



SLOVENSKI STANDARD
oSIST prEN IEC 61169-10:2023

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Radiofrekvenčni konektorji - 10. del: Radiofrekvenčni (RF) koaksialni konektorji z notranjim premerom zunanjega vodnika 3 mm (0.12 in) in navojnim spajanjem - Karakteristična impedanca 50 ohm (tip SMB)

Radio-frequency connectors. Part 10: R.F. coaxial connectors with inner diameter of outer conductor 3 mm (0.12 in) with snap-on coupling - Characteristic impedance 50 ohms (Type SMB)

*iteh STANDARD PREVIEW
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Connecteurs pour fréquences radioélectriques. Dixième partie: Connecteurs coaxiaux pour fréquences radioélectriques avec diamètre intérieur du conducteur extérieur de 3 mm (0,12 in) à accouplement par encliquetage - Impédance caractéristique 50 ohms (type SMB)

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ICS:

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(RF)

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TITLE:

Radio-frequency connectors. Part 10: R.F. coaxial connectors with inner diameter of outer conductor 3 mm (0.12 in) with snap-on coupling - Characteristic impedance 50 ohms (Type SMB)

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

please see CDV from Chinese NC

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CONTENTS

1		
2		
3	1 Scope	4
4	2 Normative references	4
5	3 Mating face and gauge information	4
6	3.1 General connectors – Grade 2	4
7	3.1.1 Connector with pin centre contact	4
8	3.1.2 Connector with socket centre contact	6
9	3.2 Gauges	7
10	3.2.1 Gauge pin for socket centre contact	7
11	3.2.2 Gauge for outer contact of connector with pin centre contact	7
12	3.3 Dimensions – Standard test connectors – Grade 0	8
13	3.3.1 Connectors with pin centre contact	8
14	3.3.2 Connector with socket centre contact	9
15	4 Quality assessment procedures	11
16	4.1 General	11
17	4.2 Ratings and characteristics	11
18	4.3 Test schedule and inspection requirements	13
19	4.3.1 Acceptance tests	13
20	4.3.2 Periodic tests	14
21	4.3.3 Procedures for the quality conformance	15
22	4.3.3.1 Quality conformance inspection	15
23	4.3.3.2 Quality conformance and its maintenance	15
24	5 Instructions for preparation of detail specifications	15
25	5.1 General	15
26	5.2 Identification of the component	15
27	5.3 Performance	16
28	5.4 Marking, ordering information and related matters	16
29	5.5 Selection of tests, test conditions and severities	16
30	5.6 Blank detail specification pro-forma for SMB connectors	16
31		
32	Figure 1 – Connector with pin centre contact (for dimensions, see Table 1)	5
33	Figure 2 – Connector with socket centre contact (for dimensions, see Table 2)	6
34	Figure 3 – Gauge pin for socket centre contact (for dimensions, see Table 3)	7
35	Figure 4 – Gauge for outer contact of connector with pin centre contact (for dimensions, 36 see Table 4)	8
37	Figure 5 – Connector with pin centre contact (for dimensions, see Table 5)	9
38	Figure 6 – Connector with socket in centre contact (for dimensions, see Table 6)	10
39		
40	Table 1 – Dimensions of connector with pin centre contact	4
41	Table 2 – Dimensions of connector with socket centre contact	5
42	Table 3 – Dimensions of gauge pin for socket centre contact	6
43	Table 4 – Dimensions of gauge for outer contact of connector with pin centre contact	7
44	Table 5 – Dimensions of connector with pin centre contact	8
45	Table 6 – Dimensions of connector with socket centre contact	9

46 Table 7 – Preferred climatic categories 10
47 Table 8 – Ratings and characteristics 10
48 Table 9 – Acceptance tests 13
49 Table 10 – Periodic tests 14

50
51
52
53
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RADIO-FREQUENCY CONNECTORS –

Part 10: R.F. coaxial connectors with inner diameter of outer conductor 3 mm (0.12 in) with snap-on coupling – Characteristic impedance 50 ohms (Type SMB)

1 Scope

This part of IEC 61169, which is a sectional specification (SS), provides information and rules for the preparation of detail specifications (DS) for series SMB RF coaxial connectors with snap-on coupling with a characteristic impedance of 50 Ω .

This document prescribes mating face dimensions for high performance connectors – grade 2, dimensional details of standard test connectors – grade 0, gauging information and tests selected from IEC 61169-1, applicable to all detail specifications relating to series SMB RF connectors.

This document 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.

The series SMB connectors which are used with all kinds of RF cables and microstrips in microwave transmission systems. The operating frequency is up to 4 GHz.

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

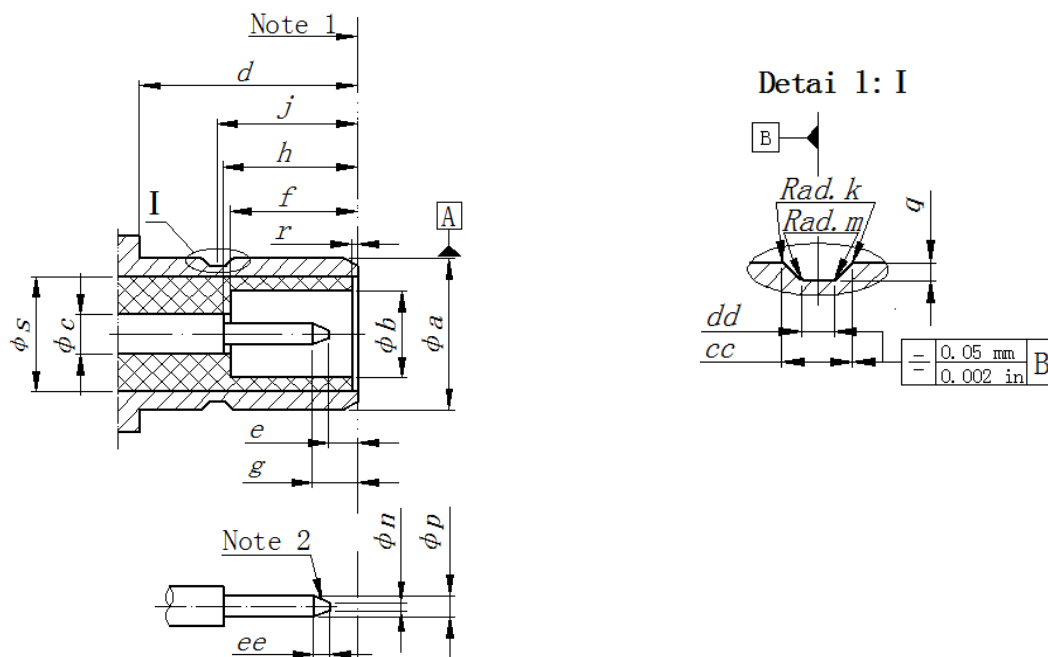
IEC 61169-1:2013, *Radio frequency connectors – Part 1: Generic specification – General requirements and measuring methods*

3 Mating face and gauge information

3.1 General connectors – Grade 2

3.1.1 Connector with pin centre contact

The mating face of connector with pin centre contact is shown in Figure 1 and its dimensions are shown in Table 1 .



121

122 NOTE 1 Mechanical and electrical reference plane.

123 NOTE 2 The shape of the top is optional.

124

125 **Figure 1 – Connector with pin centre contact (for dimensions, see Table 1)**

126

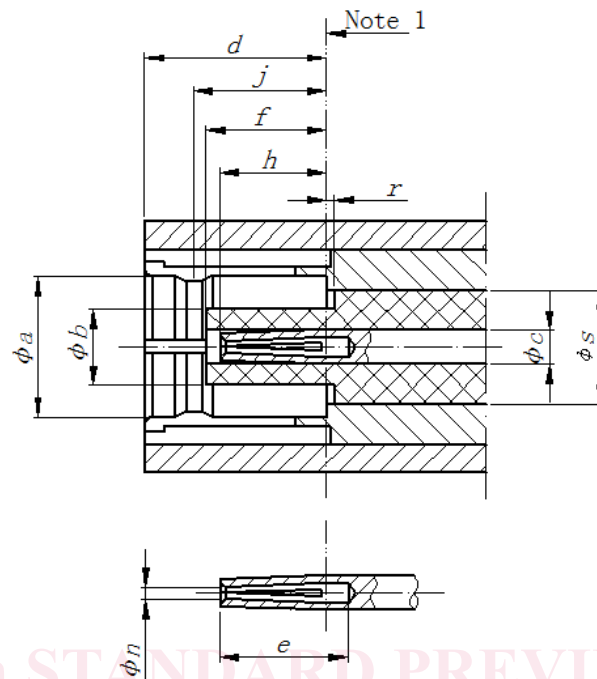
Table 1 – Dimensions of connector with pin centre contact

Ref.	mm		in		Note
	min.	max.	min.	max.	
a	3,66	3,71	0,144	0,146	
b	2,08	-	0,082	-	
c ^a	-	-	-	-	
d	4,98	-	0,1961	-	
e	0,36	-	0,0142	-	
f	3,15	-	0,1240	-	
g	-	2,26	-	0,0890	
h	3,15	3,58	0,1240	0,1409	
j	3,33	3,58	0,131	0,141	
k	0,05	0,15	0,002	0,006	
m	-	0,13	-	0,005	
n	-	0,25	-	0,010	
p	0,48	0,53	0,019	0,021	
q	0,15	0,25	0,006	0,010	
r	0,0	-	0,00	-	
s	3,05(nom)		0,120(nom)		
cc	0,69	0,94	0,027	0,037	
dd	0,28	0,38	0,11	0,015	
ee	0,25	-	0,01	-	

^a The selected dimension shall meet the requirement of 50 Ω characteristics.

127 **3.1.2 Connector with socket centre contact**

128 The mating face of connector with socket centre contact is shown in Figure 2 and its
 129 dimensions are shown in Table 2.



130

131 NOTE 1 Mechanical and electrical reference plane.

132 **Figure 2 – Connector with socket centre contact (for dimensions, see Table 2)**

133

Table 2 – Dimensions of connector with socket centre contact

Ref.	mm		in		Note
	min.	max.	min.	max.	
<i>a</i> ^a	-	-	-	-	
<i>b</i>	-	2,06	-	0,081	
<i>c</i> ^b	-	-	-	-	
<i>d</i>	-	4,96	-	0,1953	
<i>e</i>	2,97	-	0,117	-	
<i>f</i>	-	3,13	-	0,1232	
<i>h</i>	2,66	3,13	0,1047	0,1232	
<i>j</i> ^a	3,455		0,1360		
<i>n</i> ^c	-	-	-	-	
<i>r</i>	0,0	-	0,0	-	
<i>s</i> ^b	3,05 (nom)		0,120 (nom)		

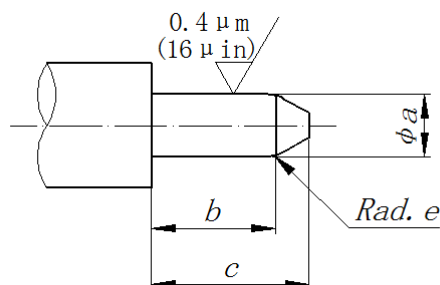
^a Refer to the detail drawing of plug interface-groove in 3.1.1; the shape and size of external contact should meet the requirements of electrical and mechanical properties.
^b The selected dimension shall meet the requirement of 50 Ω characteristics.
^c Bore diameter closed to meet electrical and mechanical requirements

134

135

136 **3.2 Gauges**137 **3.2.1 Gauge pin for socket centre contact**

138 The gauge pin for socket centre contact is shown in Figure 3 and its dimensions are shown in
139 Table 3.



140

141 **Figure 3 – Gauge pin for socket centre contact (for dimensions, see Table 3)**

142

Table 3 – Dimensions of gauge pin for socket centre contact

Ref.	Gauge A (For sizing purpose)				Gauge B (For measurement of gauge retention force for outer conductor) Mass of gauge: 29 g ± 1 g			
	mm		in		mm		in	
	min.	max.	min.	max.	min.	max.	min.	max.
a	0,533	0,538	0,0210	0,0212	0,477	0,482	0,0188	0,190
b	1,27	-	0,05	-	1,27	-	0,05	-
c	-	2,5	-	0,098	-	2,5	-	0,098
e	-	0,4	-	0,0157	-	0,4	-	0,0157

Material: steel, polished.

143

144 The test procedure is as follows:

145 a) Sizing test

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

148 b) Retention test

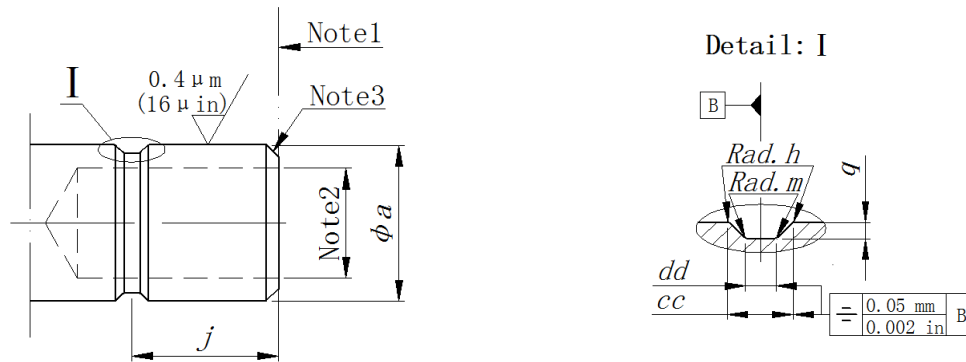
149 After sizing test, the gauge B shall be inserted into socket-centre contact. The contact
150 shall retain the mass of the gauge B in a vertical downward position.

151 This test may also be carried out on the connector with the insulator unremoved.

152 **3.2.2 Gauge for outer contact of connector with pin centre contact**

153 The gauge for outer contact of connector with pin centre contact is shown in Figure 4 and its
154 dimensions are shown in Table 4.

155



156

157 NOTE 1 Mechanical and electrical reference plane.

158 NOTE 2 Enable the inner conductor and insulator of the jack connector to be inserted into the inner hole.

159 NOTE 3 Rounding or chamfering is allowed, up to 0.38 mm (0.015 in).

160 **Figure 4 – Gauge for outer contact of connector with pin centre contact (for dimensions, see Table 4)**

161

162 **Table 4 – Dimensions of gauge for outer contact of connector with pin centre contact**

Gauge C (For sizing purpose)					Gauge D (For measurement of gauge retention force for outer conductor) Mass of gauge: 800 g ±1 0g			
Ref.	mm		in		mm		in	
	min.	max.	min.	max.	min.	max.	min.	max.
<i>a</i>	3,68	3,71	0,1450	0,1460	3,68	3,71	0,1450	0,1460
<i>j</i>	3,33	3,58	0,131	0,141	3,33	3,58	0,131	0,141
<i>h</i>	0,05	0,15	0,002	0,006	0,05	0,15	0,002	0,006
<i>m</i>	-	0,13	-	0,005	-	0,13	-	0,005
<i>q</i>	0,25	0,28	0,010	0,011	0,13	0,15	0,005	0,006
<i>cc</i>	0,91	0,94	0,036	0,037	0,69	0,71	0,027	0,028
<i>dd</i>	0,36	0,38	0,014	0,015	0,28	0,30	0,011	0,012

Material: steel, polished.

163

164 The test procedure is as follows:

165 a) Sizing test

166 The outer contact shall be inserted into the gauge D once. This is a sizing operation.

167 b) Retention test

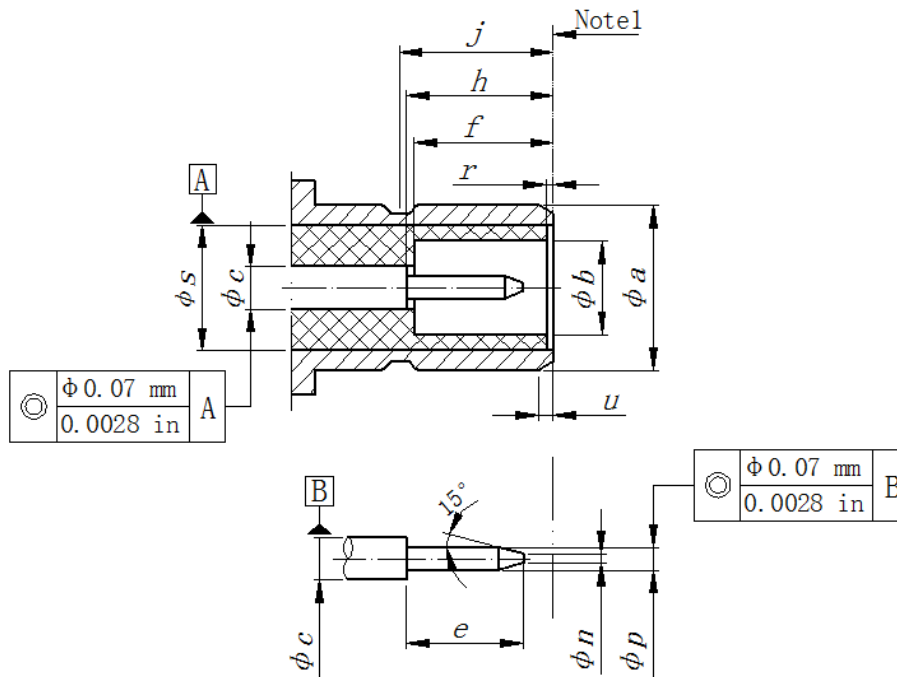
168 After sizing test, the outer contact shall be inserted into the gauge E. The outer contact shall retain the gauge in a vertical downward direction.

170 This test may also be carried out on the connector with the contact element unremoved.

171 **3.3 Dimensions – Standard test connectors – Grade 0**172 **3.3.1 Connectors with pin centre contact**

173 The interface of connector with pin centre contact is shown in Figure 5, dimensions are shown in Table 5.

174



175
176 NOTE 1 Mechanical and electrical reference plane.

177
178 **Figure 5 – Connector with pin centre contact (for dimensions, see Table 5)**

179 **Table 5 – Dimensions of connector with pin centre contact**

Ref.	mm		in		Note
	min.	max.	min.	max.	
<i>a</i>	3,66	3,71	0,144	0,146	
<i>b</i> ^a	2,08	2,15	0,082	0,085	
<i>c</i> ^b	—	—	—	—	
<i>e</i>	2,39	2,72	0,0941	0,1071	
<i>f</i>	3,15	3,50	0,1240	0,1378	
<i>h</i>	3,15	3,35	0,1240	0,1319	
<i>j</i>	3,48	3,53	0,137	0,139	
<i>n</i>	—	0,25	—	0,010	
<i>p</i>	0,48	0,53	0,019	0,021	
<i>r</i>	0,04	0,24	0,0015	0,0095	
<i>s</i> ^b	3,05	3,07	0,120	0,121	
<i>u</i>	0,102	0,178	0,004	0,007	chamf.

^a The size of PTFE medium with dielectric constant of 2.02, and the PTFE medium must be used.
^b The selected diameter should meet the requirements of 50 Ω ±0.5Ω characteristic impedance.
Dimensions not noted in this table are shown in 3.1.1.

180 **3.3.2 Connector with socket centre contact**

181 The mating face of standard test connector with socket centre contact is shown in Figure 6
182 and its dimensions are shown in Table 6.

183