



**SLOVENSKI STANDARD**  
**SIST EN 122160:1999**

**01-julij-1999**

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**Sectional Specification: Radio frequency coaxial connectors - Series SSMA**

Sectional Specification: Radio frequency coaxial connectors - Series SSMA

Rahmenspezifikation: Hochfrequenz-Koaxial-Steckverbinder - Serie SSMA

Spécification intermédiaire: Connecteurs coaxiaux pour fréquence radioélectrique - Série SSMA

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**Ta slovenski standard je istoveten z: EN 122160:1993**

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**ICS:**

33.120.30 R.F. connectors

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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EN 122160

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Sectional specification:  
Radio frequency coaxial connectors.  
Series SSMA

Spécification intermédiaire:  
Connecteurs coaxiaux pour fréquence  
radioélectrique.  
Série SSMA

Rahmenspezifikation:  
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Steckverbinder.  
Serie SSMA

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This European Standard was approved by the CENELEC Electronic Components (CECC) on 7 May 1993. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the General Secretariat of the CECC or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CECC Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom. The membership of the CECC is identical, with the exception of the national electrotechnical committees of Greece, Iceland and Luxembourg.



CECC

CENELEC Electronic Components Committee  
Comité des Composants Electroniques du CENELEC  
CENELEC - Komitee für Bauelemente der Elektronik

General Secretariat: rue de Stassart 35, B-1050 Brussels

## Foreword

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby acceptable in all member countries without further testing.

This European Standard was prepared by CECC WG 22, RF Connectors.

The text of the draft based on document CECC 22160 Issue 2 : 1992 was submitted to the formal vote for conversion to a European Standard; together with the voting report, circulated as document CECC (Secretariat) 3342 it was approved by CECC as EN 122160 on 7 May 1993.

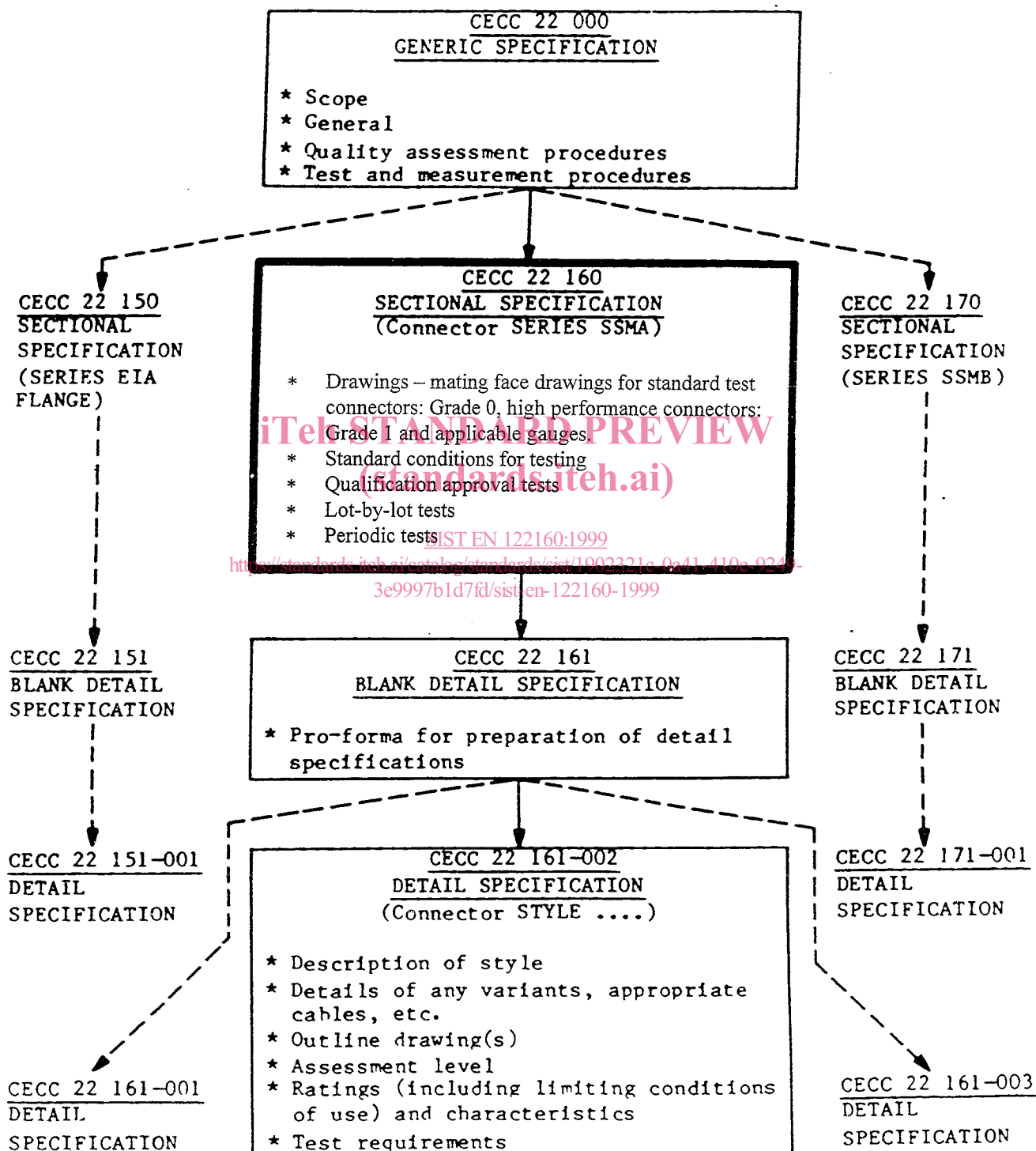
The following dates were fixed:

- latest date of announcement of the EN at national level (doa) 1993-09-03
- latest date of publication of an identical national standard\* (dop) 1994-03-03
- Latest date of withdrawal of conflicting national standards\* (dow) 1995-03-03

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\* National standard (excluding national implementation of IECQ specifications).

CECC SPECIFICATION SYSTEM  
for R.F. Connectors

NOTE: A detail specification is a 'completed' blank detail specification

## SECTION 1 - SCOPE

This sectional specification (SS) provides information and rules for the preparation of detail specifications (DS) for miniature screw-coupled coaxial connectors Series SSMA.

It prescribes mating-face dimensions for high performance connectors: Grade 1, dimensional details for standard test connectors: Grade 0, together with gauging information and the mandatory tests, selected from CECC 22 000, applicable to all DSs relating to Series SSMA connectors.

This specification indicates the recommended performance characteristics to be considered when writing a DS, and covers test schedules and inspection requirements for Assessment Levels H, M and U.

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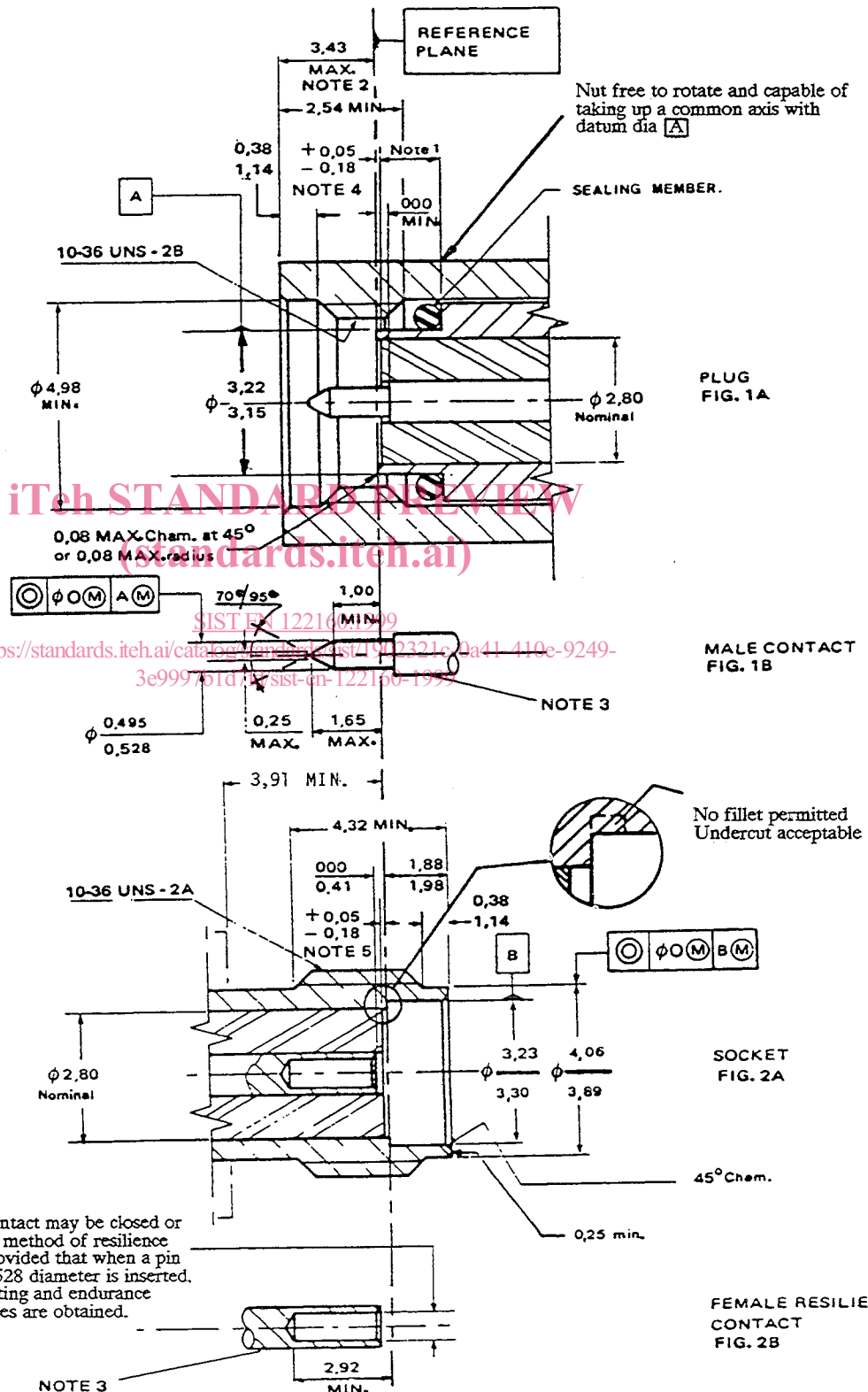
SECTION 2 - MATING FACE AND GAUGE INFORMATION.

2.1 Dimensions – High performance connectors: Grade 1

All undimensioned pictorial configurations are for reference purposes only.

Inch dimensions are original dimensions

mm	Inches
0,05	,002
0,08	,003
0,18	,007
0,25	,010
0,38	,015
0,41	,016
0,495	,0195
0,528	,0208
1,00	,039
1,14	,045
1,65	,065
1,88	,074
1,98	,078
2,54	,100
2,80	,110
2,92	,115
3,15	,124
3,22	,1268
3,23	,1272
3,30	,130
3,43	,135
3,89	,153
3,91	,154
4,06	,160
4,32	,170
4,98	,196



Note 1: Dimension shall be such that the reference planes coincide and the connectors meet the required environmental performance.  
 Note 2: Nut fully forward.  
 Note 3: The indicated diameters chosen on the assumption that PTFE has a dielectric constant of 2.02 to give required impedance of 50  $\Omega$ .  
 Note 4: + and - dimensions indicate maximum positions to left and right respectively of reference plane.  
 Note 5: + and - dimensions indicate maximum positions to right and left respectively of reference plane.

## 2.2 Gauges for high performance connectors: Grade 1

Inch dimensions are original dimensions. All undimensioned pictorial configurations are for reference purposes only.

## 2.2.1 Gauge for female centre contact

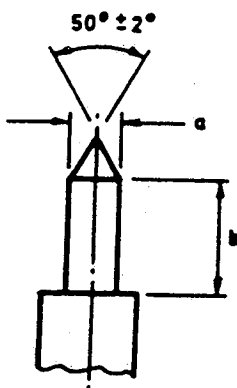


Fig. 3. Gauge pin for centre contact of socket connector (for dimensions 'a' and 'b' see below)

Ref.	mm		in		mm		in	
	min.	max.	min.	max.	min.	max.	min.	max.
	a $\phi$	0,528	0,533	0,0208	0,0210	0,492	0,495	0,0194
b	1,25	1,35	0,049	0,053	1,25	1,35	0,049	0,053

**Material:** Steel, polished  
surface roughness Ra = 0,4  $\mu$ m (16  $\mu$ in) max.

Test procedure (see 4.5.1 of CECC 22 000).

Gauge A shall be inserted once only into the female centre contact. This is a sizing operation.

After this, gauge B shall be inserted into the female centre contact. The contact shall support the mass of the gauge in a vertical downward attitude.

Note (for information only):

The minimum diameter of gauge A corresponds to the maximum diameter of a male contact pin.

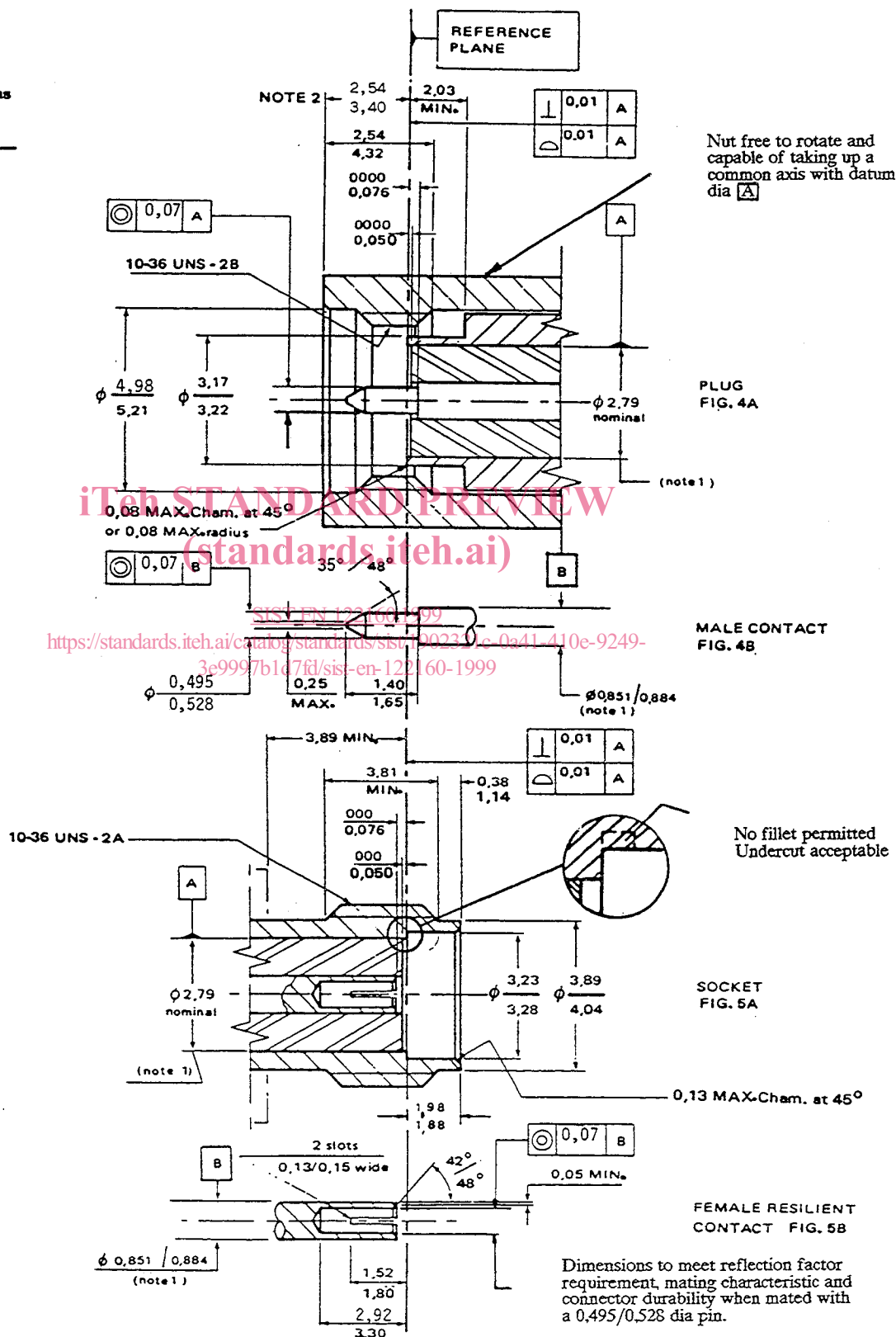


2.3 Dimensions – Standard test connectors: Grade 0  
(see 4.4.1 of CECC 22 000).

All undimensioned pictorial configurations are for reference purposes only.

Inch dimensions  
are original  
dimensions

mm	inches
0,01	,0004
0,05	,0020
0,07	,0027
0,076	,0030
0,08	,003
0,13	,005
0,15	,006
0,25	,010
0,38	,015
0,495	,0195
0,498	,0196
0,518	,0204
0,528	,0208
0,851	,0335
0,884	,0348
1,14	,045
1,40	,0552
1,52	,060
1,65	,0650
1,88	,074
1,98	,078
1,80	,071
2,03	,080
2,54	,100
2,79	,110
2,92	,115
3,17	,125
3,22	,1268
3,23	,1272
3,28	,1291
3,30	,130
3,40	,134
3,81	,1500
3,89	,153
4,04	,159
4,32	,170
4,98	,196
5,21	,205



Note 1: Choose to give the required performance  $50 \pm 0,5 \Omega$ . The given nominal diameter is on the assumption of the use of PTFE dielectric having a dielectric constant of 2,02.  
Note 2: Nut fully forward.

## SECTION 3 - PROPERTIES

### 3.1 Ratings and Characteristics (see 2.3 of CECC 22 000) (including limiting conditions of use)

The blank detail specification(s) relating to Series SSMA connectors shall list the following properties and the specific values shall be entered by the specification writer.

Properties not applicable to a particular connector style shall be marked 'na'. The values indicated below give the recommended requirements and properties.

RATINGS AND CHARACTERISTICS	CECC 22 160 CLAUSE	VALUE	REMARKS
ELECTRICAL	4.4		
Frequency range - flexible cable - semi-rigid cable - straight styles - right angle styles		Up to 12,4 GHz Up to 18 GHz Up to 12,4 GHz	Grade 1 connectors
Reflection factor* - flexible cable - straight styles - right angle styles - semi-rigid cable - straight styles - right angle styles - component mounting styles - solder bucket + PCB mounting styles	4.4.1	$\leq 0,090 + 0,01f$ $\leq 0,090 + 0,011f$ $\leq 0,034 + 0,004f$ $\leq 0,048 + 0,004f$ See DS na	
Centre contact resistance	4.4.2	$\leq 4,0 \text{ m}\Omega$ $\leq 10,0 \text{ m}\Omega$	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	$\geq 1 \text{ G}\Omega$ $\geq 200 \text{ M}\Omega$	Initial After conditioning
Proof voltage at sea level †† Cable type: IEC 96-50-1-A IEC 96-50-2-1, 2-2	4.4.5	500 V 750 V	86 kPa to 106 kPa

For notes see page 11.

RATINGS AND CHARACTERISTICS	CECC 22 160 CLAUSE	VALUE	REMARKS
<b>ELECTRICAL</b>	4.4		
Semi-rigid cables 0,056 in or 1.42 mm dia. 0,085 in or 2.16 mm dia.		500 V 750 V	
Proof voltage at 4,4 kPa †† Cable type: IEC 96-50-1-A IEC 96-50-2-1, 2-2	4.6.5	100 V 150 V	4,4 kPa approx. equivalent to 20 km & 70 000 ft altitudes
Semi-rigid cables 0,056 in or 1.42 mm dia. 0,085 in or 2.16 mm dia.		100 V 150 V	
Environmental test voltage at sea level †† Cable type: IEC 96-50-1-A IEC 96-50-2-1, 2-2		175 V 250 V	86 kPa to 106 kPa
Semi-rigid cables 0,056 in or 1.42 mm dia. 0,085 in or 2.16 mm dia.		175 V 250 V	
Environmental test voltage at 4,4 kPa †† Cable type: IEC 96-50-1-A IEC 96-50-2-1, 2-2		45 V 65 V	4,4 kPa approx. equivalent to 20 km & 70 000 ft altitudes
Semi-rigid cables 0,056 in or 1.42 mm dia. 0,085 in or 2.16 mm dia.		45 V 65 V	
Screening effectiveness	4.4.8	$Z_t \leq 3,16 \text{ m}\Omega$	Providing $\geq 90 \text{ dB}$ at 1 GHz
<b>MECHANICAL</b>	4.5		
Contact captivation - axial force - torque	4.5.2	22 N 0.018 Nm	CECC 22 000 method (or as specified, see 4.5.2)
Engagement and separation - torque	4.5.4	0.12 Nm max.	To overcome friction of coupling nut
Coupling torque - normal - proof		0.6 Nm to 0.8 Nm 1.1 Nm	

For notes see page 11.