

# PUBLICLY AVAILABLE SPECIFICATION

## PRE-STANDARD

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

IECNORM.COM: Click to view the full PDF of IEC PAS 61169-19:2009



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2009 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office  
3, rue de Varembé  
CH-1211 Geneva 20  
Switzerland  
Email: [inmail@iec.ch](mailto:inmail@iec.ch)  
Web: [www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: [www.iec.ch/online\\_news/justpub](http://www.iec.ch/online_news/justpub)

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: [www.iec.ch/webstore/custserv](http://www.iec.ch/webstore/custserv)

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: [csc@iec.ch](mailto:csc@iec.ch)

Tel.: +41 22 919 02 11

Fax: +41 22 919 03 00

IECNORM.COM: Click to view the PDF of IEC 61192-19:2009



# PUBLICLY AVAILABLE SPECIFICATION

## PRE-STANDARD

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

IECNORM.COM: Click to view the full IEC PAS 61169-19:2009

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE

T

ICS 33.120.30

ISBN 978-2-88910-799-5

## CONTENTS

FOREWORD .....	4
1 Scope .....	5
2 Normative references .....	5
3 Mating face and gauge information .....	5
3.1 Dimensions – General purpose connectors – Grade 2 .....	5
3.1.1 Connector with socket-centre contact .....	5
3.1.2 Connector with pin-centre contact .....	7
3.2 Gauges .....	8
3.2.1 Gauge pins for socket-centre contact .....	8
3.2.2 Test procedure .....	8
3.2.3 Gauge for outer contact of socket-centre contact .....	9
3.2.4 Test procedure .....	9
3.3 Dimensions – Standard test connectors – Grade 0 .....	10
3.3.1 Connector with socket-centre contact .....	10
3.3.2 Connector with pin-centre contact .....	11
4 Quality assessment procedures .....	12
4.1 General .....	12
4.2 Rating and characteristics (see Clause 6 of IEC 61169-1) .....	12
4.3 Test schedule and inspection requirements .....	14
4.3.1 Acceptance tests .....	14
4.3.2 Periodic tests .....	15
4.4 Procedures .....	17
4.4.1 Quality conformance inspection .....	17
4.4.2 Qualification approval and its maintenance .....	17
5 Instructions for preparation of detail specifications .....	17
5.1 Identification of the component .....	17
5.2 Performance .....	17
5.3 Marking, ordering information and related matters .....	18
5.4 Selection of tests, test conditions and severities .....	18
5.5 Blank detail specification pro-forma for type SSMB connector .....	19
Figure 1 – Connector with socket- centre contact .....	6
Figure 2 – Connector with pin-centre contact .....	7
Figure 3 – Gauge pins for socket-centre contact .....	8
Figure 4 – Outer contact sizing and retention force gauges A and B .....	9
Figure 5 – Connector with socket-centre contact .....	10
Figure 6 – Connector with pin-centre contact .....	11
Table 1 – Dimensions of connector with socket-centre contact .....	6
Table 2 – Dimensions of connector with pin-centre contact .....	7
Table 3 – Dimensions of gauge pins for socket-centre contact .....	8
Table 4 – Dimensions of gauge for outer contact .....	9

Table 5 – Dimensions of connector with socket-centre contact.....	10
Table 6 – Dimensions of connector with pin-centre contact.....	11
Table 7 – Rating and characteristics .....	12
Table 8 – Acceptance tests .....	14
Table 9 – Periodic tests .....	15

IECNORM.COM: Click to view the full PDF of IEC PAS 61169-19:2009

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## RADIO-FREQUENCY CONNECTORS –

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

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

A PAS is a technical specification not fulfilling the requirements for a standard, but made available to the public.

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

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned may transform it into an International Standard.

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  $50 \Omega$  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*<sup>1)</sup>

Amendment 1 (1996)  
Amendment 2 (1997)

#### 3 Mating face and gauge information

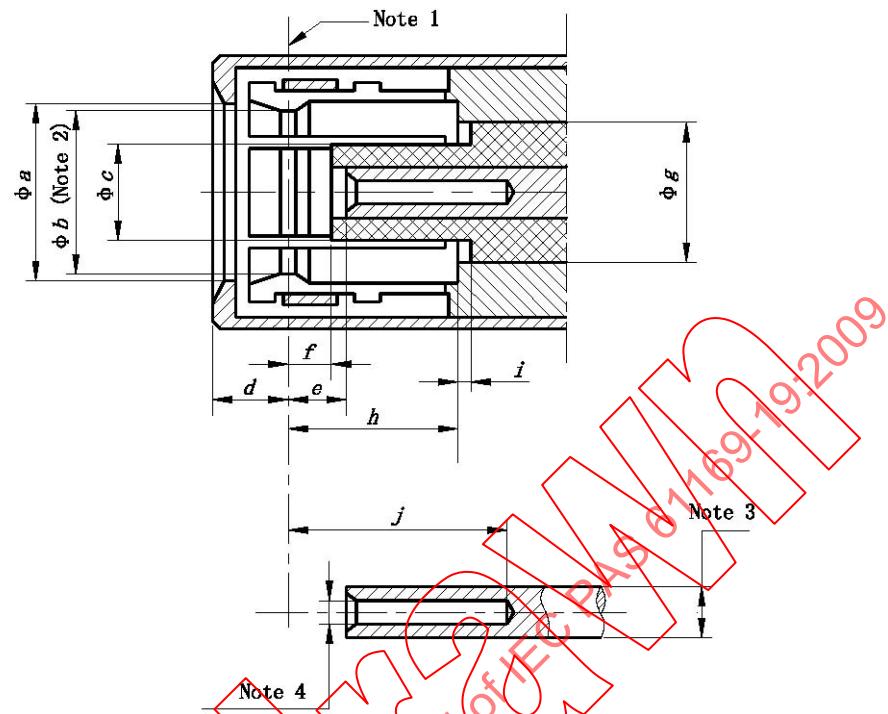
##### 3.1 Dimensions – General purpose connectors – Grade 2

###### 3.1.1 Connector with socket-centre contact

Inch dimensions are original dimensions.

All non-dimensioned pictorial configurations are for reference purpose only.

<sup>1)</sup> 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	-

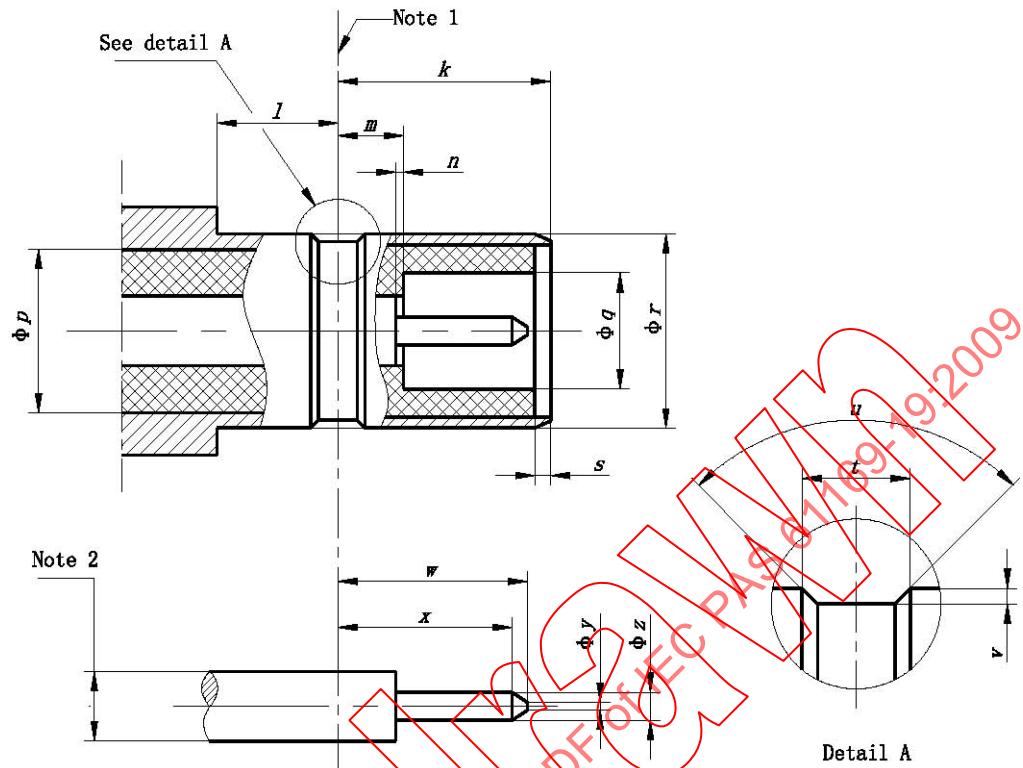
NOTE 1 Reference plane.

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  $\Omega$ .

NOTE 4 Resilient contact may be closed or open entry, method of resilience is optional, provided that when a pin of 0,36 mm ~ 0,38 mm (0,014 ~ 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**

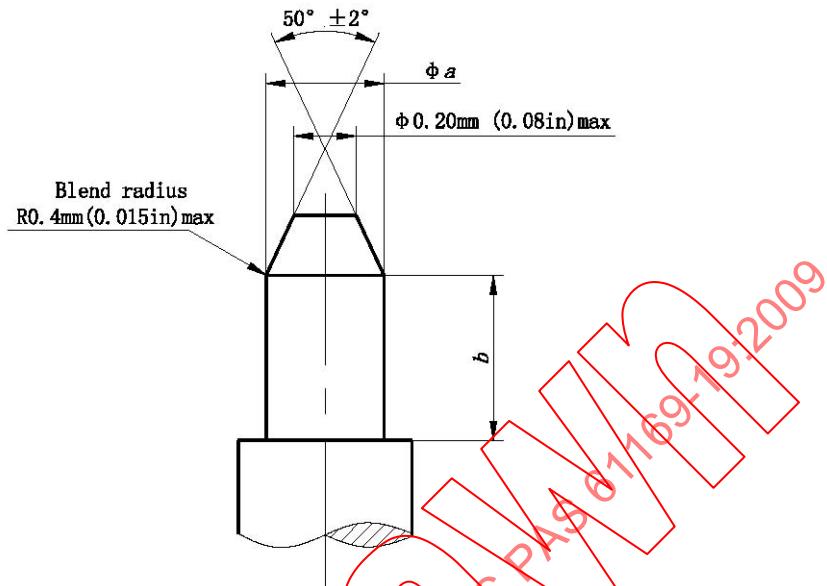
Ref.	mm		in	
	min	max	min	max
<i>k</i>		3,10	-	0,122
<i>l</i>	1,91	-	0,075	-
<i>m</i>	-	0,84	-	0,033
<i>n</i>	0,00	-	0,000	-
<i>p</i>	2,11 (nominal)		0,083 (nominal)	
<i>q</i>	1,37	-	0,054	-
<i>r</i>	-	2,67	-	0,105
<i>s</i>	0,00	-	0,000	-
<i>t</i>	0,71	0,74	0,028	0,029
<i>u</i>	88°~92°		88°~92°	
<i>v</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**

Ref.	Gauge A				Gauge B			
	Maximum material for sizing purposes				Minimum material for measurement of retention force			
	mm		in		mm		in	
Ref.	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

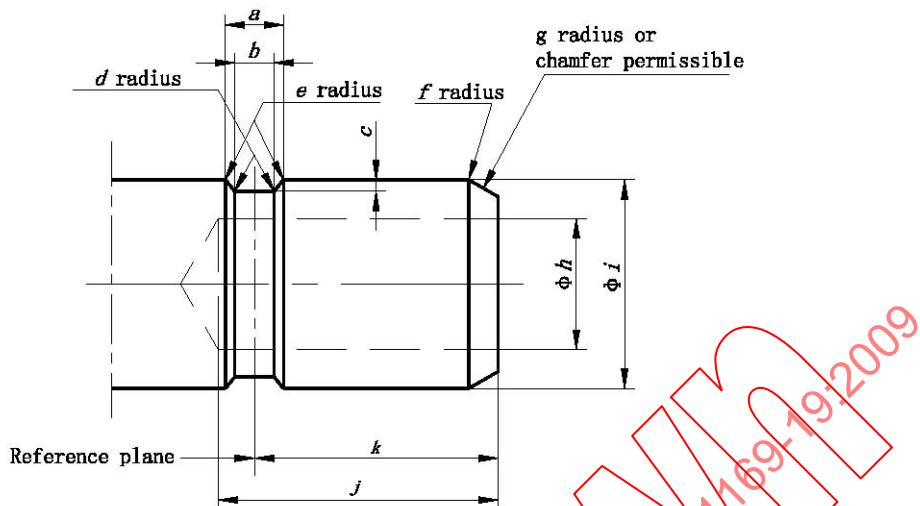
Material: steel, polished, surface roughness:  $Ra=0,4 \mu\text{m}$  ( $16 \mu\text{in}$ ) maximum.

#### 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)			
	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

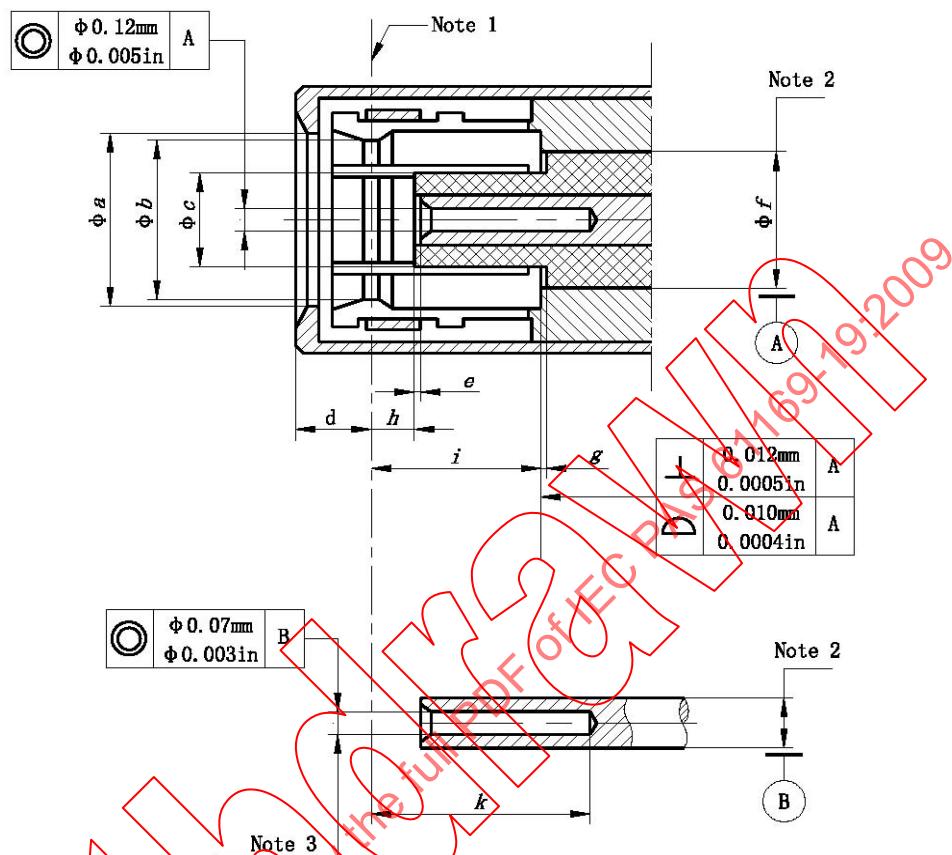
The gauge A shall be inserted into the outer contact of the socket-centre contact three times. This is a sizing operation.

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.

### 3.3 Dimensions – Standard test connectors – Grade 0

#### 3.3.1 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**

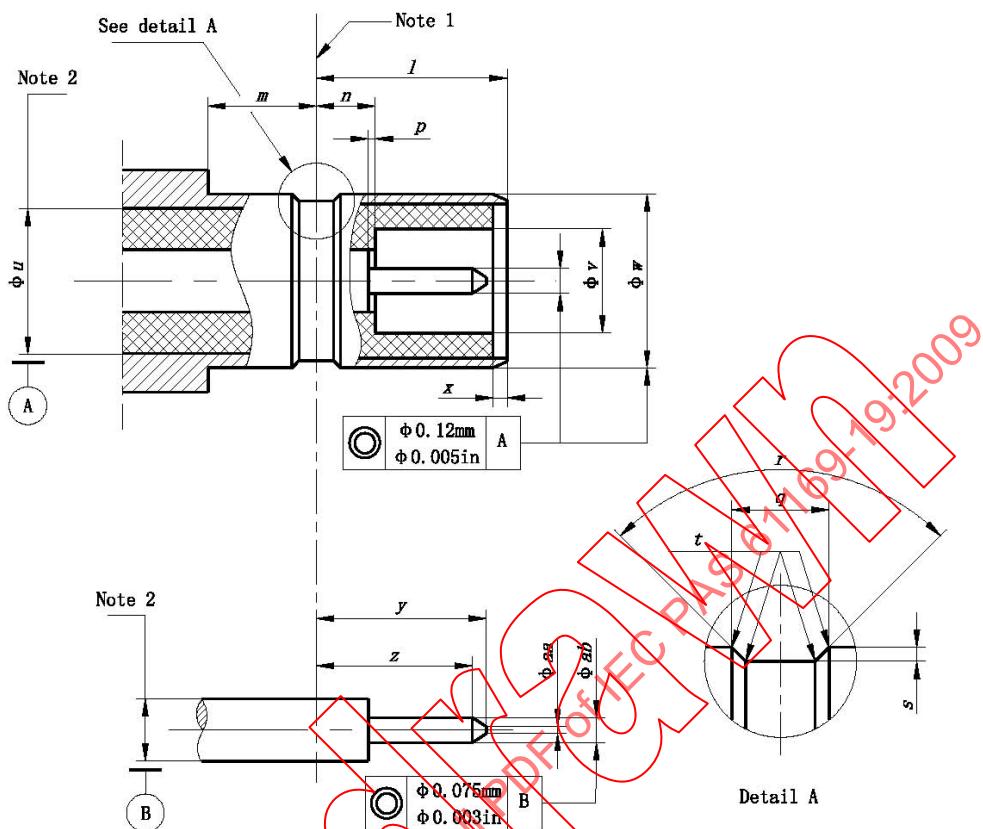
Ref.	mm		in	
	min	max	min	max
a	2,740	2,840	0,107 9	0,111 8
b	2,464	2,514	0,097 0	0,099 0
c	1,295	1,340	0,051 0	0,052 8
d	-	1,780	-	0,070 1
e	0,000	0,127	0,000 0	0,005 0
f	2,110 (nominal)		0,0830 (nominal)	
g	0,000	0,127	0,000 0	0,005 0
h	0,840	0,942	0,033 1	0,037 1
i	3,100	3,150	0,122 0	0,124 0
k	2,770	-	0,109 1	-

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  $50 \Omega \pm 0,5 \Omega$ .

NOTE 3 Resilient contact may be closed or open entry, method of resilience optional, provided that when a pin of 0,36 mm ~ 0,38 mm (0,014 in ~ 0,015 in) diameter is inserted, VSWR mating and endurance performances are obtained.

### 3.3.2 Connector with pin-centre contact



NOTE For dimensions and notes, see Table 6.

**Figure 6 – Connector with pin-centre contact**

**Table 6 – Dimensions of connector with pin-centre contact**

Ref.	mm		in	
	min	max	min	max
<i>l</i>	3,050	3,100	0,120 1	0,122 0
<i>m</i>	1,905	-	0,075 0	-
<i>n</i>	0,740	0,840	0,029 1	0,033 1
<i>p</i>	0,000	0,127	0,000 0	0,005 0
<i>q</i>	0,710	0,740	0,028 0	0,029 1
<i>r</i> 89°~91°		89°~91°		
<i>s</i>	0,120	0,150	0,004 7	0,005 9
<i>t</i>	0,080 radius		0,003 0 radius	
<i>u</i>	2,110 (nominal)		0,083 0 (nominal)	
<i>v</i>	1,370	1,420	0,053 9	0,055 9
<i>w</i>	2,620	2,670	0,103 1	0,105 1
<i>x</i>	0,000	0,050	0,000 0	0,002 0
<i>y</i>	-	2,750	-	0,108 3
<i>z</i>	1,910	-	0,075 2	-
<i>aa</i>	-	0,250	-	0,010 0
<i>ab</i>	0,360	0,380	0,014 2	0,015 0

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  $50 \Omega \pm 0,5 \Omega$ .

## 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.

### 4.2 Rating and characteristics (see Clause 6 of IEC 61169-1)

The values indicated below are recommended for SSMB series RF connectors and are given for the writer of the detail specification. They are applicable for the condition when the connectors are fully mated.

Certain tests are listed without any recommended values being given. These tests will usually not be required. When these tests are required, appropriate values shall be entered in the detail specification at the discretion of the specification writer.

**Table 7 – Rating and characteristics**

Rating and characteristics	Test method IEC 61169-1 subclause	Values	Remarks including any deviations from standard test method
Electrical			
Nominal impedance		50 Ω	
Frequency range		Up to 3 GHz	
Reflection factor <sup>1)</sup>	9.2.1		
Grade 2 connectors			
- straight styles		≤0,1	Up to 1GHz
- right-angle styles		≤0,15	Up to 3GHz
- component mounting styles		≤0,2	Up to 1GHz
- solder bucket and PCB mounting styles		≤0,24	Up to 3GHz
Centre contact resistance <sup>2)</sup>	9.2.3	See DS	
- initial		≤ 5,0 mΩ	
- after conditioning		≤ 15,0 mΩ	
Outer conductor continuity <sup>2)</sup>	9.2.3		
- initial		≤ 2,5 mΩ	
- after conditioning		≤ 7,5 mΩ	
Insulation resistance <sup>1)</sup>	9.2.5		
- initial		≥ 1 000 MΩ	
- after conditioning		≥ 200 MΩ	
Proof voltage at sea-level <sup>3)4)</sup>	9.2.6	500 V	
Proof voltage at 4,4 kPa <sup>3)4)</sup>	9.2.6	100 V	4,4 kPa approximately equivalent to 20 km
Environmental voltage at sea level <sup>3)4)</sup>		250 V	
Environmental voltage at 4,4 kPa <sup>3)4)</sup>		85 V	4,4 kPa approximately equivalent to 20 km
Screening effectiveness (straight cables only) <sup>6)</sup>	9.2.8	≥ 40 dB at 1 GHz	

Rating and characteristics	Test method IEC 61169-1 subclause	Values	Remarks including any deviations from standard test method
Mechanical Gauge retention force (resilient contacts) - centre contact - outer contact	9.3.4	$\geq 0,15$ N $\geq 4,5$ N	
Centre contact captivation - axial force	9.3.5	$\geq 8,9$ N	Maximum displacement 0,25 mm in each direction
Engagement and separation - separation force - insertion force	9.3.6	$\geq 4,5$ N $\leq 27$ N	
Mechanical tests on cable fixing - cable rotation (nutation) - cable pulling - cable bending - cable torsion	9.3.7.2 9.3.8 9.3.9 9.3.10	See DS See DS See DS See DS	
Bending moment	9.3.12	See DS	
Vibration	9.3.3	$100 \text{ m/s}^2$ $10 \text{ Hz} \sim 500 \text{ Hz}$	$10 \text{ g}_n$
Shock	9.3.14	See DS	
Environmental Climatic category	9.4.2	A:55/125/21 B:40/085/21	
Sealing non-hermetic	9.4.5.1	$\leq 100 \text{ kPa} \cdot \text{cm}^3/\text{h}$	100 kPa to 110 kPa differential
Hermetic	9.4.5.2	$\leq 10^{-3} \text{ Pa} \cdot \text{cm}^3/\text{s}$	100 kPa to 110 kPa differential
Salt mist	9.4.6	48 h spray	
Endurance Mechanical endurance High temperature endurance <sup>5)</sup>	9.5 9.6	500 operations Category A: 250 h at 125 °C Category B: 250 h at 85 °C	
<p>1) These values apply to basic connector. In practice, these may be influenced by the cable used and reference should always be made to the actual values given in the detail specification.</p> <p>2) Values for a single pair of connectors.</p> <p>3) Voltages are r.m.s. values of AC at 40 Hz to 65 Hz, unless otherwise specified.</p> <p>4) Some cables usable with these connectors have ratings lower than the values given here.</p> <p>5) For certain connectors, the upper temperature limit is restricted by the cable characteristics. Reference should be made to the relevant cable specification. When semi-rigid and semi-flexible cables are used, the upper temperature is limited to 115 °C maximum.</p> <p>6) When interfaces are fully mated.</p>			

### 4.3 Test schedule and inspection requirements

#### 4.3.1 Acceptance tests

**Table 8 – Acceptance tests**

	Test method IEC61169-1 subclause	Assessment level M (higher)				Assessment level H (lower)			
		Test required	IL	AQL %	Period	Test required	IL	AQL %	Period
Group A1	9.1.2	a	II	1,0	Lot By Lot	a	S-3	1,5	Lot By Lot
Visual examination						a	S-3	4,0	
Group B1	9.1.3.1	a	S-4	0,40		a	S-3	1,5	
Outline dimension						a	S-3	1,5	
Mechanical compatibility	9.1.3.3	a	II	1,0		a	S-3	1,5	
Engagement and separation	9.3.6	a	S-4	0,40		a	S-3	1,5	
Gauge retention (resilient contacts)	9.3.4	ia	II	1,0		ia	S-3	1,5	
Sealing	9.4.5.1	ia	II	0,65		ia	S-3	1,0	
non-hermetic	9.4.5.2	ia	II	0,015		ia	II	0,025	
hermetic						a	II	4,0	
Voltage proof	9.2.6	a	S-4	0,40		ia	S-3	4,0	
Solderability (d)	9.3.2.1.1	ia	S-4	0,40		a	S-3	4,0	
Insulation resistance	9.2.5	a	S-4	0,40					

For the symbols, abbreviations and procedures, see the end of Table 8.

IECNORM.COM: Click to view in PDF or IEC PAS 61169-19:2009

#### 4.3.2 Periodic tests

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

**Table 9 – Periodic tests**

	Test method IEC61169-1 subclause	Assessment level M (higher)				Assessment level H (lower)			
		Test required	Number of specimens	Permitted failures per group <sup>1)</sup>	Period	Test required	Number of specimens	Permitted failures per group <sup>1)</sup>	Period
Group D1 (d) 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 -cable rotation (nutation)	9.3.7.2	ia	6	1	3 years	ia	3	1	3 years
-cable pulling	9.3.8	ia				ia			
-cable bending	9.3.9	ia				ia			
-cable torsion	9.3.10	ia				ia			
Bending moment	9.3.12	a				a			
Strength of coupling mechanism	9.3.11	ia				ia			
Group D2 (d) Contact resistance	9.2.3	a				a			
Outer con- ductor and screen con- tinuity	9.2.3								
Centre conductor continuity									
Bump	9.3.13	na				na			
Vibration	9.3.3	a				a			
Shock	9.3.14	a				a			
Damp heat, steady state	9.4.3	a				a			
Salt mist	9.4.6	a				a			
Group D3 Dimensions piece part and materials	9.1.3.2	a	1 <sup>2)</sup>	1	3 years	a	1 <sup>2)</sup>	1	3 years

IECNORM.COM: Click to view the full PDF of IEC PAS 61169-19:2009

	Test method IEC61169-1 subclause	Assessment level M (higher)				Assessment level H (lower)			
		Test required	Number of specimens	Permitted failures per group <sup>1)</sup>	Period	Test required	Number of specimens	Permitted failures per group <sup>1)</sup>	Period
Group D4 (d) Mechanical endurance	9.5	a	6	1	3 years	a	3	1	3 years
High temperature endurance	9.6	a				a			
Sulphur dioxide	9.4.8	na				na			
Group D5 (d) Reflection factor	9.2.1	a	6	1	3 years	a	3	1	3 years
Screening effectiveness	9.2.8	a				a			
Water Immersion	9.2.7	ia				ia			
Group D6 (d) Contact captivation	9.3.5	ia	6	1	3 years	ia	3	1	3 years
Discharge test (corona effect)	9.2.9	a				a			
Rapid change of temperature	9.4.4	a				a			
Climatic sequence	9.4.2	a	6	1	3 years	a	3	1	3 years
Group D7 (d) Resistance to solvents and contaminating fluids	9.7	na				na			
		1 <sup>2)</sup>				1 <sup>3)</sup>			

#### 4.4 Procedures

##### 4.4.1 Quality conformance inspection

This shall consist of test group A1 and B1 on a lot-by-lot basis and test group D1 to D7 on a periodic basis.

##### 4.4.2 Qualification approval and its maintenance

This still consists 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.

### 5 Instructions for preparation of detail specifications

#### 5.1 General

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

- the basic specification number applicable to all the detail specifications covering connector styles of the type covered by the sectional specification;
- 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.

#### 5.1 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.

#### 5.2 Performance

(9) Performance data listing the most important characteristics of the connector taking into account the recommended values in 4.2 of this specification. Deviations from the minimum requirements shall be clearly indicated. Non-applicable parameters shall be marked 'na'.

### 5.3 Marking, ordering information and related matters

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

### 5.4 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 as in 4.3 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 national supervising inspectorate (NSI) shall be satisfied that they are appropriate and in line with those for other connectors within the system providing a reasonably comparable service.

IECNORM.COM: Click to view the full PDF of IEC PAS 61169-19

## 5.5 Blank detail specification pro-forma for type SSMB connector

The following pages contain the complete BDS pro-forma.

(1)	Page 1 of 10			
<b>ELECTRONIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH GENERIC SPECIFICATION IEC 61169-1 SECTIONAL SPECIFICATION IEC 61169-19 NATIONAL REFERENCE</b>		(4) ISSUE ..... .....		
<b>(5) Detail specification for Radio frequency coaxial connector of assessed quality</b> <span style="border: 1px solid black; padding: 2px;">type SSMB</span>				
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		
(8) Variants				
Variant No.	Description of variant			61196 IEC
01.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
Information about manufacturers who have components qualified to this detail specification is available through IECQ on-line certificate system.				

*IECnorm.com: Click to view the full publication*

## (9) Performance (including limiting conditions of use)

Ratings and characteristics	IEC 61169-1 subclause	Value	Remarks including any deviations from standard test methods
<i>Electrical</i>			
Nominal impedance		50 $\Omega$	
Frequency range		0 GHz - 3 GHz	Measurement frequency range
Reflection factor			
Variant No. Designation 01..... .....	9.2.1	..... ..... .....	..... ..... .....
Centre contact resistance	9.2.3	$\leq \dots \text{m}\Omega$ $\leq \dots \text{m}\Omega$	Initial After conditioning
Centre conductor continuity	9.2.3	..... ..... ..... ..... .....	Resistance change due to conditioning
Outer contact continuity	9.2.3	..... ..... .....	Initial After conditioning
Insulation resistance	9.2.5	$\geq \dots \text{G}\Omega$ $\geq \dots \text{G}\Omega$	Initial After conditioning
#+ Proof voltage at sea level	9.2.6	..... ..... ..... ..... .....	86 kPa - 106 kPa
#+ Proof voltage at 4,4 kPa	01..... ..... .....	..... ..... ..... ..... .....	.....kPa (if not 4,4 kPa)
#+ Environment test voltage at sea level	01..... ..... .....	..... ..... ..... ..... .....	86 kPa - 106 kPa
Environment test voltage at 4,4 kPa	01..... ..... .....	..... ..... ..... ..... .....	.....kPa (if not 4,4 kPa)
Screening effectiveness	9.2.8	$\geq \text{dB at....GHz}$	$Z_t \leq \dots \Omega$
ADDITIONAL ELECTRICAL CHARACTERISTICS			

+ Voltage values are r.m.s. values at 50 Hz-60 Hz, unless otherwise specified.