)	4.5.4	$\leq 20 \text{ N}$ $\leq 0,25 \text{ Nm}$ $\leq 0,07 \text{ Nm}$	
Mechanical endurance	4.7.1	500 operations	
ENVIRONMENTAL			
Bump	4.6.2	na	
Vibration	4.6.3	98... m/s^2 10... to 500 Hz	(.10 g acceleration)
Shock	4.6.4	na	
Climatic category	4.6.5	55/155/21	
Sealing (panel and barrier sealed connectors)	4.6.8	na	1000-1100 mbar pressure differential
Sealing (hermetically sealed connectors)	4.6.9	na	1000-1100 mbar pressure differential

[10]

Supplementary Information

- **marking of the component:** in accordance with 2.4 of CECC 22 000.

1) component identification	Variant No./ Designation	Identification
	-01	22 121-803/01
	-02	22 121-803/02
	-03	22 121-803/03
	-04	22 121-803/04
	-05	22 121-803/05
	-06	22 121-803/06
	-07	22 121-803/07
	-08	22 121-804/08

ii) identity of manufacturer

iii) manufacturing date, code, year/week

- **marking and contents of package:** in accordance with 2.5 and 2.5.1 of CECC 22 000.

- i) information prescribed in 2.4 of CECC 22 000 detailed above
- ii) nominal characteristic impedance - 50 Ω
- iii) assessment level code letter - H
- iv) any additional marking required - none

- **ordering information:** in accordance with 2.6 of CECC 22 000.

- **related documents:**

CECC 22 000	Generic specification for radio frequency connectors of assessed quality (and related documents, see 2.1 of CECC 22 000).
CECC 22 120	Sectional specification for r.f. connectors Series BNC.

- **certified test records (RCE):** in accordance with 3.5 of CECC 22 000 (requirements to be included later) .

- **structural similarity:** in accordance with 3.2 and 3.4 of CECC 22 000.

[1] APPLICABLE TESTS FOR QUALITY CONFORMANCE INSPECTION & QUALIFICATION APPROVAL

SERIES .ANC...

ACCEPTANCE TESTS**GROUP A1**

Visual examination

GROUP B1

Outline dimensions

Compatibility mechanical

Engagement & separation

Gauge retention force

Sealing (barrier seal)

Sealing (hermetic)

Voltage proof

PERIODIC TESTS**GROUP C1 (d)**

Soldering

Insulation resistance

GROUP D1 (d)

Mechanical tests on cable clamping device

Bending moment

Static load

Tensile strength of coupling mechanism

GROUP D2 (d)

Contact resistance

Outer conductor continuity

Bump

Vibration

Shock

Damp heat, steady state

Corrosive atmosphere (salt mist)

GROUP D3

Dimensions and materials (piece parts)

Mass

GROUP D4 (d)

Mechanical endurance

High temperature endurance

GROUP D5 (d)Industrial atmosphere Ø
(gold plated items only)**GROUP D6 (d)**

Reflection factor

Screening effectiveness

Dust Ø

GROUP D7 (d)

Contact captivation

RF high potential withstanding voltage

Discharge test (corona)

Rapid change of temperature

Climatic sequence

GROUP D8 (d)

Resistance to solvents Ø

CECC 22 120 para.	LEVEL H				Lot by Lot	LEVEL ...			
	Test Required	I.L.	AQL	Period		Test Required	I.L.	AQL	Period
4.2	a	S3	1,5%	Lot by Lot					
4.3.1	a	S3	4%						
4.5.7	a	S3	1,5%						
4.5.4	a	S3	4%						
4.5.1	a	S3	1,5%						
4.6.8	na	S3	4%						
4.6.9	na								
4.4.5	a	S3	4%						
CECC 22 120 para.	Test Required	I.L.	AQL	Period		Test Required	I.L.	AQL	Period
4.6.1	a	S3	4%	6mths.					
4.4.4	a	S3	4%						
CECC 22 120 para.	Test Required	Specimens (may be from C1)	Permitted Failure ‡	Period		Test Required	Specimens (may be from C1)	Permitted Failure ‡	Period
4.5.5	a	3 pairs	1	3 years					
4.5.9	a								
4.5.3	na								
4.5.8	a								
4.4.2	a	3 pairs	1	3 years					
4.4.3	a								
4.6.2	na								
4.6.3	a								
4.6.4	na								
4.6.6	a								
4.6.10	a								
4.3.2	a	* 3 con-	1	3					
4.3.1	QA only	nectors		years					
4.7.1	a	3 pairs	1	3 years					
4.7.2	a								
4.6.12	na	-	-	-					
4.4.1	a	3 pairs	1	3 years					
4.4.8	a								
4.6.11	na								
4.5.2	a	3 pairs	1	3 years					
4.4.7	na								
4.4.9	na								
4.6.7	a								
4.6.5	a								
4.8	na	-	-	-					

Total 15 sets + 3 sets of
piece parts each style *Total ... sets + 3 sets of
piece parts each style ***PROCEDURES****Quality Conformance Inspection**

Quality Conformance Inspection shall consist of Test Groups A1, B1 and C1.

Qualification Approval and its Maintenance

This shall consist of passing Test Groups A1, B1 and C1 over three consecutive lots, followed by selection of the required specimens from these lots which then successfully pass all the specified Group D tests.

NOTES

a = applicable

ia = if applicable

na = not applicable

IL = Inspection Level

AQL = Acceptance Quality Level

Ø = details of this test to be included later

* = unless using common piece parts

‡ = for Qualification Approval (QA) a total of 2 failures only permitted

(d) = destructive test - specimens shall not be returned to stock