

PUBLICLY AVAILABLE SPECIFICATION

PRE-STANDARD

**Radio-frequency connectors –
Part 19: Sectional specification for SSMB series R.F. coaxial connectors**

IEC PAS 61169-19:2009

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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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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO-FREQUENCY CONNECTORS –

Part 19: Sectional specification for SSMB series R.F. coaxial connectors

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IEC-PAS 61169-19 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/96/PAS	46F/110/RVD

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This PAS shall remain valid for an initial maximum period of 3 years starting from the publication date. The validity may be extended for a single 3-year period, following which it shall be revised to become another type of normative document, or shall be withdrawn.

RADIO-FREQUENCY CONNECTORS –

Part 19: Sectional specification for SSMB series R.F. coaxial connectors

1 Scope

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

The SSMB series connectors with characteristic impedance 50 Ω are one kind of low power miniature connectors with snap-on coupling mechanism and have the characteristics of light weight, small size, convenient connection and excellent characteristics. This connector range is suitable for the standard ranges of flexible and semi-rigid cables and is also available as a PCB mounted version. The connectors are usable up to a frequency of 3 GHz.

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

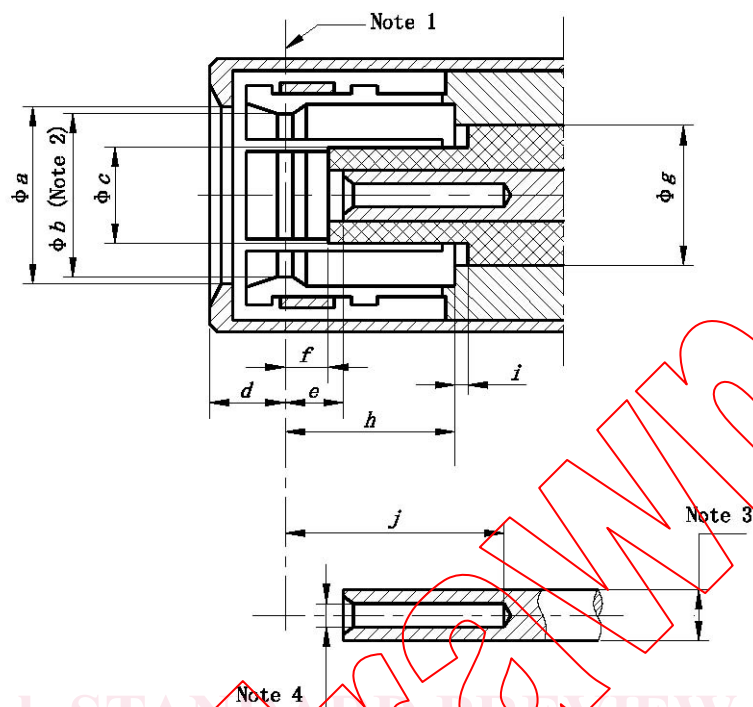
3.1 Dimensions – General purpose connectors – Grade 2

3.1.1 Connector with socket-centre contact

Inch dimensions are original dimensions.

All non-dimensioned 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 socket-centre contact

Table 1 – Dimensions of connector with socket-centre contact

Ref.	mm		in	
	min	max	min	max
a	2,74	-	0,108	-
b	-	-	-	-
c	-	1,34	-	0,053
d	-	1,78	-	0,070
e	0,84	-	0,033	-
f	0,84	-	0,033	-
g	2,11 (nominal)		0,083 (nominal)	
h	3,10	-	0,122	-
i	0,00	-	0,00	-
j	2,77	-	0,109	-

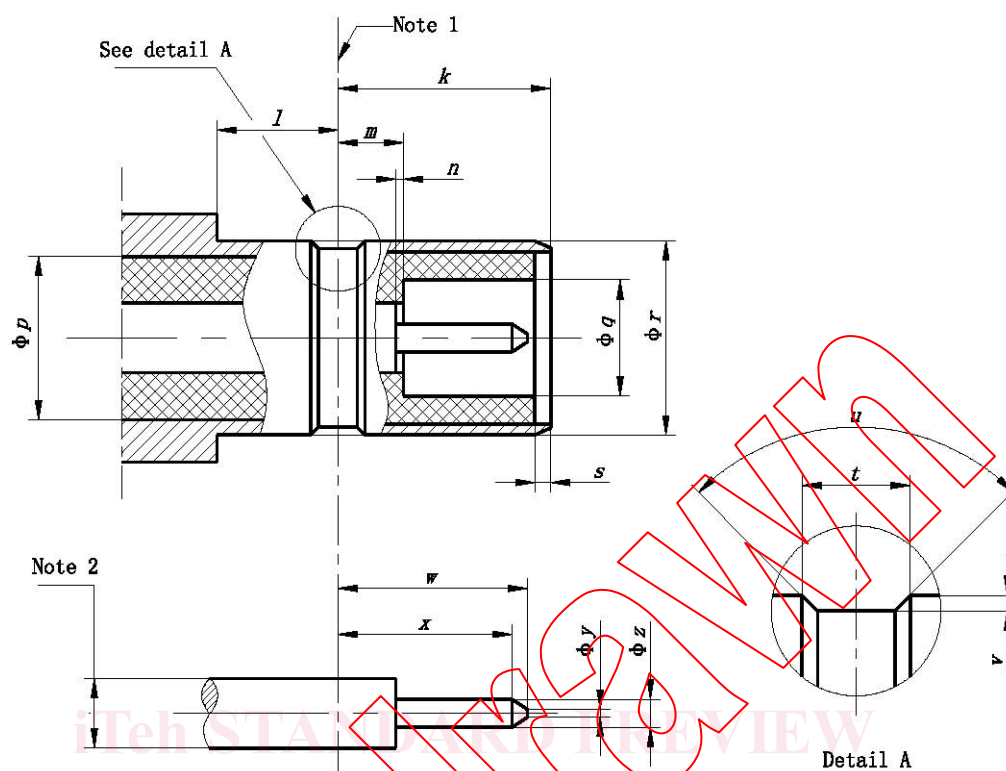
NOTE 1 Reference plane.

NOTE 2 The form and dimension of outer contact detent must meet electrical and mechanical performance requirements.

NOTE 3 The diameters are chosen upon the assumption that the PTFE dielectric has a dielectric constant of 2,02 to give an impedance of 50 Ω .

NOTE 4 Resilient contact may be closed or open entry, method of resilience is optional, provided that when a pin of 0,36 mm \sim 0,38 mm (0,014 \sim 0,015 in) diameter is inserted, VSWR mating and endurance performances are obtained.

3.1.2 Connector with pin-centre contact



NOTE For dimensions and notes, see Table 2.

Figure 2 – Connector with pin-centre contact

Table 2 – Dimensions of connector with pin-centre contact

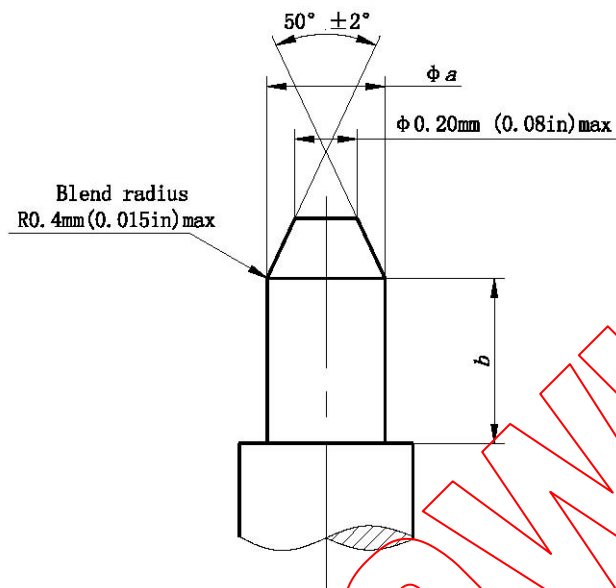
Ref.	mm		in	
	min	max	min	max
<i>k</i>	-	3,10	-	0,122
<i>l</i>	1,91	-	0,075	-
<i>m</i>	-	0,84	-	0,033
<i>n</i>	0,00	-	0,000	-
<i>p</i>	2,11 (nominal)		0,083 (nominal)	
<i>q</i>	1,37	-	0,054	-
<i>r</i>	-	2,67	-	0,105
<i>s</i>	0,00	-	0,000	-
<i>t</i>	0,71	0,74	0,028	0,029
<i>u</i>	88°~92°		88°~92°	
<i>v</i>	0,05	0,15	0,002	0,006
<i>w</i>	-	2,75	-	0,108
<i>x</i>	1,91	-	0,075	-
<i>y</i>	-	0,25	-	0,010
<i>z</i>	0,36	0,38	0,014	0,015

NOTE 1 Reference plane.

NOTE 2 The diameters are chosen upon the assumption that the PTFE dielectric has a dielectric constant of 2,02 to give an impedance of 50 Ω.

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

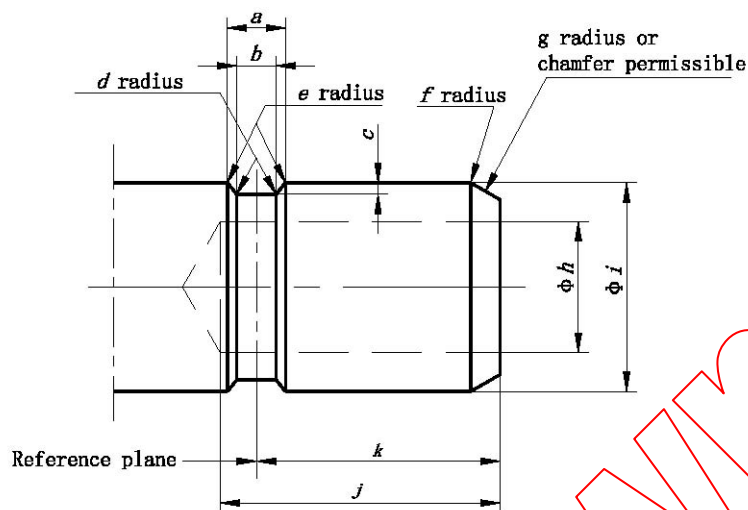
Gauge A					Gauge B			
Maximum material for sizing purposes					Minimum material for measurement of retention force			
					Mass of gauge: 16 g ± 1 g			
Ref.	mm		in		mm		in	
	min	max	min	max	min	max	min	max
a	0,381	0,384	0,015 0	0,015 1	0,353	0,356	0,013 9	0,014 0
b	1,70	1,80	0,067	0,071	1,70	1,80	0,067	0,071
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 b. 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.

3.2.3 Gauge for outer contact of socket-centre contact



NOTE For dimensions and notes, see Table 4.

Figure 4 – Outer contact sizing and retention force gauges A and B

Table 4 – Dimensions of gauge for outer contact

Ref.	Gauge A (maximum material for sizing purpose)				Gauge B (minimum material for measurement of gauge retention force) Mass of gauge: 460 g ± 20 g			
	mm		in		mm		in	
	min	max	min	max	min	max	min	max
a	0,74	0,75	0,029 1	0,029 5	0,58	0,64	0,022 8	0,025 2
b	0,48	0,51	0,018 9	0,020 0	0,43	0,46	0,016 9	0,018 1
c	0,14	0,15	0,005 5	0,005 9	0,075	0,125	0,003 0	0,004 9
d	-	0,08	-	0,003 1	-	0,08	-	0,003 1
e	0,08	0,18	0,003 1	0,007 1	0,08	0,18	0,003 1	0,007 1
f	0,2	0,4	0,007 9	0,015 7	0,2	0,4	0,007 9	0,015 7
g	-	0,38	-	0,015 0	-	0,38	-	0,015 0
h	1,68	-	0,066 1	-	1,68	-	0,066 1	-
i	2,672	2,675	0,105 2	0,105 3	2,667	2,670	0,105 0	0,105 1
k	3,05	3,10	0,120 1	0,122 0	3,05	3,10	0,120 0	0,122 0
j	3,50	-	0,137 8	-	3,50	-	0,137 8	-
Material: steel, polished, surface roughness: Ra=0,4 µm (16 µin) maximum.								

3.2.4 Test procedure

The gauge A shall be inserted into the outer contact of the socket-centre contact three times. This is a sizing operation.

After this, the gauge B shall be inserted into the outer contact of the socket-centre contact. The contact shall support the mass of the gauge in a vertical downward position.

NOTE Additional test: Following the sizing operation, the force necessary to insert gauge A into the outer contact of the socket-centre contact shall be measured. When this test is required, the maximum permitted insertion force is then specified and is smaller than 27 N.