IEC 61169-43

Edition 1.0 2013-03

INTERNATIONAL STANDARD

colour inside

Radio-frequency connectors – Part 43: Sectional specification for RBMA series blind mating RF coaxial connectors

IEC 61169-43:2013(E)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
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.

Useful links:

IEC publications search - www.iec.ch/searchpub

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It also gives information on projects, replaced and withdrawn publications.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary (IEV) on-line.

IEC Just Published - webstore.iec.ch/justpublished

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

Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

IEC 61169-43

Edition 1.0 2013-03

INTERNATIONAL STANDARD

colour inside

Radio-frequency connectors – Part 43: Sectional specification for RBMA series blind mating RF coaxial connectors

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE U

ICS 33.120.30

ISBN 978-2-83220-687-4

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO-FREQUENCY CONNECTORS –

Part 43: Sectional specification for RBMA series blind mating RF 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 itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
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.

International Standard IEC 61169-43 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.

This first edition cancels and replaces IEC/PAS 61169-43 published in 2010. This edition constitutes a technical revision.

The text of this standard is based on the following documents:

FDIS	Report on voting
46F/221/FDIS	46F/227/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 the parts in the IEC 61169 series, published 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 web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

RADIO-FREQUENCY CONNECTORS –

Part 43: Sectional specification for RBMA series blind mating 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 RBMA series RF coaxial connectors, with characteristic impedance of 50 Ω, with threaded coupling and operating frequency limit up to 12,4 GHz, used in wireless, microwave, telecommunication, and other fields, connecting with RF cables or micro-strips.

It also prescribes mating face dimensions for general 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 RBMA series connectors.

This specification indicates the 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 (see Tables 8 and 9).

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 61169-1:1992, *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 connectors – Grade 2

3.1.1 Connector with pin-centre contact

All undimensioned pictorial configurations are for reference purpose only.

---

[1] There exists a consolidated edition 1.2 (1998) that comprises IEC 61169-1:1992, its Amendment 1:1996 and its Amendment 2:1997.

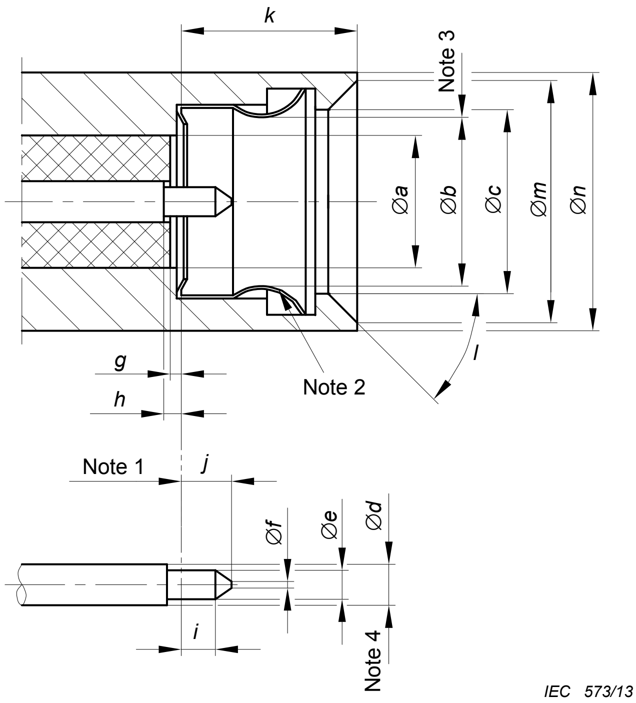

Figure 1 – Connector with pin- centre contact

(for dimensions and notes, see Table 1)

Table 1 – Dimensions of connector with pin-centre contact

Ref.	mm		Notes
	Min.	**Max.**	
a	–	4,18	Note 4
b	–	–	Note 3
c	5,55	5,60	
d	–	–	Note 4
e	0,90	0,94	
f	–	0,30	
g	0,00	0,25	
h	0,00	0,25	
i	1,27	–	
j	–	2,54	
k	5,45	5,55	
l	42°	48°	Angle
m	7,40	7,60	
n	8,00	–	

NOTE 1 Mechanical and electrical reference plane.

NOTE 2 Spring fingers, the structure is optional.

NOTE 3 Dimensions are chosen to meet mechanical performance requirements.

NOTE 4 These diameters are for PTFE insulation with a dielectric constant of 2,02. Characteristic impedance of transmission is determined by diameters "a" and "d" to be 50 Ω within the tolerances as stated in the DS.

3.1.2 Connector with socket-centre contact

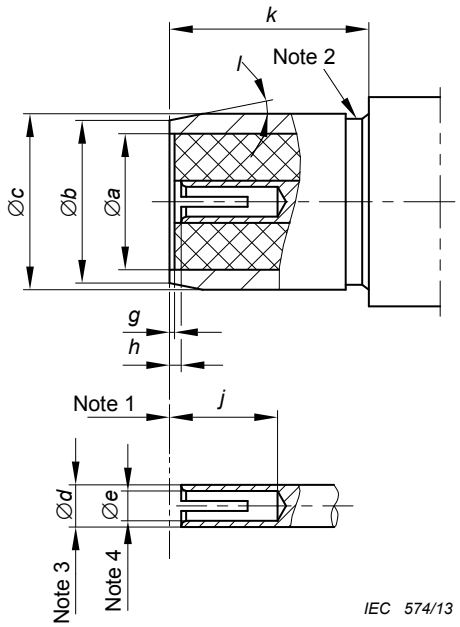

Figure 2 – Connector with socket-centre contact

(for dimensions and notes, see Table 2)

Table 2 – Dimensions of connector with socket-centre contact

Ref.	mm		Notes
	Min.	Max.	
a	–	4,18	Note 3
b	4,85	4,95	
c	5,31	5,36	
d	–	–	Note 3
e	–	–	Note 4
g	0,00	0,25	
h	0,00	0,25	
j	2,00	–	
k	5,60	–	
l	8 °	12°	Angle

NOTE 1 Mechanical and electrical reference plane.

NOTE 2 Design and location of the seal feature is optional, in order to meet environmental performance requirements when mating interface separation is not more than 0,38 mm.

NOTE 3 These diameters are for PTFE insulation with a dielectric constant of 2,02. Characteristic impedance of transmission is determined by diameters "a" and "d" to be 50 Ω within the tolerances as stated in the DS.

NOTE 4 Design for slotting is optional, to meet electrical and mechanical requirements, when mating with φ 0,90 mm to φ 0,94 mm pin.

3.2 Gauges

3.2.1 Gauge pin for socket-centre contact

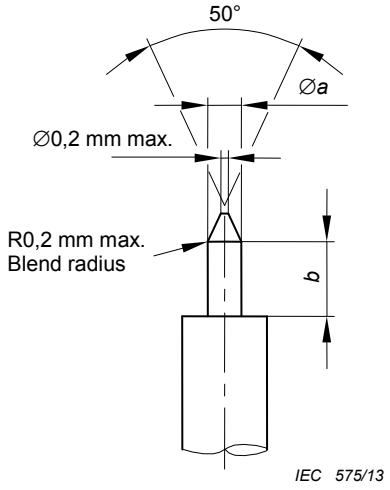

Figure 3 – Gauge pin for socket-centre contact

(for dimensions and notes, see Table 3)

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

Ref.	Gauge A Maximum material for sizing purposes		Gauge B Minimum material for measurement of retention force Mass of gauge: 28 g +2 g	
	mm		mm	
	Min.	Max.	Min.	Max.
a	0,940	0,945	0,899	0,902
b	0,76	1,14	1,27	1,90
Material: steel, polished. Surface roughness: *R*a = 0,4 µm maximum on the cylindrical surface of length *b*.				

3.2.1.1 Test procedure

The gauge A shall be inserted into the socket-centre contact three times with a minimum depth of 0,76 mm. 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 have a withdrawal force of 0,28 N minimum after being inserted into socket-centre contact. The contact shall retain the mass of the gauge in a vertical downward position. This test shall also be carried out on connector when the socket-centre contact is not removed.