

Förderverein für Elektrotechnische Normung (FEN) e. V.
Genelec 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
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CECC 22 211-814

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Information about the System may be obtained from:



FEN Secretariat
and
CECC General Secretariat
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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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für Elektrotechnik
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DK-1401 Copenhagen K

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Finnish Electrotechnical
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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)400

Approval Date

March 1987

CECC 22 211-814 Issue 1

(9) PERFORMANCE (including limiting conditions of use)

RATINGS AND CHARACTERISTICS		CECC 22 210 CLAUSE	VALUE	REMARKS
ELECTRICAL				
	Variant No./ Designation			Measurement freq. range
Reflection factor	-01 to -12	4.4.1	$\leq 0,11$	$< 11 \text{ GHz}$
Grade 1	-13 to -16		$\leq 0,05 + 0,003 f$	$< 18 \text{ GHz}$
				
				
				
				
			-05to-16 -01to-04	
Centre contact resistance		4.4.2	$\leq 1,0$ $2 \text{ m}\Omega$ $\leq 1,5$ $5 \text{ m}\Omega$ $\leq 1,5$ $5 \text{ m}\Omega$	Initial After conditioning
Outer conductor continuity		4.4.3	$\leq 1,0$ $1 \text{ m}\Omega$ $\leq 1,5$ $3 \text{ m}\Omega$	Initial After conditioning
Insulation resistance		4.4.4	$\geq \dots\dots 5 \text{ G}\Omega$ $\geq \dots\dots 200 \text{ M}\Omega$	Initial After conditioning
+ Proof voltage at sea level		4.4.5		86 to 106 kPa
-01,-03,-05,-07,-09,-11,-13,-15			2,5 kV	
-02,-04,-06,-08,-10,-12,-14,-16			1 kV	
.....				
.....				
.....				
.....				
+ Proof voltage at 20 km altitude		4.6.5		4,4 kPa
-01,-03,-05,-07,-09,-11,-13,-15			600 V	
-02,-04,-06,-08,-10,-12,-14,-16			200 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,-03,-05,-07,-09,-11,-13,-15			1,4... kV	
-02,-04,-06,-08,-10,-12,-14,-16			335... V	
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.....				
+ Environmental test voltage at 20 km altitude				4,4 kPa
-01,-03,-05,-07,-09,-11,-13,-15			400... V	
-02,-04,-06,-08,-10,-12,-14,-16			85... V	
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RF high potential withstanding voltage	-01 to -16	4.4.7	na..... V	
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Screening effectiveness	-01 to -16	4.4.8	$Z_t \leq 1 \text{ m}\Omega$	Providing $\geq 100 \text{ dB}$ at 1 GHz
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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)	-01 to -16	4.4.9	na	
ADDITIONAL ELECTRICAL CHARACTERISTICS				
MECHANICAL				
Contact captivation:		4.5.2	66 N na Nm	CECC 22 000 method (or as specified)
- axial force				
- torque				
Static load (for fixed connectors only)		4.5.3	100 N 10 mm from mounting plane	
Engagement and separation		4.5.4	na Nm max.	(to overcome friction of coupling nut)
- torque				
Coupling torque			na to.....Nm na Nm	
- normal				
- proof				
Effectiveness of clamping device against cable pulling	Variant No./ Designation -01 to -16	4.5.5 (1)	500 N	

RATINGS AND CHARACTERISTICS	CECC 22 210 CLAUSE	VALUE	REMARKS
MECHANICAL			
Effectiveness of clamping device against cable torsion	-01 to -16 4.5.5 (2)	na Nm	
Tensile strength of coupling mechanism	4.5.6	na..... 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 ½ sine 11 ms	(50.g acceleration)
Climatic category	4.6.5	40 / 115 / 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 115 °C	This temperature limit is imposed by the semi-rigid cable RG401/U and 402/U
ADDITIONAL ENDURANCE CHARACTERISTICS			

[11] TEST SCHEDULES AND INSPECTION REQUIREMENTS - SERIES N

ACCEPTANCE TESTS

GROUP A1

Visual examination

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	na			
4.5.1	a	S3	1,5%	
4.6.8	na			
4.6.9	na			
4.4.5	a	S3	4%	

GROUP B1

Outline dimensions

Compatibility mechanical

Engagement and
separationGauge retention force
(resilient contacts)

Sealing (panel and barrier)

Sealing (hermetic)

Voltage proof

PERIODIC TESTS

GROUP C1(d)

Soldering

Insulation resistance

CECC 22 210 Clause	Test Required	IL	AQL	Period
4.6.1	a	S3	4%	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 C1)	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	a			
Tensile strength of coupling mechanism	4.5.6	na			
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

GROUP D6(d)

CECC 22 210 Clause	Test Required	Specimens (may be from Cl)	Permitted Failures per group†	Period
Contact captivation	a			
RF high potential withstanding voltage	na	3 mated	1	3 years
Discharge test (corona)	na	pairs or		
Rapid change of temperature	a	sets min.		
Climatic sequence	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

				Relevant Cables	
Variant No:				IEC 96	RG
Plated finishes					National Cables
Body Ag	Body Ag	Body non-tarnish	Body Au		GB
Centre Contact	Centre Contact	Centre Contact	Centre Contact		
Ag	Au	Au	Au		
Plain fixing holes 'D'					
-01	-05	-09	-13	401/U	
-02	-06	-10	-14	402/U	
Threaded fixing holes 'D'					
-03	-07	-11	-15	401/U	
-04	-08	-12	-16	402/U	