

INTERNATIONAL STANDARD



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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO-FREQUENCY CONNECTORS –

**Part 43: Sectional specification for RBMA series
blind mating RF coaxial connectors**

FOREWORD

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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- withdrawn,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.

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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 61169-43:2013](https://standards.iteh.ai/catalog/standards/iec/b5afac1e-1446-4adc-ba27-585a4abe390b/iec-61169-43-2013)

[IEC 61169-1:1992](https://standards.iteh.ai/catalog/standards/iec/b5afac1e-1446-4adc-ba27-585a4abe390b/iec-61169-1-1992), *Radio-frequency connectors – Part 1: Generic specification – General requirements and measuring methods*¹

Amendment 1:1996

Amendment 2:1997

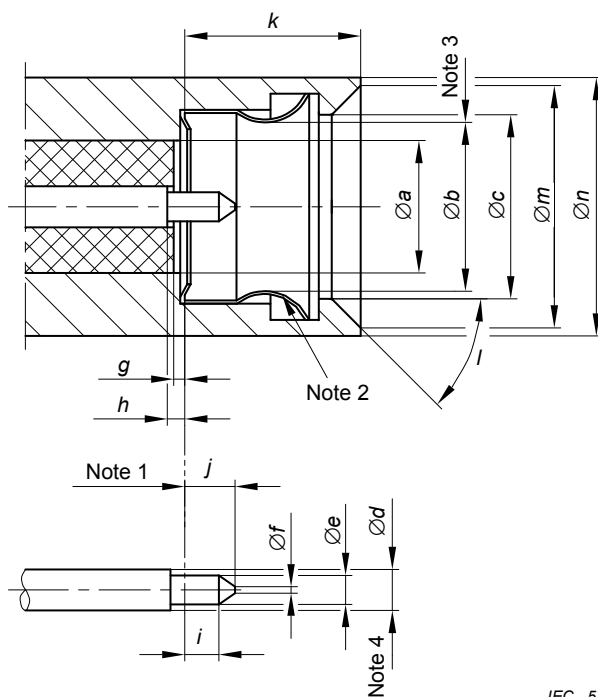
3 Mating face and gauge information

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.



IEC 573/13

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 | – | |

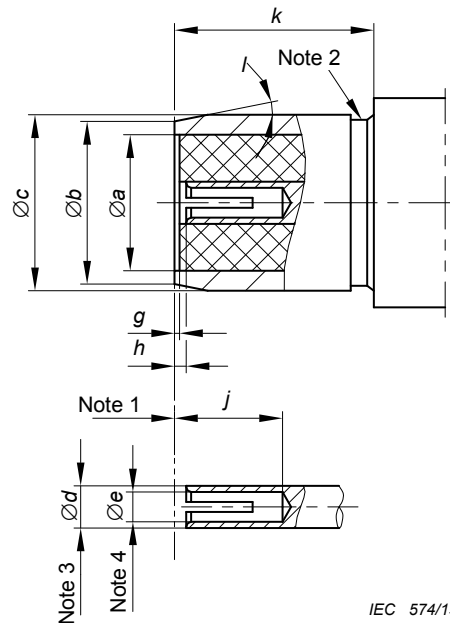
NOTE 1 Mechanical and electrical reference plane.

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



IEC 574/13

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

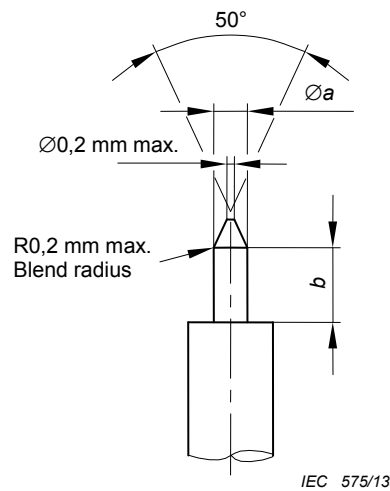


Figure 3 – Gauge pin for socket-centre contact

(for dimensions and notes, see Table 3)

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

| Ref. | Gauge A | | Gauge B | |
|--|--------------------------------------|-------|---|-------|
| | Maximum material for sizing purposes | | Minimum material for measurement of retention force | |
| | mm | | mm | |
| | Min. | Max. | Min. | Max. |
| <i>a</i> | 0,940 | 0,945 | 0,899 | 0,902 |
| <i>b</i> | 0,76 | 1,14 | 1,27 | 1,90 |
| Material: steel, polished. | | | | |
| Surface roughness: $R_a = 0,4 \mu\text{m}$ maximum on the cylindrical surface of length <i>b</i> . | | | | |

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.