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Radio-frequency connectors –
Part 52: Sectional specification for series MMCX RF coaxial connectors

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CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references.....	6
3 Mating face and gauge information.....	6
3.1 Dimensions – General connectors – Grade 2	6
3.1.1 Connector with pin centre contact.....	6
3.1.2 Connector with socket centre contact	7
3.2 Gauges.....	8
3.2.1 Gauge pin for socket centre contact	8
3.2.2 Gauge for outer contact.....	9
3.3 Dimensions – Standard test connectors – Grade 0	11
3.3.1 Connector with pin centre contact.....	11
3.3.2 Connector with socket centre contact	12
4 Quality assessment procedure	13
4.1 General.....	13
4.2 Rating and characteristics (see Clause 5 of IEC 61169-1:2013).....	13
4.3 Test schedule and inspection requirements.....	15
4.3.1 Acceptance tests.....	15
4.3.2 Periodic tests.....	16
4.4 Procedures for the qualification approval	18
4.4.1 Quality conformance inspection.....	18
4.4.2 Qualification approval and its maintenance	18
5 Instructions for preparation of detail specifications (DS)	18
5.1 General.....	18
5.2 Identification of the component.....	18
5.3 Performances.....	19
5.4 Marking, ordering information and related matters.....	19
5.5 Selection of tests, test conditions and severities	19
5.6 Blank detail specification pro-forma for type MMCX connector.....	20
6 Marking	24
6.1 Marking of component.....	24
6.2 Marking and contents of package	24
Figure 1 – Connector with pin centre contact.....	7
Figure 2 – Connector with socket centre contact.....	8
Figure 3 – Gauge pin for socket centre contact.....	9
Figure 4 – Gauge for outer contact.....	10
Figure 5 – Connector with pin centre contact.....	11
Figure 6 – Connector with socket centre contact.....	12
Table 1 – Dimensions of connector with pin centre contact	7
Table 2 – Dimensions of connector with socket centre contact	8
Table 3 – Dimensions of gauge pin for socket centre contact	9
Table 4 – Dimensions of gauge for outer contact	10
Table 5 – Dimensions of connector with pin centre contact	11

Table 6 – Dimensions of connector with socket centre contact	12
Table 7 – Preferred climatic categories (see IEC 60068-1).....	13
Table 8 – Rating and characteristics.....	13
Table 9 – Acceptance tests	16
Table 10 – Periodic tests	16

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO-FREQUENCY CONNECTORS –**Part 52: Sectional specification for series MMCX RF coaxial connectors**

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International Standard IEC 61169-52 has been prepared by subcommittee 46F: R.F. 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 standard is based on the following documents:

FDIS	Report on voting
46F/314/FDIS	46F/320/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61169 series, under the general title: *Radio-frequency connectors*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
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RADIO-FREQUENCY CONNECTORS –

Part 52: Sectional specification for series MMCX RF coaxial connectors

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 RF coaxial connectors with snap-on coupling, typically for use in 50 Ω cable networks (MMCX).

It prescribes mating face dimensions for general purpose 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 MMCX 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.

The MMCX miniature snap-on coupling structure series R.F. coaxial connector with the characteristic of normative impedance 50 Ω are used with various kinds of R.F cables and strips. The operating frequency limit is up to 6 GHz.

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

IEC 60068-1, *Environmental testing – Part 1: General and guidance*

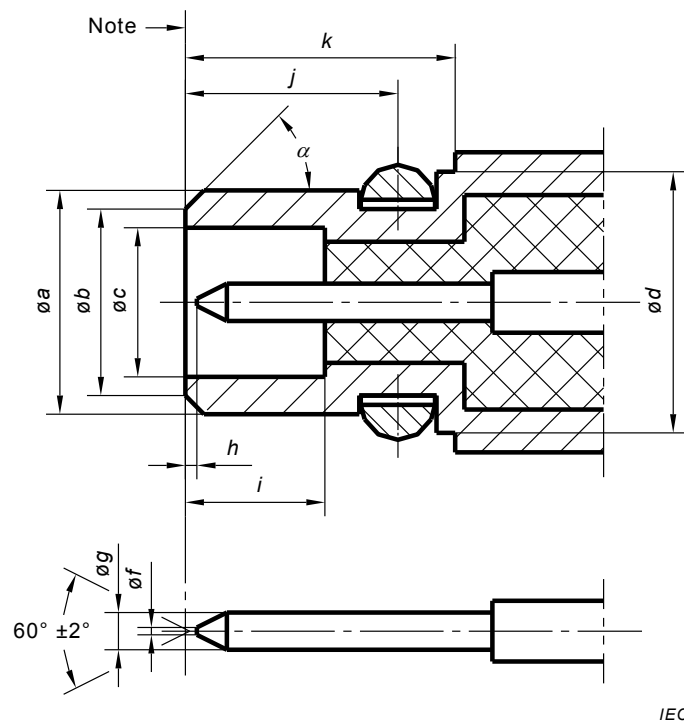
IEC 62037 (all parts), *Passive RF and microwave devices, intermodulation level measurement*

3 Mating face and gauge information

3.1 Dimensions – 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.



IEC

NOTE Mechanical and electrical reference plane.

Figure 1 – Connector with pin centre contact

Table 1 – Dimensions of connector with pin centre contact

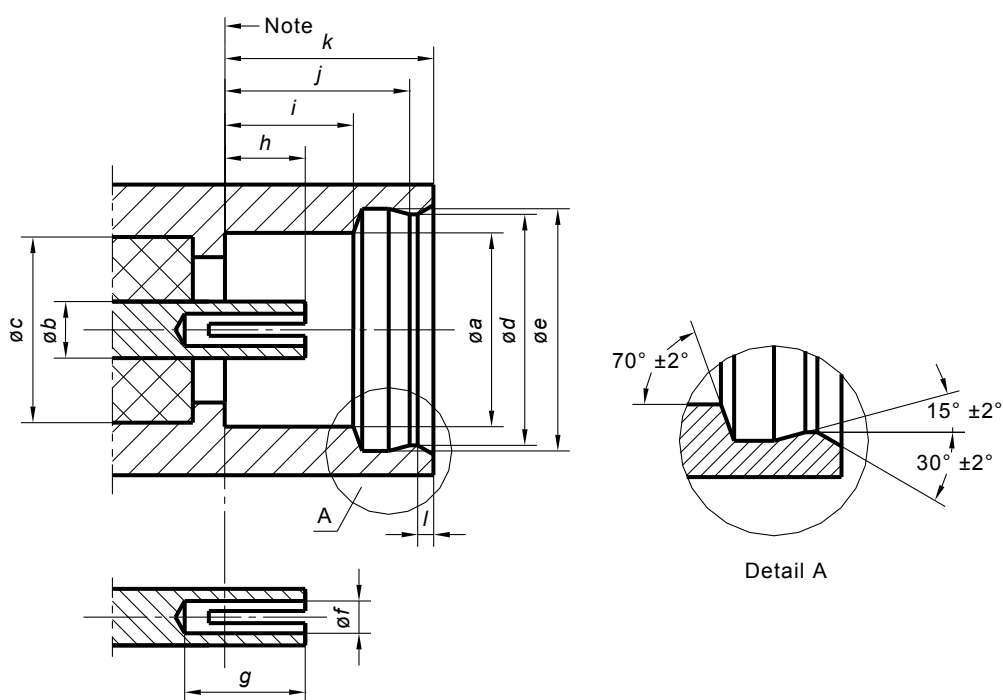
Ref.	mm	
	Min.	Max.
a	2,35	2,40
b	1,80	--
c	1,58	1,62
d	--	2,83
f	--	0,20
g	0,38	0,42
h	0,00	0,25
j^a	1,23	--
j^b	2,08	2,12
k	2,70	--
α	30°	--

^a The dimension should meet the mechanical and electrical requirements, also compensate the electrical effect caused by gaps.

^b The shape of elastic gasket is optional and its diameter and position should meet the mechanical and electrical requirements.

3.1.2 Connector with socket centre contact

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



IEC

NOTE Mechanical and electrical reference plane.

Figure 2 – Connector with socket centre contact

Table 2 – Dimensions of connector with socket centre contact

Ref.	mm	
	Min.	Max.
a	2,41	--
b	0,70 (nominal)	
c ^a	--	--
d	2,88	2,92
e	3,00	3,04
f ^b	--	--
g	1,40	--
h	0,90	1,20
i	1,57	1,63
j	2,26	2,34
k	--	2,69
l	0,14	0,23

^a The diameter chosen shall meet nominal impedance of 50 Ω and electrical and mechanical requirements.

^b Centre contact design is optional. It should however meet the gauging requirements of 3.2.1 and relevant reflection factor requirements of Clause 4 using grade 0 connector in accordance with Figure 5.

3.2 Gauges

3.2.1 Gauge pin for socket centre contact

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

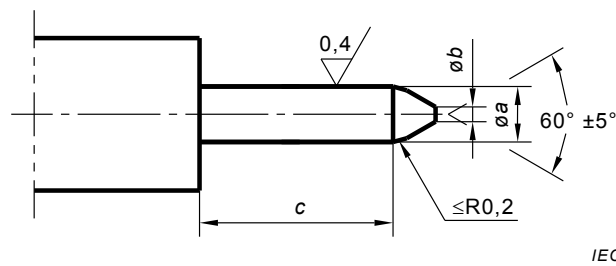


Figure 3 – Gauge pin for socket centre contact

Table 3 – Dimensions of gauge pin for socket centre contact

Ref.	Gauge A (For sizing purpose)		Gauge B (For retention purpose) Mass of gauge : 28 ⁺² g	
	mm		mm	
	Min.	Max.	Min.	Max.
<i>a</i>	0,420	0,425	0,375	0,380
<i>b</i>	0,00	0,20	0,00	0,20
<i>c</i>	0,90	1,10	1,00	1,20
Material: steel, polished.				

Test procedure:

a) Sizing test

The gauge A should insert the socket centre contact three times, this is a sizing operation.

b) Insertion test

Following the sizing operation, if specified in the detail specification, the force necessary to insert gauge A fully into the socket centre contact shall be measured. When this test is required, the insertion force shall not exceed 5 N.

c) Retention test

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

3.2.2 Gauge for outer contact

The gauge for outer contact is shown in Figure 4 and its dimensions are shown in Table 4.