

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 TNC**

Harmonized System of Quality Assessment for
Electronic Components

DETAIL SPECIFICATION:

**RADIO FREQUENCY
COAXIAL CONNECTORS
Series TNC**

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

BAUARTSPEZIFIKATION:

**HOCHFREQUENZ-
KOAXIAL-STECKVERBINDER
Serie TNC**



1

Edition
Issue
Ausgabe

CECC 22 201-802

1988

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Information about the System may be obtained from:



FEN Secretariat
and
CECC General Secretariat
Stresemannallee 15
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Telefon: (069) 6308283
Telex 4-12871 vdetz d
Telefax (069) 6308273 (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) (biannual issues January and July, with three-monthly amendments)
- 4 CECC 00 300: CECC Publications and their related national documents (biannual issues June and December, with three-monthly amendments)

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PREFACE

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

It relates to Series TNC connectors covered by sectional specification CECC 22 200 and by blank detail specification CECC 22 201. These in turn are related to the generic specification CECC 22 000.

The text of this DS was circulated amongst members of CECC WG22 and was approved for publication in accordance with Decision 10 of CD Minutes CECC(Secretariat)1838.

The text of this DS was circulated amongst members of CECC WG22 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

CECC(Secretariat)1869

Approval Date

March 1986

[1]	page 1 of 9..	[2] CECC 22 201 - 802 ..	
ELECTRONIC COMPONENT OF ASSESSED [3] QUALITY IN ACCORDANCE WITH GENERIC SPECIFICATION CECC 22 000 SECTIONAL SPECIFICATION CECC 22 200	[4]	Issue 1	

[5] DETAIL SPECIFICATION for

RADIO FREQUENCY COAXIAL CONNECTOR OF ASSESSED QUALITY:

SERIES

TNC

Style: Straight plug for flexible cable

Special Features & Markings:

Method of cable/wire* attachment: centre conductor - solder/crimp*

: outer conductor - solder/clamp/crimp*

Mass: 19 g (Max.) *Delete as appropriate

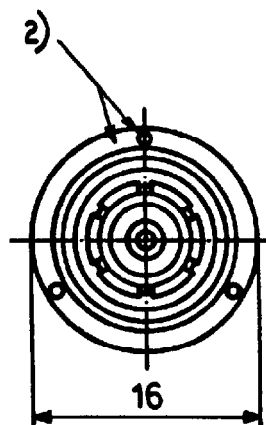
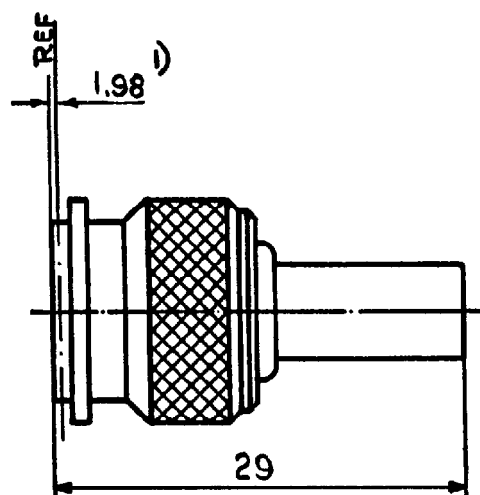
[6] Assessment level ...H... Characteristic impedance 50 Ω Climatic category ...55.../155.../21...

[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.



NOTES:

1. With nut fully forward.
2. Optional flange to accommodate three equi-spaced wirelocking holes 0,69 mm diameter min. when required - see 8) below.

For mating interface dimensions and position of reference plane see CECC 22 200

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

The outline dimensions meet the requirements of

[8] Variants **

<u>Variant No:</u>		<u>Description of Variant</u>		<u>Relevant Cables</u>			
<u>Non wire-locking</u>		<u>Wire-locking</u>		<u>IEC 96</u>	<u>RG</u>	<u>National Cables</u>	
<u>Body Finish</u>		<u>Body Finish</u>					
<u>Ag</u>	<u>Non-tarnish Alloy</u>	<u>Ag</u>	<u>Non-tarnish Alloy</u>			F	UK
-01	-02	-11	-12	50-3-1,-3,-4,-6 ⁺ , -7 ⁺	58C/u	KX15	URM43, 76
-03	-04	-13	-14	50-3-5	223/u, 142B/u ⁺	KX23	-
-05	-06	-15	-16	75-4-1,-3,-4,-5 ⁺ , -7 ⁺	59B/u ⁺ , 140/u ⁺		URM90 ⁺ , 117
-07	-08	-17	-18	75-4-6	302/u		URM104 ⁺ , 106 ⁺
-09	-10	-19	-20	75-4-2	-		-

** NOTE: All centre contacts to be gold plated

+ NOTE: This cable has an inner conductor harder than copper, satisfactory crimping may not be possible.

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 22 200 CLAUSE	VALUE	REMARKS
ELECTRICAL				
Reflection factor	Variant No./ Designation			Measurement freq. range
-01 to -04 & -11 to -14		4.4.1	$\leq 0,13$	≤ 11 GHz
				
-05 to -10 & -15 to -20 (unmatched variants)			$\leq 0,13$	≤ 500 MHz
				
				
				
				
				
Centre contact resistance		4.4.2	$\leq \dots 2,5 \dots \text{m}\Omega$	Initial
			$\leq \dots 5,0 \dots \text{m}\Omega$	After conditioning
Outer conductor continuity		4.4.3	$\leq \dots 1,0 \dots \text{m}\Omega$	Initial
			$\leq \dots 2,0 \dots \text{m}\Omega$	After conditioning
Insulation resistance		4.4.4	$> \dots 5 \dots \text{G}\Omega$	Initial
			$> \dots 500 \dots \text{M}\Omega$	After conditioning
+ Proof voltage at sea level	-01 to -20	4.4.5	$\dots 1,5 \dots \text{kV}$	86 to 106 kPa
				
				
				
				
				
				
				
+ Proof voltage at 20 km altitude	-01 to -20	4.6.5	$\dots 375 \dots \text{V}$	4,4 kPa
				
				
				
				
				
				
				
				
				

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

RATINGS AND CHARACTERISTICS		CECC 22 200 CLAUSE	VALUE	REMARKS
ELECTRICAL				
+ Working voltage at sea level	Variant No./ Designation			
	-01 to -20		500 V	86 to 106 kPa
+ Working voltage at 20 km altitude	-01 to -20		125 V	4,4 kPa
	-01 to -20			
Screening effectiveness	-01 to -04 & -11 to -14 -05 to -10 & -15 to -20	4.4.8	$Z_t < .1 \text{ m}^2$ na.....	Providing >100 dB
				
Discharge test (corona)	-01 to -20	4.4.9	≥ 500 V	Extinction voltage
				
ADDITIONAL ELECTRICAL CHARACTERISTICS				

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

RATINGS AND CHARACTERISTICS		CECC 22 200 CLAUSE	VALUE	REMARKS
MECHANICAL				
Contact captivation		4.5.2	 ²⁰ N	CECC 22 000 method (or as specified)
- axial force			 ^{na} Nm	
- torque				
Static load (for fixed connectors only)		4.5.3	 ^{na} N 10 mm from mounting plane	Parallel to mounting plane
Engagement and separation		4.5.4	 ^{0,25} Nm max.	To overcome friction.
- torque			 ²² N max.	
- axial force (insertion and withdrawal)				
Coupling torque			 ^{0,46} Nm	
- normal			 ^{0,69} Nm	
- proof			 ^{1,7} Nm	
	Variant No./ Designation			
Effectiveness of clamping device against cable pulling	-01 to -20	4.5.5	 ¹⁰⁰ N	
		(1)		
				
				
				
				
				
				
Effectiveness of clamping device against cable torsion	-01 to -20	4.5.5	 ^{0,2} Nm	
		(2)		
				
				
				
				
				
				
Tensile strength of coupling mechanism		4.5.6	 ⁴⁵⁰ N	
Bending moment		4.5.9	 ^{na} Nm	Relative to reference plane
ADDITIONAL MECHANICAL CHARACTERISTICS				

RATINGS AND CHARACTERISTICS	CECC 22 200 CLAUSE	VALUE	REMARKS
ENVIRONMENTAL			
Vibration	4.6.3	98 m/s ² 10.....500 Hz to.....	(10g acceleration)
Climatic category	4.6.5	55/155/21....	
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
	-01	22 201-802-01
	-02	22 201-802-02
	-03	22 201-802-03
	-04	22 201-802-04
		
		
		
		
	-20	22 201-802-20

(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 50Ω
- (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 22 201-⁸⁰²Variant code
- (2) Assessment level code letter H
- (3) Body finish (if more than one listed) $see [8]$
- (4) Any additional information or special requirements

- related documents (if not included in CECC 22 000 or CECC 22 200):

.....

.....

- 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 TNC

ACCEPTANCE TESTS

GROUP A1

Visual examination

CECC 22 200 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%	

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 22 200 Clause	Test Required	IL	AQL	Period
4.6.1	na			
4.4.4	a	S3	4%	1 Year

For notes relating to symbols: See page 9

	CECC 22 200 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	na			
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 22 200 Clause	Test Required	Specimens (may be from Cl)	Permitted Failures per group†	Period
Contact captivation	4.5.2	a		
Discharge test (corona)	4.4.9	a		
Rapid change of temperature	4.6.7	a	1	3 Years
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.