



BSI Standards Publication

Radio-frequency connectors

Part 61: Sectional specification for RF coaxial connectors with 9,5 mm inner diameter of outer conductor, quick lock coupling, series Q4.1-9.5

National foreword

This British Standard is the UK implementation of EN IEC 61169-61:2020. It is identical to IEC 61169-61:2020.

The UK participation in its preparation was entrusted to Technical Committee EPL/46, Cables, wires and waveguides, radio frequency connectors and accessories for communication and signalling.

A list of organizations represented on this committee can be obtained on request to its committee manager.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 580 99128 8

ICS 33.120.30

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2020.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

English Version

Radio-frequency connectors - Part 61: Sectional specification for
RF coaxial connectors with 9,5 mm inner diameter of outer
conductor, quick lock coupling, series Q4.1-9.5
(IEC 61169-61:2020)

Connecteurs pour fréquences radioélectriques - Partie 61:
Spécification intermédiaire relative aux connecteurs
coaxiaux pour fréquences radioélectriques avec diamètre
intérieur du conducteur extérieur de 9,5 mm, verrouillage
rapide, série Q4.1-9.5
(IEC 61169-61:2020)

Hochfrequenz-Steckverbinder - Teil 61:
Rahmenspezifikation für koaxiale HF-Steckverbinder mit 9,5
mm Innendurchmesser des Außenleiters und
Schnellverschlusskupplung der Serie Q4.1-9.5
(IEC 61169-61:2020)

This European Standard was approved by CENELEC on 2020-07-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 46F/492/FDIS, future edition 1 of IEC 61169-61, prepared by SC 46F "RF and microwave passive components" of IEC/TC 46 "Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61169-61:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-04-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-07-01

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61169-61:2020 was approved by CENELEC as a European Standard without any modification.

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 61169-1	2013	Radio frequency connectors - Part 1: Generic specification - General requirements and measuring methods	EN 61169-1	2013
IEC 62037-3	2012	Passive RF and microwave devices, intermodulation level measurement - Part 3: Measurement of passive intermodulation in coaxial connectors	EN 62037-3	2012

This page deliberately left blank

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	7
4 Mating face and gauge information	7
4.1 General connectors – Grade 2	7
4.1.1 Connector with pin centre contact.....	7
4.1.2 Connector with socket centre contact	8
4.2 Gauges.....	10
4.2.1 Gauge pin for socket centre contact.....	10
4.2.2 Gauge rings for plug outer contact.....	11
4.3 Standard test connectors – Grade 0.....	12
4.3.1 Standard test connector with pin centre contact.....	12
4.3.2 Standard test connector with socket centre contact	14
5 Quality assessment procedure.....	15
5.1 General.....	15
5.2 Rating and characteristics (see Clause 5 of IEC 61169-1 : 2013).....	15
5.3 Test schedule and inspection requirements.....	18
5.3.1 Acceptance tests (See Table 8).....	18
5.3.2 Periodic tests (See Table 9).....	18
5.4 Procedures for qualification approval	20
5.4.1 Quality conformance inspection	20
5.4.2 Qualification approval and its maintenance.....	20
5.4.3 Periodic tests.....	20
6 Instructions for preparation of detail specifications	20
6.1 General.....	20
6.2 Identification of the component	21
6.3 Performance	21
6.4 Marking, ordering information and related matters	21
6.5 Selection of tests, test conditions and severities	21
6.6 Blank detail specification pro-forma for Q4.1-9.5 connectors.....	21
7 Marking	26
7.1 Marking of component.....	26
7.2 Marking and contents of package.....	26
Annex A (informative) Q4.1-9.5 series quick lock RF coaxial connectors protective sealing.....	27
A.1 General.....	27
A.2 The outline of connector	27
A.2.1 The outline of cable connector.....	27
A.2.2 The outline of panel connector(socket)	28
A.3 Protective sleeves.....	29
A.3.1 Protective sleeve of cable connector.....	29
A.3.2 Protective sleeve of panel connector	29
Bibliography.....	31

Figure 1 – Connector with pin centre contact

Figure 2 – Connector with socket centre contact	9
Figure 3 – Gauge pin for socket centre contact	10
Figure 4 – Gauge ring for plug outer contact	11
Figure 5 – Standard test connector with pin–centre contact	13
Figure 6 – Standard test connector with socket centre contact	14
Figure A.1 – Cable connector(plug) outline	27
Figure A.2 – Cable connector(socket) outline	28
Figure A.3 – Panel connector outline	28
Figure A.4 – Protective sleeve outline	29
Figure A.5 – Panel style protective sleeve outline	30
Table 1 – Dimensions of connector with pin centre contact	8
Table 2 – Dimensions of connector with socket centre contact	10
Table 3 – Dimensions of gauge pin for socket centre contact	11
Table 4 – Dimensions of gauge rings for plug outer contact	12
Table 5 – Dimensions of standard test connector with pin-centre contact	13
Table 6 – Dimensions of standard test connector with socket centre contact	15
Table 7 –Ratings and characteristics	16
Table 8 – Acceptance tests	18
Table 9 – Periodic tests	19
Table A.1 – Cable connector(plug) dimensions	27
Table A.2 – Cable connector(socket) dimensions	28
Table A.3 – Panel connector dimensions	29
Table A.4 – Protective sleeve dimensions	29
Table A.5 – Panel style protective sleeve dimensions	30

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO-FREQUENCY CONNECTORS –

Part 61: Sectional specification for RF coaxial connectors with 9,5 mm inner diameter of outer conductor, quick lock coupling, series Q4.1-9.5

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 61169-61 has been prepared by subcommittee 46F: RF and microwave passive components, of IEC technical committee 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
46F/492/FDIS	46F/494/RVD

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

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

A list of all 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 document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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

RADIO-FREQUENCY CONNECTORS –

Part 61: Sectional specification for RF coaxial connectors with 9,5 mm inner diameter of outer conductor, quick lock coupling, series Q4.1-9.5

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 coaxial connectors with a 9,5 mm inner diameter of the outer conductor and quick lock coupling mechanism, characteristic impedance 50 Ω and an operating frequency of up to 8,5 GHz. Series Q4.1-9.5 connectors with socket centre contact are compatible with threaded 4,1-9,5 series (specified in IEC 60169-11) connectors with pin centre contact. This type of connectors are starting to be applied in telecommunication systems due to their special features which are suitable for outdoor harsh requirements, such as quick and reliable coupling, compatible with threaded connector and being entirely waterproof.

This document specifies mating face dimensions for general purpose connectors – grade 2, dimensional details of standard test connectors – grade 0, gauge information and test requirements, product ratings and characteristics, tests selected from IEC 61169-1, applicable to all detail specifications relating to Q4.1-9.5 series RF coaxial connectors.

Annex A specifies the outline dimensions of connectors and protective sleeves, which could bring interchangeability between pairs of connectors and protective sleeves from different manufacturers.

This document indicates the recommended performance characteristics to be considered when writing a detail specification and covers test schedules and inspection requirements for assessment levels M and H.

NOTE Metric dimensions are original dimensions. All undimensioned pictorial configurations are for reference purposes 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 60529, *Degrees of protection provided by enclosures (IP Code)*

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

IEC 62037-3:2012, *Passive RF and microwave devices, intermodulation level measurement – Part 3: Measurement of passive intermodulation in coaxial connectors*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

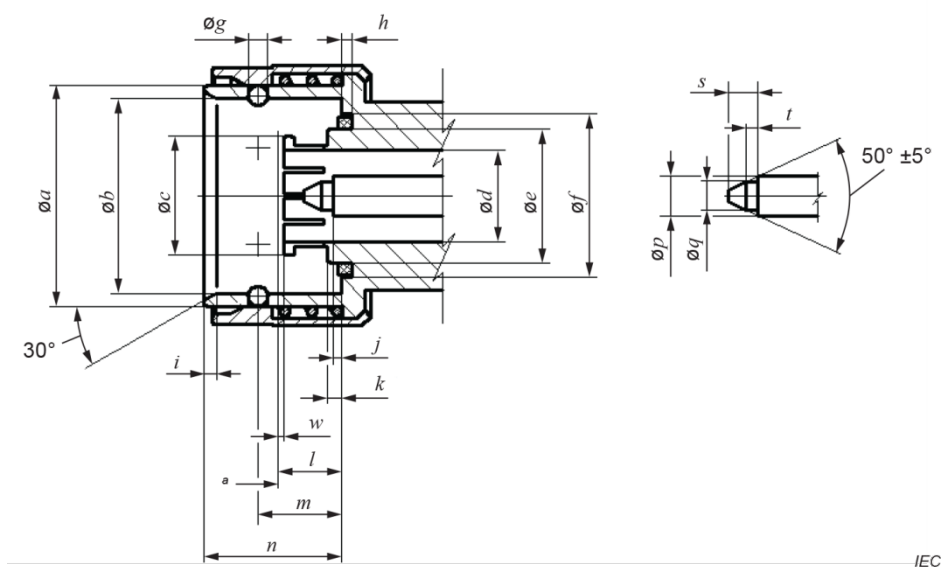
- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Mating face and gauge information

4.1 General connectors – Grade 2

4.1.1 Connector with pin centre contact

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



^a Mechanical and electrical plane.

Figure 1 – Connector with pin centre contact