

PUBLICLY AVAILABLE SPECIFICATION

PRE-STANDARD

**Radio-frequency connectors –
Part 35: Sectional specification – Radio frequency coaxial connectors of
type 2,92**

IEC PAS 61169-35:2009

<https://standards.iteh.ai/en/standards/sst/5a4e64a2-e792-44d2-8096-28a36c89c92a/iec-pas-61169-35-2009>



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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

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CONTENTS

FOREWORD.....	3
1 Scope.....	4
2 Normative references	4
3 Mating face and gauge information.....	4
3.1 Dimensions – High performance connectors – Grade1	4
3.1.1 Connector with pin-centre contact.....	4
3.1.2 Connector with socket-centre contact	6
3.2 Gauges	7
3.2.1 Gauge pins for socket-centre contact.....	7
3.2.2 Test procedure	7
3.3 Dimensions – Standard test connectors – Grade 0.....	8
3.3.1 Connector with pin-centre contact.....	8
3.3.2 Connector with socket-centre contact.....	9
4 Quality assessment procedures	9
4.1 General.....	9
4.2 Rating and characteristics (see Clause 6 of IEC 61169-1).....	10
4.3 Test schedule and inspection requirements	13
4.3.1 Acceptance tests	13
4.3.2 Periodic tests	14
4.4 Procedures.....	16
4.4.1 Quality conformance inspection	16
4.4.2 Qualification approval and its maintenance.....	16
5 Instructions for preparation of detail specifications	16
5.1 Identification of the component.....	16
5.2 Performance.....	16
5.3 Marking, ordering information and related matters.....	17
5.4 Selection of tests, test conditions and severities.....	17
5.5 Blank detail specification pro-forma for type 2,92 connector	18
Figure 1 – Connector with pin-centre contact	5
Figure 2 – Connector with socket-centre contact.....	6
Figure 3 – Gauge pins for socket-centre contact	7
Figure 4 – Connector with pin-centre contact	8
Figure 5 – Connector with socket-centre contact.....	9
Table 1 – Dimensions of connector with pin-centre contact	5
Table 2 – Dimensions of connector with socket-centre contact.....	6
Table 3 – Dimensions of gauge pins for socket-centre contact	7
Table 4 – Dimensions of connector with pin-centre contact	8
Table 5 – Dimensions of connector with socket-centre contact.....	9
Table 6 – Rating and characteristics	10
Table 7 – Acceptance tests.....	13
Table 8 – Periodic tests	14

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Radio frequency coaxial connectors of type 2,92****FOREWORD**

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IEC-PAS 61169-35 has been processed by subcommittee 46F: RF and microwave passive components, of IEC technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

Draft PAS	Report on voting
46F/98/PAS	46F/111/RVD

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RADIO-FREQUENCY CONNECTORS -Part 35: Sectional specification- Radio frequency coaxial connectors of type 2,92

1 Scope

This PAS is a sectional specification providing information and rules for preparation of detail specification of 2,92 series R.F coaxial connectors together with the pro forma blank detail specification.

2,92 series coaxial connectors with characteristic impedance 50Ω , 2,92 mm inner diameter of outer conductor and screw coupling, are used for millimeter wave applications, connecting with RF cables or microstrips. The operating frequency limit is up to 40 GHz.

It also prescribes mating face dimensions for high performance connectors - grade 1, dimensional detail of standard test connectors - grade 0, gauging information and tests selected from IEC 61169-1 applicable to all detail specifications relating to 2,92 series RF coaxial connectors.

This specification indicates recommended performance characteristics to be considered when writing a detail specification and it covers test schedules and inspection requirements for assessment levels M and H.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

Amendment 1(1996)

Amendment 2 (1997)

3 Mating face and gauge information

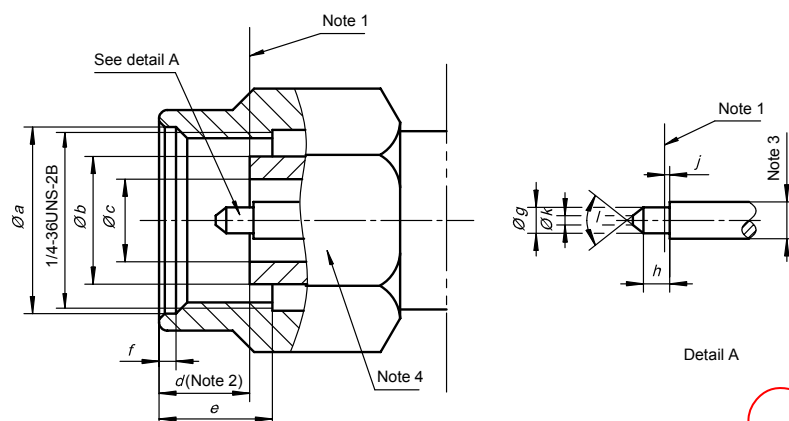
3.1 Dimensions – High performance connectors – Grade1

3.1.1 Connector with pin-centre contact

Inch dimensions are original dimensions.

All undimensioned pictorial configurations are for reference purpose only.

¹⁾ There exists a consolidated edition 1.2 (1998) that comprises IEC 61169-1, its Amendment 1 and its Amendment 2.



NOTE For dimensions and notes, see Table 1.

Figure 1 – Connector with pin-centre contact

Table 1 – Dimensions of connector with pin-centre contact

Ref.	mm		in	
	Min.	Max.	Min.	Max.
<i>a</i>	6,48	6,73	0,255	0,256
<i>b</i>	4,521	4,592	0,178 0	0,180 8
<i>c</i>	2,90	2,95	0,114	0,116
<i>d</i>	—	3,43	—	0,135
<i>e</i>	3,61	4,32	0,150	0,170
<i>f</i>	0,51	1,02	0,020	0,040
<i>g</i>	0,914	0,935	0,036 0	0,036 8
<i>h</i>	1,02	1,12	0,040	0,044
<i>j</i>	0,00	0,13	0,000	0,005
<i>k</i>	0,250	0,300	0,010 0	0,011 8
<i>l</i>	56°	64°	56°	64°

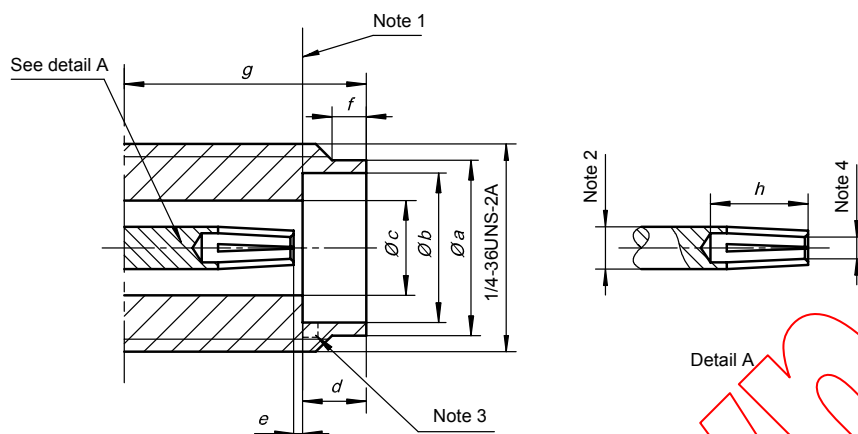
NOTE 1 Mechanical and electrical reference plane.

NOTE 2 Nut fully forward.

NOTE 3 Diameter must be chosen to obtain a normal impedance of 50 Ω .

NOTE 4 Hexagon, width across two sides is 7,85 mm $\sim$ 8,00 mm (0,309 in $\sim$ 0,315 in), length of the plane is 3,18 mm (0,125 in) min.

3.1.2 Connector with socket-centre contact



NOTE For dimensions and notes, see Table 2.

Figure 2 – Connector with socket-centre contact

Table 2 – Dimensions of connector with socket-centre contact

Ref.	mm		in	
	Min.	Max.	Min.	Max.
a	5,28	5,46	0,208	0,215
b	4,60	4,65	0,181	0,183
c	2,90	2,95	0,114	0,116
d	1,91	1,96	0,075	0,077
e	0,00	0,13	0,000	0,005
f	0,51	1,02	0,020	0,040
g	5,54	—	0,218	—
h	2,65	—	0,104	—

NOTE 1 Mechanical and electrical reference plane.

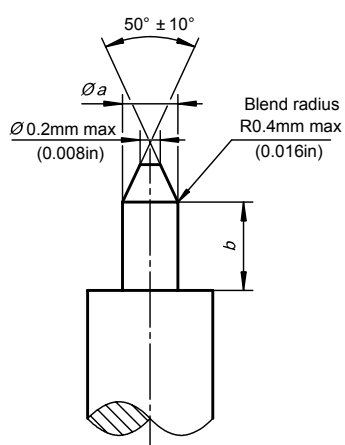
NOTE 2 Diameter must be chosen to obtain a normal impedance of 50 Ω .

NOTE 3 Design for root cut to be allowed. Chamfer not to be allowed.

NOTE 4 Design of centre contact is optional, but must meet electrical and mechanical performance requirements. when mating with $\varnothing$ 0,914 mm $\sim$ $\varnothing$ 0,935 mm ($\varnothing$ 0,0360 in $\sim$ $\varnothing$ 0,0368 in) gauge pin.

3.2 Gauges

3.2.1 Gauge pins for socket-centre contact



NOTE For dimensions and notes, see Table 3.

Figure 3 – Gauge pins for socket-centre contact

Table 3 – Dimensions of gauge pins for socket-centre contact

Gauge A					Gauge B			
Maximum material for sizing purposes					Minimum material for measurement of retention force			
					Mass of gauge: 28 g ± 1 g			
Ref.	mm		in		mm		in	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
<i>a</i>	0,935	0,940	0,036 8	0,037 0	0,909	0,914	0,035 8	0,036 0
<i>b</i>	0,76	1,14	0,029 9	0,044 9	1,27	1,90	0,050 0	0,074 8
Material: steel, polished, surface roughness: Ra=0,4 µm (16 µin) maximum.								

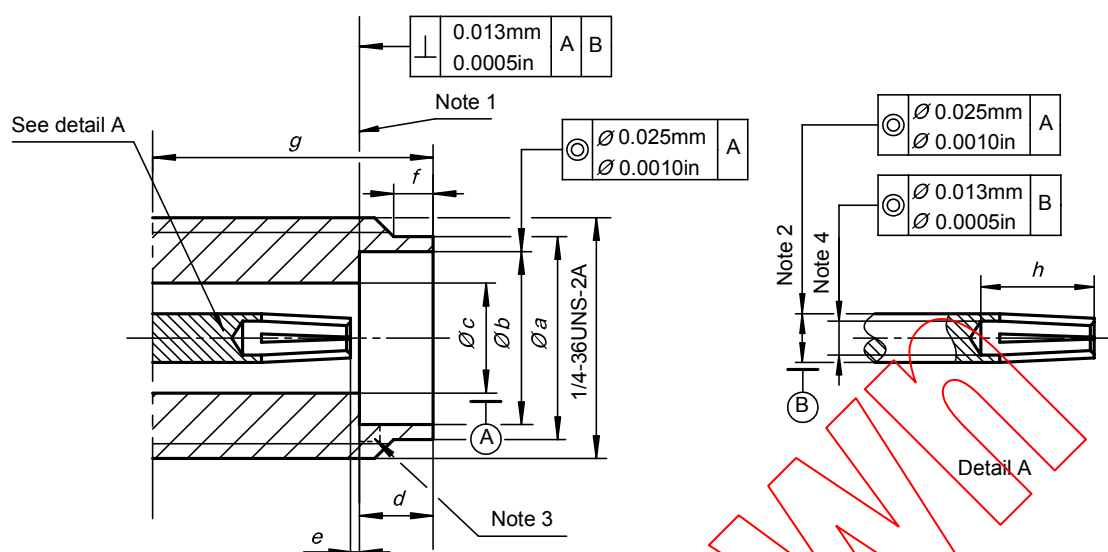
3.2.2 Test procedure

The gauge A shall be inserted into the socket-centre contact three times with a minimum depth of 0,76 mm (0,029 9 in). This is a sizing operation and should only be carried out when the socket-centre contact is removed from the connector.

After this, the gauge B shall be inserted into socket-centre contact. The contact shall retain the mass of the gauge in a vertical downward position. This test also shall be carried out on connector when the socket-centre contact is not removed.

NOTE 4 Diameter must be chosen to obtain a normal impedance of $50\ \Omega \pm 0,5\ \Omega$.

3.3.2 Connector with socket-centre contact



NOTE For dimensions and notes, see Table 5.

Figure 5 – Connector with socket-centre contact

Table 5 – Dimensions of connector with socket-centre contact

Ref.	mm		in	
	Min.	Max.	Min.	Max.
a	5,28	5,46	0,208	0,215
b	4,60	4,65	0,181	0,183
c	2,91	2,93	0,114 5	0,115 3
d	1,91	1,96	0,075	0,077
e	0,60	0,075	0,000	0,005
f	0,51	1,02	0,020	0,040
g	5,54	—	0,218	—
h	2,65	—	0,104	—

NOTE 1 Mechanical and electrical reference plane, surface roughness: $R_a = 0,8 \mu\text{m}$ (32 μin) maximum.

NOTE 2 Diameter must be chosen to obtain a normal impedance of $50 \Omega \pm 0,5 \Omega$.

NOTE 3 Design for root cut to be allowed. Chamfer not to be allowed.

NOTE 4 Design of centre contact is optional, but should meet electrical and mechanical performance requirements, when mating with $\varnothing 0,914 \text{ mm} \sim \varnothing 0,935 \text{ mm}$ ($\varnothing 0,0360 \text{ in} \sim \varnothing 0,0368 \text{ in}$) gauge pin.

4 Quality assessment procedures

4.1 General

The following subclauses provide recommended rating, performance and test conditions to be considered when writing a detail specification. They also provide an appropriate schedule of tests with minimum levels of conformance inspection sampling, together with the pro forma blank detail specification (BDS) and instructions for the preparation of a detail specification.