

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 N**

Harmonized System of Quality Assessment for
Electronic Components

DETAIL SPECIFICATION:

**RADIO FREQUENCY
COAXIAL CONNECTORS
Series N**

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

BAUARTSPEZIFIKATION:

**HOCHFREQUENZ-
KOAXIAL-STECKVERBINDER
Serie N**



1

Edition
Issue
Ausgabe

CECC 22 211-818

1988



Documents

Document Sharing Hub

Information about the System may be obtained from:



FEN Secretariat
and
CECC General Secretariat
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D-6000 Frankfurt/Main 70
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Telex 4-12871 vdetz d
Telefax Int.+ (49) 69 6 30 82 83 (Gr. 2/3)
or from the National Authorized Institutions
of the participating countries listed
who can supply copies of:

- 1 The Internal Regulations of the FEN e.V.
- 2 CECC Specifications of the FEN and National Specifications for the System
- 3 CECC 00 200: Qualified Products List (QPL)
- 4 CECC 00 300: CECC Publications and their related national documents

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DK-1401 Copenhagen K

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P.O. Box 134
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PREFACE

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

It relates to Series N connectors covered by sectional specification CECC 22 210 and by blank detail specification CECC 22 211. These in turn are related to the generic specification CECC 22 000.

It is based, wherever possible, on the Publications of the International Electrotechnical Commission, and in particular on IEC 169 Part 16 R.F. coaxial connectors with inner diameter of outer conductor 7 mm (0,276 in) with screw coupling - Characteristic impedance 50 ohms (Type N).

The text of this detail specification was circulated to members of CECC WG 22 and was approved for publication under the accelerated procedure for the acceptance of detail specifications in accordance with Decision 10 of the minutes of the CECC CD in document CECC(Secretariat)1838.

Document

WG22(Secretariat)519

Approval Date

August 1987

CECC 22 211-818 Issue 1

[1]	page 1 of 10	[2] CECC 22 211 - 818 ..	
ELECTRONIC COMPONENT OF ASSESSED [3] QUALITY IN ACCORDANCE WITH GENERIC SPECIFICATION CECC 22 000 SECTIONAL SPECIFICATION CECC 22 210	[4]	Issue 1	

[5] DETAIL SPECIFICATION for

RADIO FREQUENCY COAXIAL CONNECTOR OF ASSESSED QUALITY:

SERIES

N

Style: Right-angle plug, crimp type (double centre contact) Special Features & Markings:

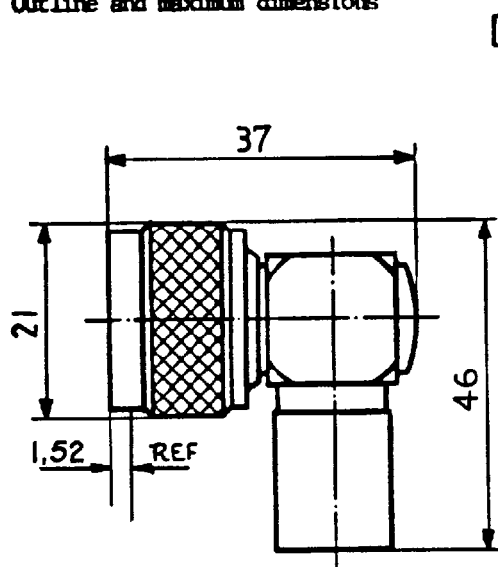
Method of cable/wire* attachment: centre conductor - Double Contact (crimp)
: outer conductor - solder/screw/crimp*

Mass: 90 g(Max.) *Delete as appropriate

[6] Assessment level ...H... Characteristic Impedance 50 Ω Climatic category ..40../155../21...

[7] Outline and maximum dimensions

Panel piercing and mounting details



Crimp dies and cable stripping dimensions to conform with the instructions supplied by the manufacturer.

For mating interface dimensions and position of reference plane see CECC 22 210

Maximum panel thickness: for front mounting mm, for rear mounting mm

The outline dimensions meet the requirements of

[8] Variants

Variant No.	Description of Variant	Relevant Cables		
		IEC 96	RG	National Cables
See Annex A - Page 10				
.....				
.....				
.....				
.....				
.....				
.....				
.....				
.....				

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 AND CHARACTERISTICS		CECC 22 210 CLAUSE	VALUE	REMARKS
ELECTRICAL				
Reflection factor	Variant No./ Designation			Measurement freq. range
	-01 to -08	4.4.1	$\leq 0,15$	≤ 9 GHz
				
				
				
				
				
				
Centre contact resistance		4.4.2	$< \dots\dots\dots 1 \dots \text{m}\Omega$ $< \dots\dots\dots 1,5 \dots \text{m}\Omega$	Initial After conditioning
Outer conductor continuity		4.4.3	$< \dots\dots\dots 1 \dots \text{m}\Omega$ $< \dots\dots\dots 3 \dots \text{m}\Omega$	Initial After conditioning
Insulation resistance		4.4.4	$> \dots\dots\dots 5 \dots \text{G}\Omega$ $> \dots\dots\dots 200 \dots \text{M}\Omega$	Initial After conditioning
+ Proof voltage at sea level		4.4.5		86 to 106 kPa
	-01,-02,-05,-06		$\dots\dots\dots 1,5 \dots \text{kV}$	
	-03,-04,-07,-08		$\dots\dots\dots 2,5 \dots \text{kV}$	
				
				
				
				
				
				
+ Proof voltage at 20 km altitude		4.6.5		4,4 kPa
	-01,-02,-05,-06		$\dots\dots\dots 350 \dots \text{V}$	
	-03,-04,-07,-08		$\dots\dots\dots 600 \dots \text{V}$	
				
				
				
				
				
				
				

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

RATINGS AND CHARACTERISTICS	CECC 22 210 CLAUSE	VALUE	REMARKS
ELECTRICAL			
Variant No./ Designation + Environmental test voltage at sea level			86 to 106 kPa
-01,-02,-05,-06		850... V	
-03,-04,-07,-08		1,4 kV	
.....			
.....			
.....			
.....			
.....			
+ Environmental test voltage at 20 km altitude			4,4 kPa
-01,-02,-05,-06		250... V	
-03,-04,-07,-08		400... V	
.....			
.....			
.....			
.....			
.....			
RF high potential withstanding voltage	4.4.7	na V	
-01 to -08			
.....			
.....			
.....			
.....			
.....			
.....			
Screening effectiveness	4.4.8		Providing ≥ 80 dB at 1 GHz
-01,-03,-05,-07		$Z_t \leq \dots 10 \dots \text{m}\Omega$	≥ 100 dB at 1 GHz
-02,-04,-06,-08		$Z_t \leq \dots 1 \dots \text{m}\Omega$	
.....			
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+ Voltage values are r.m.s. values of a.c. at 50 to 60 Hz unless otherwise stated.

RATINGS AND CHARACTERISTICS		CECC 22 210 CLAUSE	VALUE	REMARKS
ELECTRICAL				
Discharge test (corona) -03,-04,-07,-08, -01,-02,-05,-06, ...		4.4.9	> 500 V	
				
				
			 na.....	
				
				
				
				
				
				
ADDITIONAL ELECTRICAL CHARACTERISTICS				
MECHANICAL				
Contact captivation: - axial force - torque		4.5.2	 66 N	CECC 22 000 method (or as specified)
			 na.....	
			 Nm	
Static load (for fixed connectors only)		4.5.3	 na.....	
				
				
Engagement and separation - torque		4.5.4	0,066 Nm max.	(to overcome friction of coupling nut)
				
				
Coupling torque - normal - proof			0,7 to 1,1 Nm	
				
			 1,7 Nm	
Effectiveness of clamping device against cable pulling	Variant No./ Designation	4.5.5 (1)		
	-01,-05,.....		 150 N	
	-02,-06,.....		 200 N	
	-03,-07,.....		 300 N	
	-04,-08,.....		 400 N	
				
				
				
				
				

RATINGS AND CHARACTERISTICS		CECC 22 210 CLAUSE	VALUE	REMARKS
MECHANICAL				
Effectiveness of clamping device against cable torsion	-01,-05 -02,-06 -03,-07 -04,-08	4.5.5 (2)	0,2 Nm 0,4 Nm 1,0 Nm 1,5 Nm	
Tensile strength of coupling mechanism		4.5.6	450 N	
Bending moment		4.5.9	na Nm	Relative to reference plane
ADDITIONAL MECHANICAL CHARACTERISTICS				
ENVIRONMENTAL				
Vibration		4.6.3	98.. m/s ² 10..to.500 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	40./155/21.	
Sealing (panel and barrier sealed connectors)		4.6.8	na	100 to 110 kPa pressure differential
Sealing (hermetically sealed connectors)		4.6.9	na	100 to 110 kPa pressure differential
ADDITIONAL ENVIRONMENTAL CHARACTERISTICS				
ENDURANCE				
Mechanical		4.7.1	500 operations	
High temperature		4.7.2	1000 h at 155 °C	with appropriate cable
ADDITIONAL ENDURANCE CHARACTERISTICS				

[10] SUPPLEMENTARY INFORMATION

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

(1) Component identification	Variant No./ Designation	Identification
	-Q1	.22.211-818/Q1...
	-Q2	.22.211-818/Q2...
	-Q3	.22.211-818/Q3...
	-Q4	.22.211-818/Q4...
	↓	↓
	↓	↓
	↓	↓
	↓	↓
	-08	.22.211-818/08...

- (2) Identification of manufacturer:
 (3) 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:

- (1) Information prescribed in 2.4 of CECC 22 000 detailed above
 (2) Nominal characteristics impedance .50.Ω.....
 (3) Assessment level code letter H.....
 (4) Any additional marking required

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

- (1) Number of the detail specification CECC 22 211-818/Variant code ...-Q1...-Q2...-Q3 etc.
 (2) Assessment level code letter H.....
 (3) Body finish (if more than one listed)
 (4) Any additional information or special requirements

- related documents (if not included in CECC 22 000 or CECC 22 210):

.....

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

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

NOTE: Relevant information on a basic style should be entered as Variant 01.

[11] TEST SCHEDULES AND INSPECTION REQUIREMENTS - SERIES N

ACCEPTANCE TESTS

GROUP A1

Visual examination

GROUP B1

Outline dimensions

Compatibility mechanical

Engagement and
separationGauge retention force
(resilient contacts)

Sealing (panel and barrier)

Sealing (hermetic)

Voltage proof

CECC 22 210 Clause	Level H			
	Test Required	IL	AQL	Period
4.2	a	S3	1,5%	lot by lot
4.3.1	a	S3	4%	lot by lot
4.5.7	a	S3	1,5%	
4.5.4	a	S3	1,5%	
4.5.1	a	S3	1,5%	
4.6.8	na			
4.6.9	na			
4.4.5	a	S3	4%	

PERIODIC TESTS

GROUP C1(d)

Soldering

Insulation resistance

CECC 22 210 Clause	Test Required	IL	AQL	Period
4.6.1	na			1 year
4.4.4	a	S3	4%	

For notes relating to symbols: See page 9

	CECC 22 210 Clause	Test Required	Specimens (may be from Cl)	Permitted Failures per group†	Period
GROUP D1(d)					
Mechanical tests on cable clamping device	4.5.5	a	3 mated pairs or sets min.	1	3 years
Static load	4.5.3	na			
Tensile strength of coupling mechanism	4.5.6	a			
GROUP D2(d)					
Contact resistance	4.4.2	a	3 mated pairs or sets min.	1	3 years
Outer conductor continuity	4.4.3	a			
Vibration	4.6.3	a			
Shock	4.6.4	a			
Damp heat, steady state	4.6.6	a			
Salt mist	4.6.10	na			
GROUP D3					
Dimensions and materials (piece parts)*	4.3.2	a	1 set of piece-parts each style*	1	3 years
Mass	4.3.1	a			
GROUP D4(d)					
Mechanical endurance	4.7.1	a	3 mated pairs or sets min.	1	3 years
High temperature endurance	4.7.2	a			
GROUP D5(d)					
Reflection factor	4.4.1	a	3 mated pairs or sets min.	1	3 years
Screening effectiveness	4.4.8	a			

For notes relating to symbols: See page 9

	CECC 22 210 Clause	Test Required	Specimens (may be from C1)	Permitted Failures per group†	Period
GROUP D6(d)					
Contact captivation	4.5.2	a			
RF high potential withstanding voltage	4.4.7	na	3 mated		
Discharge test (corona)	4.4.9	ia	pairs or	1	3 years
Rapid change of temperature	4.6.7	a	sets min.		
Climatic sequence	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 an annual 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:

a = applicable

IL = Inspection Level

AQL = Acceptable Quality Level

* = 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

na = not applicable

ia = if applicable

[8]Variants

Variant No:		Relevant Cables	
		IEC 96	RG
		National Cables	
Plated finishes		GB	
Body Ag	Body non-tarnish		
Centre Contact Au	Centre Contact Au		
-01	-05	50-3-1,-3,-4,-6 [†] , -7 [†]	58 C/U
-02	-06	50-3-5	142 B/U [†] ,223/U 400/U
-03	-07	50-7-1,-2,-4	213/U
-04	-08	50-7-3,-6	115 A/U, 214/U
			URM 43/76
			URM 67
			URM 91/112

NOTE: † - These cables have inner conductors harder than copper. Satisfactory crimping may not be possible.