

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 SMA**

Harmonized System of Quality Assessment for
Electronic Components

DETAIL SPECIFICATION:

**RADIO FREQUENCY
COAXIAL CONNECTORS
Series SMA**

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

BAUARTSPEZIFIKATION:

**HOCHFREQUENZ-
KOAXIAL-STECKVERBINDER
Serie SMA**

1 Edition
Issue
Ausgabe

CECC 22111-812

1985

AVA Documents
Document Sharing Hub

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PREFACE

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

It relates to Series SMA connectors covered by sectional specification CECC 22 110 and by blank detail specification CECC 22 111. 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 document 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)1542	June 1984	CECC(Secretariat)1613

[1]	Page 1 of 6	[2] CECC 22 111-812	
ELECTRONIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH GENERIC SPECIFICATION 22 000 SECTIONAL SPECIFICATION 22 110	[3]	[4]	

[5] DETAIL SPECIFICATION for
RADIO FREQUENCY COAXIAL CONNECTORS OF ASSESSED QUALITY:

Series

SMA

Style: Right angle PB Socket

Special Features + Markings:

Method of cable/wire* attachment:

for PC-Board mounting angled ...

centre conductor - solder/~~crimp~~ *

outer conductor - solder/~~crimp~~/~~crimp~~ *

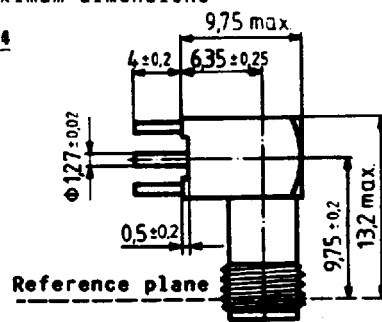
Mass: 4 g (Max.)

[6] Assessment level .. H .. Characteristic impedance 50 Ω Climatic category: 55/155/21

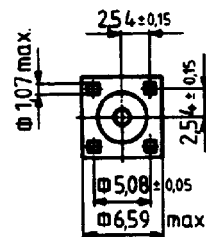
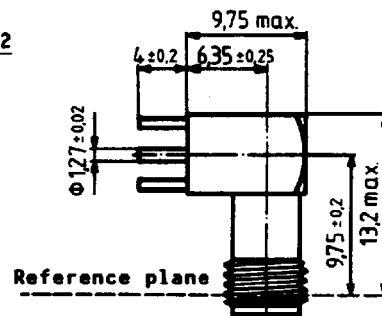
[7] Outline and maximum dimensions

Panel piercing and mounting details

Variants 03, 04



Variants 01, 02



For mating interface and position of reference plane see CECC 22 110

Maximum panel thickness: for front mounting 3,2 mm
for rear mounting na mm

The outline dimensions meet the requirements of

[8] Variants

Variant No.	Description of Variant	IEC 96-2	Relevant Cables RG	National Cables
.....-01.....	Gold-Plating .....	.....	.....	.....
.....-02.....	passivated ..	.....	.....	.....
.....-03.....	 stainless steel .....	.....	.....	.....
.....-04.....	Gold-Plating .....	.....	.....	.....
.....-05.....	passivated ..	.....	.....	.....
.....-06.....	 stainless steel .....	.....	.....	.....
.....-07.....	.....	.....	.....	.....
.....-08.....	.....	.....	.....	.....
.....-09.....	.....	.....	.....	.....
.....-10.....	.....	.....	.....	.....

Notes: 1. *Delete as appropriate

Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00 200: Qualified Products List.

[9] PERFORMANCE - (including limiting conditions of use)

Ratings + Characteristics		CECC 22 110 Clause	Value	Remarks
ELECTRICAL				
	Variant No./ Designation			Measurement freq. range
Reflection Factor	-01	4.4.1	 na .....	.....
	-02		 na .....	.....
	-03		 na .....	.....
	-04		 na .....	.....
				
				
				
Centre contact resistance	.....	4.4.2	<... 2,0 .. mΩ	Initial
	.....		<... 8,0 .. mΩ	After conditioning
Outer conductor continuity	.....	4.4.3	<... 2,5 .. mΩ	Initial
	.....		<... 7,5 .. mΩ	After conditioning
Insulation resistance	.....	4.4.4	>... 5 .. GΩ	Initial
	.....		>... 200 .. MΩ	After conditioning
+Proof Voltage at sea level	-01	4.4.5	 1 kV	(860 to 1060 mbar)
	-02		 1	86 to 106 kPa
	-03		 1	
	-04		 1	
				
				
				
+Proof Voltage at 20 km altitude	-01	4.6.5	 200 .. V	(44 mbar)
	-02		 200 ..	4,4 kPa
	-03		 200 ..	
	-04		 200 ..	
				
				
				
+Working voltage at sea level	-01		 335 .. V	(860 to 1060 mbar)
	-02		 335 ..	86 to 106 kPa
	-03		 335 ..	
	-04		 335 ..	
				
				
				
+Working Voltage at 20 km altitude	-01		 85 .. V	(44 mbar)
	-02		 85 ..	4,4 kPa
	-03		 85 ..	
	-04		 85 ..	
				
				
				
Screening effec- tiveness	-01	4.4.8	Z _t ... na ..	Equivalent to ... dB
	-02		... na ..	
	-03		... na ..	
	-04		... na ..	
				
				
				
ADDITIONAL ELECTRICAL CHARACTERISTICS				

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

RATINGS + CHARACTERISTICS		CECC 22 110 Clause	VALUE	REMARKS	
MECHANICAL					
Contact captivation - axial force - torque		4.5.2	 22 N na Nm	CECC 22 000 method (or as specified)	
Engagement + separation - torque		4.5.4	... 0,25 Nm max.		(to overcome friction of coupling nut)
	Variant No./ Designation				
Effectiveness of clamping device against cable pulling	-01 .....-02 .....-03 .....-04	4.5.5 (1)	 na N na na na	Rel. to reference plane	
Effectiveness of clamping device against cable torsion	-01 .....-02 .....-03 .....-04	4.5.5 (2)	 na Nm na na na		
Tensile strength of coupling mechanism		4.5.6	 na N		
Coupling torque - normal - proof			...0,8-1,1... Nm na..... Nm		
Bending moment		4.5.9	 na ... Nm		
ADDITIONAL MECHANICAL CHARACTERISTICS					
ENVIRONMENTAL					
Bump		4.6.2	... 390 ... m/s ² .. 4000 ... bumps		(40 g acceleration)
Vibration		4.6.3	 98 ... m/s ² 10-2000 ... Hz		(10 g acceleration)
Shock		4.6.4	... 490 ... m/s ² 1/2 Sine 11 ms		(50 g acceleration)
Climatic Category		4.6.5	.. 55/155/21 .		
Sealing (panel + barrier sealed connectors)		4.6.8	 na	100 to 110 kPa pressure differential (1000 to 1100 mbar)	
Sealing (hermetically sealed connectors)		4.6.9	 na	100 to 110 kPa pressure differential (1000 to 1100 mbar)	
ADDITIONAL ENVIRONMENTAL CHARACTERISTICS					
ENDURANCE					
Mechanical		4.7.1	.. 500 .. operat.		
High temperature		4.7.2	. 1000 .. h at 155 .. °C		
ADDITIONAL ENDURANCE CHARACTERISTICS					

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[10] Supplementary Information

- marking of the component: in accordance with 2.4 of CECC 22 000, in the following order of precedence:

i) Component identification	Variant No./	Identification
	Designation	
	-01	22 111-812-01..
	-02	22 111-812-02..
	-03	22 111-812-03..
	-04	22 111-812-04..
		
		
		
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 as follows:

- i) Information prescribed in 2.4 of CECC detailed above
- ii) Nominal characteristic impedance ..50 Ω ..
- iii) Assessment level code letter ...H...
- iv) Any additional marking required

- ordering information: in accordance with 2.6 of CECC 22 000 as follows:

- i) Number of the detail specification CECC 22 111-812-xx
(No. of Variant)
- ii) Assessment level code letter ...H...
- iii) Body finish (if more than one listed) see variant numbers in [8]
- iv) Any additional information or special requirements

- 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 22 110	Sectional Specification for r.f. connectors Series SMA

- certified test records (RCE):
(when applicable)
- In accordance with 3.7 of CECC 22 000
(requirements to be included later)

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

[11] TEST SCHEDULE AND INSPECTION REQUIREMENTS - SERIES SMA

Details of tests and quality assessment inspection requirements for Levels H and U are given in 5.1 of CECC 22 110.

ACCEPTANCE TESTS**GROUP A1**

Visual examination

GROUP B1

Outline dimensions
Compatibility mechanical
Engagement + Separation
Gauge retention force
(resilient contacts)
Sealing (panel seal)
Sealing (hermetic)
Voltage proof

CECC 22 110 Clause	Level H			
	Test Requir.	I.L.	AQL	Period
4.2	a	S 3	1,5 %	Lot by Lot
4.3.1	a	S 3	4 %	
4.5.7	a	S 3	1,5 %	
4.5.4	a	S 3	1,5 %	
4.5.1	a	S 3	1,5 %	
4.6.8	na			
4.6.9	na			
4.4.5	a	S 3	4 %	

PERIODIC TESTS**GROUP C1 (d)**

Soldering
Insulation resistance

CECC 22 110 Clause	Test	I.L.	AQL	Period
4.6.1	a	S 3	4 %	1 yearly
4.4.4	a	S 3	4 %	

GROUP D1 (d)

Mechanical tests on cable
clamping device
Bending moment
Tensile strength of
coupling mechanism

CECC 22 110 Clause	Test Requir.	Specimens (May be from C1)	Permitted Failures per Group ⁺	Period
4.5.5	na			
4.5.9	na			
4.5.6	na			

GROUP D2 (d)

Contact resistance
Outer conductor continuity
Bump
Vibration
Shock
Damp heat, steady state
Salt mist

CECC 22 110 Clause	Test Requir.	Specimens (May be from C1)	Permitted Failures per Group ⁺	Period
4.4.2	a	3 mated pairs or sets min.	1	3 yearly
4.4.3	a			
4.6.2	a			
4.6.3	a			
4.6.4	a			
4.6.6	a			
4.6.10	a			

GROUP D3

Dimensions and materials
(piece parts)
Mass

CECC 22 110 Clause	Test Requir.	Specimens (May be from C1)	Permitted Failures per Group ⁺	Period
4.3.2	a	1 set of piece parts each style	1	3 yearly
4.3.1	a			

GROUP D4 (d)

Mechanical endurance
High temperature endurance

CECC 22 110 Clause	Test Requir.	Specimens (May be from C1)	Permitted Failures per Group ⁺	Period
4.7.1	a	3 mated pairs or sets min.	1	3 yearly
4.7.2	a			

GROUP D5 (d)

Reflection factor
Screening effectiveness

CECC 22 110 Clause	Test Requir.	Specimens (May be from C1)	Permitted Failures per Group ⁺	Period
4.4.1	na			
4.4.8	na			

GROUP D6 (d)

Contact captivation
Rapid change of temperature
Climatic sequence

CECC 22 110 Clause	Test Requir.	Specimens (May be from C1)	Permitted Failures per Group ⁺	Period
4.5.2	a	3 mated pairs or sets min.	1	3 yearly
4.6.7	a			
4.6.5	a			

PROCEDURES

Quality Conformance Inspection

This shall consist of Test Groups A1 and B1 on a lot-by-lot basis and C1 on a periodic basis.

Qualification Approval and its Maintenance

This shall consist of three consecutive lots passing Test Groups A1 and B1 followed by selection of specimens from lots as appropriate. These specimens shall successfully pass the specified periodic C1 and D tests.

NOTES

I.L.	=	Inspection Level
AQL	=	Acceptable Quality Level
a	=	applicable
+	=	for Qualification Approval (QA) a total of 2 failures only permitted
(d)	=	destructive test - specimens shall not be returned to stock
na	=	not applicable