BRITISH STANDARD

BS EN
61169-32:2000
IEC
61169-32:1999

Radio-frequency connectors —

Part 32: RF coaxial connectors with inner diameter of outer conductor 1,85 mm (0,072 in) with screw coupling — Characteristic impedance 50 ohms (type 1,85)

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The European Standard EN 61169-32:1999 has the status of a British Standard

ICS 33.120.30

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National foreword

This British Standard is the English language version of EN 61169-32:1999. It is identical with IEC 61169-32:1999.

The UK participation in its preparation was entrusted by Technical Committee EPL/46, Cables, wires, waveguides, RF connectors and accessories for communication and signalling., to Subcommittee EPL/46/2, RF connectors and waveguides, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this Subcommittee can be obtained on request to its secretary.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

Attention is drawn to the fact that CEN and CENELEC Standards normally include an annex which lists normative references to international publications with their corresponding European publications. The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 23 and a back cover.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61169-32

October 1999

ICS 33.120.30

English version

Radio-frequency connectors — Part 32: RF coaxial connectors with inner diameter of outer conductor 1,85 mm (0,072 in) with screw coupling — Characteristic impedance 50 ohms (type 1,85)

(IEC 61169-32:1999)

Connecteurs pour fréquences radioeléctriques
Partie 32: Connecteurs coaxiaux pour fréquences radioélectriques avec diamètre intérieur du conducteur extérieur de 1,85 mm (0,072 in) à verrouillage à vis — Impédance caractéristique 50 ohms (type 1,85)
(CEI 61169-32:1999)

Hochfrequenz-Steckverbinder
Teil 32: HF-Steckverbinder mit 1,85 mm (0,072 in) Innendurchmesser des Außenleiters mit Schraubverbindung Wellenwiderstand 50 Ohm (Typ 1,85)
(IEC 61169-32:1999)

This European Standard was approved by CENELEC on 1999-10-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

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Ref. No. EN 61169-32:1999 E

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Foreword

The text of document 46D/322/FDIS, future edition 1 of IEC 61169-32, prepared by SC 46D, RF connectors, of IEC TC 46, Cables, wires, waveguides, R.F. connectors, and accessories for communication and signalling, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61169-32 on 1999-10-01.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop) 2000-07-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow) 2002-10-01

Annexes designated “normative” are part of the body of the standard. In this standard, annex ZA is normative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61169-32:1999 was approved by CENELEC as a European Standard without any modification.

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RADIO-FREQUENCY CONNECTORS –

Part 32: RF coaxial connectors with inner diameter of outer conductor 1,85 mm (0,072 in) with screw coupling – Characteristic impedance 50 ohms (type 1,85)

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1 General

1.1 Scope

This part of IEC 61169 standardizes the interface and ratings of the type 1,85 r.f. connectors of 50 Ω impedance and having a screw coupling mechanism. These connectors can be intermated with other 1,85 mm and 2,4 mm connectors.

These connectors are recommended for use with semi-rigid and flexible cable and in microwave applications requiring high performance.

These connectors have an operating frequency range of up to 65 GHz.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61169. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61169 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 61169-1:1992, *Radio-frequency connectors – Part 1: Generic specification – General requirements and measuring methods*

2 Interface dimensions

2.1 Mating face and gauge information

2.1.1 Dimensions – Grade 1 connectors

Millimetres are original dimensions.

All undimensioned pictorial configurations are for reference purposes only.

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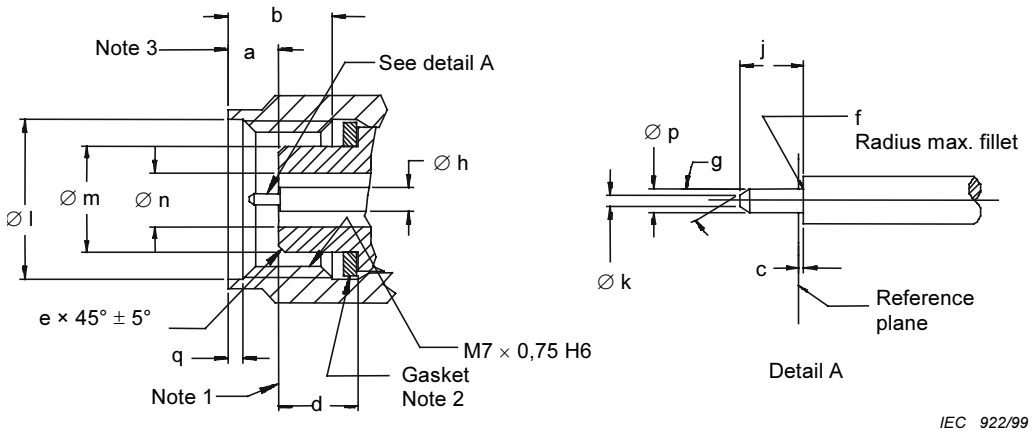
2.1.1.1 Connector with pin centre contact



Reference	mm		in	
	Min.	Max.	Min.	Max.
a	1,850	2,450	0,073	0,096
b	4,370	4,630	0,172	0,182
c	0,000	0,0762	0,000	0,003
d	3,380	3,480	0,133	0,137
e	0,250	0,360	0,010	0,014
f	–	0,050	–	0,002
g	28°	32°	28°	32°
h	0,7909	0,8163	0,0311	0,0321
j	1,335	1,445	0,053	0,057
k	0,000	0,250	0,000	0,010
l	7,010	7,110	0,276	0,280
m	4,725	4,750	0,186	0,187
n	1,8373	1,8627	0,07233	0,0733
p	0,498	0,523	0,0196	0,0206
q	0,508	0,762	0,020	0,030

NOTE 1 – Mechanical and electrical reference plane.

NOTE 2 – Gasket required on grade 1 connectors.

NOTE 3 – With coupling nut biased in the forward direction.

Figure 1 – Connector with pin centre contact

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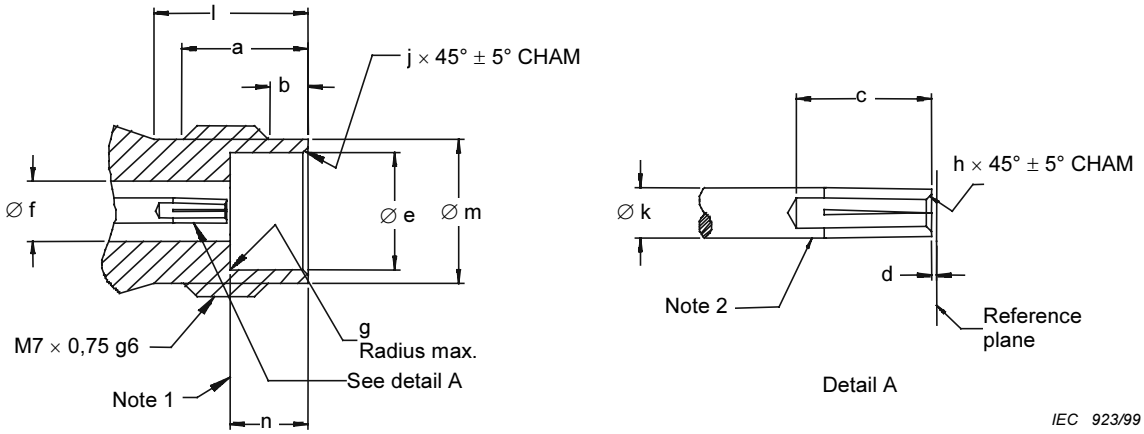
2.1.1.2 Connector with socket centre contact



Reference	mm		in	
	Min.	Max.	Min.	Max.
a	4,800	5,060	0,189	0,199
b	1,370	1,630	0,054	0,064
c	2,650	–	0,104	–
d	0,000	0,0762	0,000	0,003
e	4,770	4,795	0,1878	0,1888
f	1,8373	1,8627	0,07233	0,07333
g	–	0,130	–	0,005
h	0,100	0,130	0,004	0,005
j	0,100	0,200	0,004	0,008
k	0,7909	0,8163	0,0311	0,0321
l	6,000	–	0,236	–
m	5,790	5,890	0,228	0,232
n	3,000	3,100	0,118	0,122

NOTE 1 – Mechanical and electrical reference plane.

NOTE 2 – Socket contact configuration optional. Dimension to meet reflection factor requirement, mating characteristics and connector durability when mated with a 0,498/0,523 mm (0,0196/0,0206 in) diameter pin.

Figure 2 – Connector with socket centre contact

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2.1.2 Dimensions – Grade 0 connectors

Millimetres are original dimensions.

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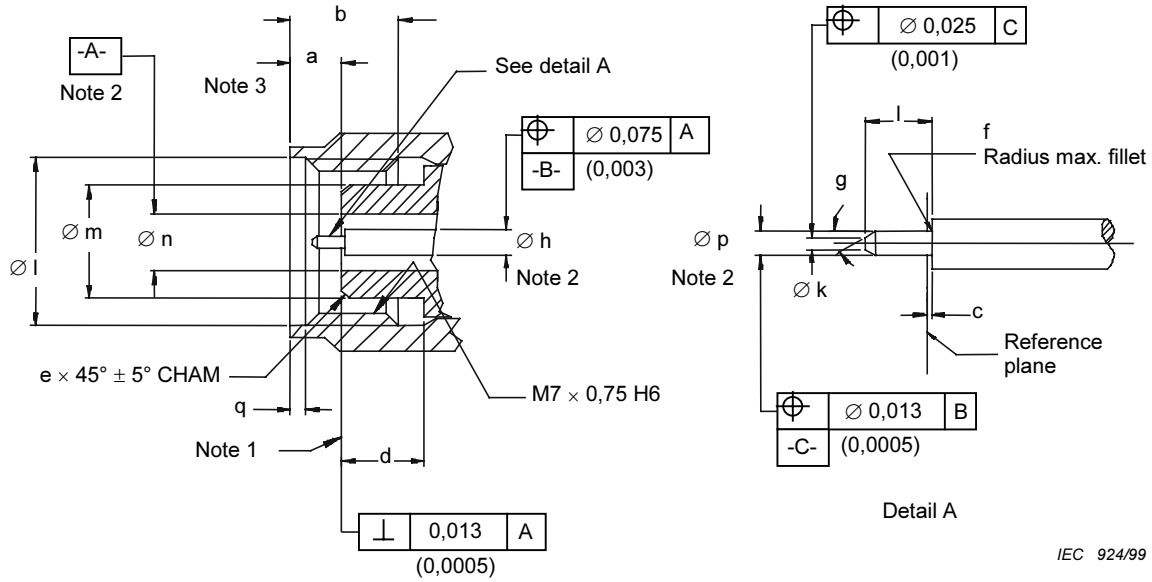
2.1.2.1 Connector with pin centre contact



Reference	mm		in	
	Min.	Max.	Min.	Max.
a	1,850	2,450	0,073	0,096
b	4,370	4,630	0,172	0,182
c	0,000	0,0127	0,0000	0,0005
d	3,380	3,480	0,133	0,137
e	0,250	0,360	0,010	0,014
f	–	0,050	–	0,002
g	28°	32°	28°	32°
h	0,7985	0,8087	0,03144	0,03184
j	1,335	1,445	0,053	0,057
k	0,250	0,300	0,010	0,012
l	7,010	7,110	0,276	0,280
m	4,725	4,750	0,186	0,187
n	1,8449	1,8551	0,07263	0,07304
p	0,506	0,516	0,0199	0,0203
q	0,508	0,762	0,020	0,030

NOTE 1 – Mechanical and electrical reference plane.

NOTE 2 – Surface finish: 0,4 µm (16 µin) max.

NOTE 3 – With coupling nut biased in the forward direction.

Figure 3 – Connector with pin centre contact

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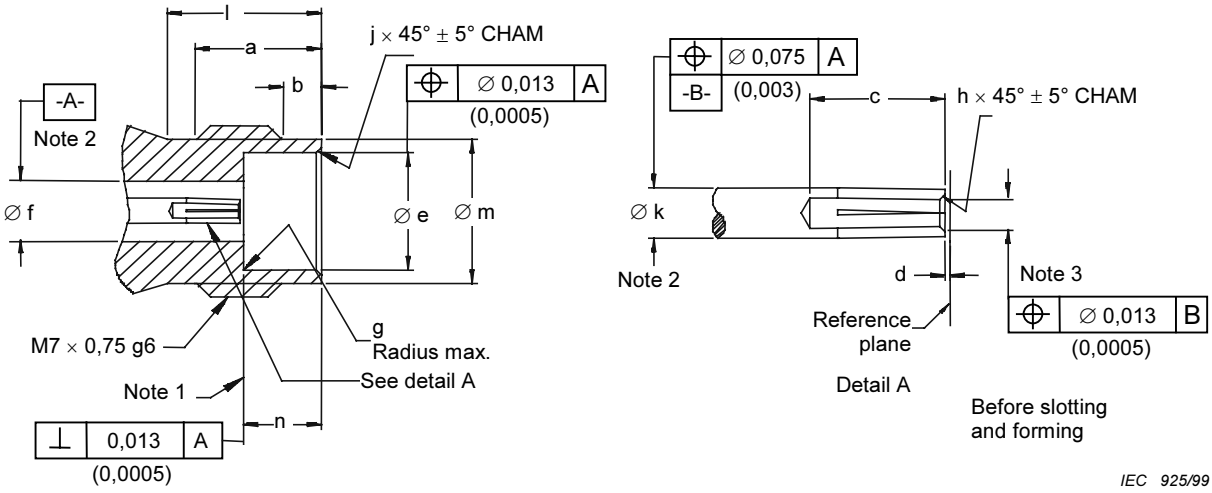
2.1.2.2 Connector with socket centre contact



Reference	mm		in	
	Min.	Max.	Min.	Max.
a	4,800	5,060	0,189	0,199
b	1,370	1,630	0,054	0,064
c	2,650	–	0,104	–
d	0,000	0,050	0,0000	0,002
e	4,770	4,795	0,1878	0,1888
f	1,8449	1,8551	0,07263	0,07304
g	–	0,130	–	0,005
h	0,100	0,130	0,004	0,005
j	0,100	0,200	0,004	0,008
k	0,7985	0,8087	0,03144	0,03184
l	6,000	–	0,236	–
m	5,790	5,890	0,228	0,232
n	3,000	3,100	0,118	0,122

NOTE 1 – Mechanical and electrical reference plane.

NOTE 2 – Surface finish: 0,4 µm (16 µin) max.

NOTE 3 – Socket contact configuration optional. Dimension to meet reflection factor requirement, mating characteristics and connector durability when mated with a 0,506/0,516 mm (0,0199/0,0203 in) diameter pin.

Figure 4 – Connector with socket centre contact

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2.1.3 Gauges

Millimetres are original dimensions.

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2.1.3.1 Mechanical gauges

2.1.3.2 Socket connector

2.1.3.3 Centre contact

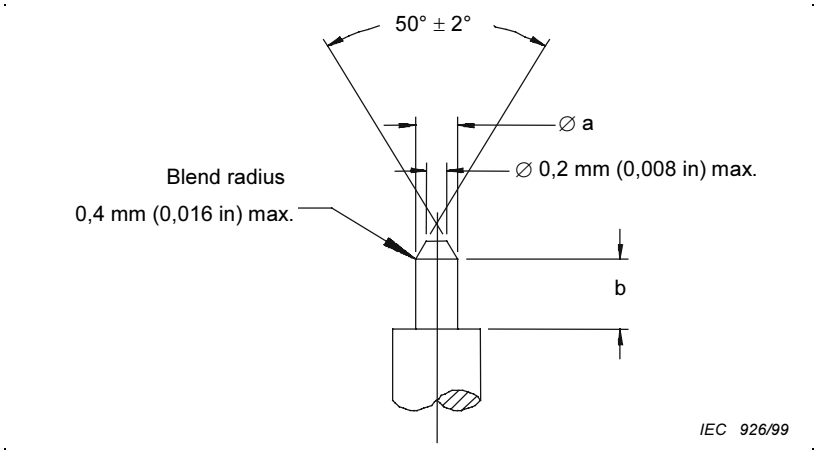

Figure 5 – Gauge pins for centre contact of socket connector

2.1.3.4 Test sequence

a) Steel test pin (figure 5) with a diameter *a* of 0,5233 mm ± 0,0015 mm (0,0206 in ± 0,00006 in) and a length *b* of 0,68 mm to 1,02 mm (0,027 in to 0,040 in) shall be inserted once into the centre contact.

b) A second steel test pin (figure 5) with a diameter *a* of 0,4845 mm ± 0,0015 mm (0,01907 in ± 0,00006 in) and a length *b* of 1,09 mm to 1,65 mm (0,043 in to 0,065 in) and a 0,4 μm (16 μin) maximum finish shall be inserted into the centre contact.

This gauge when in a vertical downward attitude shall be retained by the contact.

This gauge will have a mass (weight) of 25 g.

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3 Quality assessment procedures

3.1 General

The following subclauses provide recommended ratings, performance and test conditions to be considered when writing a detail specification (DS). They also provide an appropriate schedule of tests with minimum levels of conformance inspection.

3.2 Ratings and characteristics

The r.f. connectors defined in this standard are designed for use with a variety of flexible and semi-rigid coaxial cables and in microwave integrated circuits and similar uncabled applications.

Ratings and characteristics	IEC 61169-1 Subclause	Value	Remarks, including any deviations from standard test methods
Electrical			
Nominal impedance		50 Ω	
Frequency range		up to 65 GHz	
Reflection factor	9.2.1		
Grade 1 connectors			
0 up to 18 GHz		0,0501 max.	
18 GHz to 25,6 GHz		0,0631 max.	
25,6 GHz to 65 GHz		0,158 max.	
Grade 0 connectors			
0 up to 18 GHz		0,0159 max.	
18 GHz to 25,6 GHz		0,0251 max.	
25,6 GHz to 65 GHz		0,0631 max.	
Centre contact resistance	9.2.3		
initial		≤4 mΩ	
after conditioning		≤10 mΩ	
Outer conductor continuity			
initial		≤2,5 mΩ	
after conditioning		≤7,5 mΩ	
Insulation resistance	9.2.5	≥5 GΩ	
Voltage proof* at sea level	9.2.6	500 V or as limited by cable	
at 4,4 kPa	9.4.2	100 V or as limited by cable	
Environmental test voltage* at sea level		150 V or as limited by cable	
at 4,4 kPa		40 V or as limited by cable	
Screening effectiveness at 1 GHz fully mated	9.2.8	$a_s \geq 100$ dB	$Z_t \leq 180$ μΩ

* Voltage values are r.m.s. values of a.c. at 40 Hz to 65 Hz unless otherwise stated.

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Ratings and characteristics	IEC 61169-1 Subclause	Value	Remarks, including any deviations from standard test methods
Electrical			
Discharge test (corona) at sea level	9.2.9	See detail specification	Extinction voltages
at 4,4 kPa		See detail specification	
Mechanical			
Soldering	9.3.2		
– bit size		See detail specification	
Gauge retention resilient contacts	9.3.4		
– inner contact		0,25 N	
Centre contact captivation	9.3.5		
– axial force		20 N	
– permitted displacement each direction		See detail specification	
– torque		0,010 Nm max	
Engagement and separation	9.3.6	0,8 Nm	
Screw coupling			
Coupling torque			
– coupling nut friction			Achievable by hand
– normal		0,8 Nm to 1,1 Nm	
– proof		1,65 Nm	
Tensile strength of coupling mechanism	9.3.11	447 N	
Effectiveness of cable fixing against;			
I) cable rotation	9.3.7.2	See detail specification	
II) cable pulling	9.3.8	133 N (RG405)	Point of application and duration
II) cable bending	9.3.9	See detail specification	
IV) cable torsion	9.3.10	0,1 Nm (RG405)	Duration of applied torque
Bending moment	9.3.12	See detail specification	Relative to reference plane
Bump	9.3.13	See detail specification	
Vibration	9.3.3	98 m/s^2 10 Hz to 2 000 Hz	(10 *g* acceleration)
Shock	9.3.14	490 m/s^2 ½ sine 11 ms	(50 *g* acceleration)

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Ratings and characteristics	IEC 61169-1 Subclause	Value	Remarks, including any deviations from standard test methods
Environmental			
Preferred climatic categories			
Components cables: – flexible cables: – semi-rigid		55/125/21 55/125/21 55/115/21	
Sealing (panel and barrier sealed connector)		1 cm^3/h max	100 kPa – 110 kPa pressure differential
Sealing (hermetically sealed connector)		5 Pa cm^3/s	100 kPa – 110 kPa pressure differential
Additional environmental characteristics		See detail specification	
Endurance			
Mechanical		See detail specification	
High temperature		See detail specification	
Salt mist	9.4.6	See detail specification	
Additional endurance characteristics		See detail specification	
Chemical contamination			
Resistance to solvents and contaminating fluids, fluids to be used.		See detail specification	
Sulphur dioxide exposure	9.4.8	See detail specification	

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3.3 Test schedule and inspection requirements

Acceptance tests

	Test method IEC 61169-1 Subclause	Assessment level M (Higher)				Assessment level H (Lower)			
		Test re-quired	IL	AQL %	Period	Test re-quired	IL	AQL %	Period
Group A1									
Visual examination	9.1.2	a	II	1,0		a	S3	1,5	
Group B1									
Outline dimensions	9.1.3.1	a	S4	0,4		a	S3	4,0	
Mechanical compatibility	9.1.3.3	a	II	1,0		a	S3	1,5	
Engagement and separation	9.3.6	a	S4	0,40	Lot	a	S3	1,5	Lot
Gauge retention (resilient contact)	9.3.4	ia	II	1,0		ia	S3	1,5	
Sealing, non-hermetic	9.4.5.1	ia	II	0,65	by	ia	S3	1,0	by
Sealing, hermetic	9.4.5.2	ia	II	0,015		ia	S3	0,025	
Voltage proof	9.2.6	a	S4	0,40	lot	a	II	4,0	lot
Solderability piece parts	9.3.2.1.1	ia	S4	0,40		ia	S3	4,0	
Insulation resistance	9.2.5	a	S4	0,40		a	S3	4,0	

3.3.1 Periodic tests

There are no Group C tests for levels H and M.

NOTE – For details of symbols, abbreviations and procedures see 3.4.

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Periodic tests *(continued)*

	Test Method	Assessment level M (Higher)				Assessment level H (Lower)			
	IEC 61169-1 Subclause	Test re-quired	Number of spe-cimens	Permitted failures per group	Period	Test re-quired	Number of spe-cimens	Permitted failures per group	Period
Group D1 (d)			6	1	3 years		3	1	3 years
Solderability connector assemblies	9.3.2.1.1	ia				ia			
Resistance to soldering heat	9.3.2.1.2	ia				ia			
Mechanical tests on cable fixing;									
i) cable rotation (nutation)	9.3.7.2								
ii) cable pulling	9.3.8	ia				ia			
iii) cable bending	9.3.9								
iv) cable torsion	9.3.10	ia				ia			
Group D2 (d)			6	1	3 years		3	1	3 years
Contact resistance, outer conductor and screen continuity centre conductor continuity	9.2.3	a				a			
Vibration	9.3.3	a							
Damp heat steady state	9.4.3	a				a			
Group D3			1*	1	3 years		1*	1	3 years
Dimensions piece-parts and materials	9.1.3.2	a				a			
Group D4 (d)			6	1	3 years		3	1	3 years
Mechanical endurance	9.5	a				a			
High temperature endurance	9.6	a				a			
Sulphur dioxide	9.4.8								
Group D5 (d)			6	1	3 years		3	1	3 years
Reflection factor	9.2.1	ia				ia			
Screening effectiveness	9.2.8	ia				ia			
Water immersion	9.2.7								
Group D6 (d)			6	1	3 years		3	1	3 years
Contact captivation	9.3.5	ia				ia			
Rapid change of temperature	9.4.4	a				a			
Climatic sequence	9.4.2	a				a			
Group D7 (d)			1#		3 years		1#		3 years
Resistance to solvents and contaminating fluids	9.7								

NOTE – For details of symbols, abbreviations and procedures, see 3.4.

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3.4 Procedures

3.4.1 Quality conformance inspection

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

3.4.2 Qualification approval and its maintenance

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

Details of symbols, abbreviations and procedures:

a = suggested as applicable

ia = test suggested (if technically applicable)

na = not applicable

IL = Inspection Level

AQL = Acceptable Quality Level

* = One set of piece-parts each style and variant, unless using common piece parts

\# = For Qualification Approval (QA) a total of 2 failures only permitted for level H and 1 failure only for level M from groups D1 to D7

§ = Group D7 – number of pairs for each solvent

(d) = destructive tests – specimens shall not be returned to stock

4 Instructions for preparation of detail specifications

4.1 General

Detail Specification (DS) writers shall use the appropriate BDS pro-forma. The following pages comprise the pro-forma BDS dedicated for use with 50 Ω type 1,85 connectors. As such, it will have already entered on it information relating to:

a) the basic specification number applicable to all the detail specifications covering connector styles of the series covered by the Sectional Specification;

b) the connector series designation.

The specification writer should enter the details relating to the connector style/variant(s) to be covered as indicated. The numbers in brackets on the BDS pro-forma correspond to the following indications which shall be given.

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4.2 Identification of the detail specification

(1) The name of the National Standards Institution under whose authority the DS is published and, if applicable, the organization from whom the DS is available.

(2) The number allocated to the DS by the relevant National Authorized Institution immediately preceded by the ISO two letter national identity code or 'XX' when DS is produced by an IEC technical committee.

(3) The number and issue number of the IEC generic specification and, when applicable, the sectional specification; also the national reference, if different.

(4) If different from the IEC number, the national number of the DS, date of issue and any further information required by the national system, together with any amendment numbers.

4.3 Identification of the component

(5) Enter the following details:

Style:	The style designation of the connector including type of fixing and sealing, if applicable.
Attachment:	By deletion of the inapplicable options of cable/wire: given for centre and outer conductors.

Special features and markings: As applicable.

(6) Enter details of assessment level and the climatic category.

(7) A reproduction of the outline drawing and details of the panel piercing, if applicable. It shall provide the maximum envelope dimensions, also the position of the reference plane and, in the case of a fixed connector, the position of the mounting plane(s) relative to the front face of the connector.

Any maximum panel thickness limitations for fixed connectors shall be stated.

(8) Particulars of all variants covered by the DS. As appropriate, the information shall include:

- cable types (or sizes) applicable to each variant.
- alternative plated or protective finishes.
- details of alternative mounting flanges having either tapped or plain mounting holes.
- details of alternative solder spills or solder buckets including, when applicable, those for use with Microwave Integrated Circuit (MIC) components.

4.4 Performance

(9) Performance data listing the most important characteristics of the connector taking into account the recommended values in 3.2 of this specification. Deviations from the minimum requirements shall be clearly indicated. Non-applicable parameters shall be marked "na".

4.5 Additional information

(10) Insert marking and ordering information as appropriate, together with details of related documents and any invoked structural similarity.

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4.6 Selection of tests, test conditions and severities

(11) "na" shall be used to indicate non-applicable tests. All tests marked "a" by the detail specification writer shall be mandatory.

When using the normal procedure with a dedicated BDS, the letter "a" – for "applicable" – shall be entered in the "Test required" column against each of the tests indicated as being mandatory in the test schedule of 3.3 of this specification. Any additional tests required at the discretion of the specification writer shall also be indicated by an "a".

The specification writer shall also indicate, when necessary, details of deviations from the standard test methods and test conditions, including any relevant deviations given in the test schedule of the sectional specification.

The qualification approval and conformance inspection shall be such that the NSI shall be satisfied that they are appropriate and in line with those for other connectors within the system providing a reasonably comparable service.

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4.7 Blank detail specification pro-forma for type 1,85 connector

The following pages contain the complete BDS pro-forma.

(1)	page 1 of 10 (2) # IECQ Logo **QC 221701**
ELECTRONIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH GENERIC SPECIFICATION QC 220000 SECTIONAL SPECIFICATION QC 221600 NATIONAL REFERENCE	(4) ISSUE ....
(5) Detail Specification for Radio frequency coaxial connector of assessed quality	Type 1,85
Style:.....	Special features and markings
Method of cable/wire+ attachment	centre conductor - solder/crimp+ outer conductor - solder/clamp/crimp+ + Delete as appropriate.
(6) Assessment level.....	Characteristic impedance 50 Ω / Climatic category..../.../.../
(7) Outline and maximum dimensions	Panel piercing and mounting details
For mating interface dimensions and position of reference plane see QC 221600 Maximum panel thickness: for front mounting..... mm, for rear mounting..... mm	

(8) Variants

Variant No.	Description of variant	60096 IEC			
01.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....

Information about manufacturers who have components qualified to this detail specification is available in the current QC 001005 Qualified Product List.

Note # Insert ISO national identity code or "XX" if completed by IEC committee.

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(9) Performance (including limiting conditions of use)

Ratings and characteristics		IEC 61169-1 QC 220000 Subclause	Value	Remarks, including any deviations from standard test methods
Electrical				
Nominal impedance			50 Ω	
Frequency range			.....	Measurement frequency range
Reflection factor		9.2.1		
	Variant No. Designation			
	01.....		.....	.....
	.....		.....	.....
	.....		.....	.....
	.....		.....	.....
Centre contact resistance		9.2.3	≤.....mΩ ≤.....mΩ	initial after conditioning
Centre conductor continuity	01.....	9.2.3	.....mΩ .....mΩ .....mΩ .....mΩ	Resistance change due to conditioning
Outer conductor continuity		9.2.3	≤.....mΩ ≤.....mΩ	initial after conditioning
Insulation resistance		9.2.5	≥.....GΩ ≥.....GΩ	initial after conditioning
+Voltage proof at sea level	01.....	9.2.6	.....kV .....kV .....kV .....kV	86 kPa to 106 kPa
+Voltage proof at 4,4 kPa	01.....		.....V .....V .....V V	.....kPa (if not 4,4 kPa)
+Environment test voltage at sea level	01.....		.....V .....V .....V V	86 kPa to 106 kPa
Environment test voltage at 4,4 kPa	01.....		.....V .....V .....V V	.....kPa (if not 4,4 kPa)

+ = Voltage are r.m.s. values of a.c. at 40 Hz to 65 Hz unless otherwise stated.

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Ratings and characteristics		IEC 61169-1 QC 220000 Subclause	Value	Remarks, including any deviations from standard test methods
Electrical (continued)				
Screening effectiveness	01..... .... ADDITIONAL ELECTRICAL CHARACTERISTICS	9.2.8	≥ dB at....GHz	Z_t ≤.....Ω
Mechanical				
Soldering – bit size		9.3.2.1.1		
Gauge retention resilient contacts – inner contact – outer contact		9.3.4		For gauging details see figure 5 of QC 221600 (see figure 5 of IEC 61169-19)
Centre contact captivation – axial force – permitted displacement each direction		9.3.5	 .....N .....mm	
Engagement and separation – axial force		9.3.6		
Effectiveness of cable fixing against				
i) cable rotation	01.....	9.3.7	Rotations	
ii) cable pulling	01.....	9.3.8	.....N	
iii) cable bending	01.....	9.3.9	.....Cycles	Length of cable Mass ....

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Ratings and characteristics	IEC 61169-1 QC 220000 Subclause	Value	Remarks, including any deviations from standard test methods
Mechanical (continued)			
iv) cable torsion 01.....	9.3.10	.....Nm	
Bending moment	9.3.12	.....Nm	Relative to reference plane
Vibration	9.3.3	.....m/s^2 .....to .....Hz	(.....g_n acceleration)
ADDITIONAL MECHANICAL CHARACTERISTICS			
Environmental			
Climatic category		...../...../.....	
Sealing non-hermetically sealed connectors	9.4.5.1	.....cm^3/h	100 kPa to 110 kPa pressure differential
Sealing hermetically sealed connectors	9.4.5.2	...10^{-5} $bar/cm^3/h$	100 kPa to 110 kPa pressure differential
Water immersion	9.2.7		
ADDITIONAL ENVIRONMENTAL CHARACTERISTICS			
ENDURANCE			
Mechanical	9.5	.....operations	
High temperature	9.6	.....h at.....°C	
ADDITIONAL ENDURANCE CHARACTERISTICS			
CHEMICAL CONTAMINATION			
Resistance to solvents and contaminating fluids to be used – Applicable funds	9.7	....	
Sulphur dioxide	9.4.8		

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(10) Additional information

– Marking of the component: in accordance with 11.1 of IEC 61169-1 in the following order of preference:

(1)	Manufacturer code:	.....	
(2)	Manufacturing date code:	year/week	
(3)	Component identification:	Variant No./ Designation	Identification
		.....	.....
		.....	.....
		.....	.....
		.....	.....
		.....	.....
		.....	.....
		.....	.....

– Marking and contents of package: in accordance with 11.2 of IEC 61169-1

(1)	Information prescribed in 11.1 of IEC 61169-1 detailed above	
(2)	Nominal characteristic impedance	.....50 Ω .....
(3)	Assessment level code letter	.....
(4)	Any additional marking required	.....

Ordering information

(1)	Number of the detail specification	IECQC 221701...../Variant Code....
(2)	Assessment level code letter	.....
(3)	Body finish (if more than one listed)	.....
(4)	Any additional information or special requirements	.....

– Related documents (if not included in IEC 61169-1 or sectional specification):

.....

.....

– Structural similarity in accordance with 10.2.2 of IEC 61169-1

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

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Date
IEC 61169-1	1992	*Radio-frequency connectors* Part 1: *Generic specification — General requirements and measuring methods*	EN 61169-1	1994

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BS EN 61169-32:2000 IEC 61169-32:1999

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