

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Radio-frequency connectors –**

**Part 71: Sectional specification for RF coaxial connectors with inner diameter of outer conductor 5 mm – Characteristic impedance 50 Ohms – type NEX10®**

**Connecteurs pour fréquences radioélectriques –**

**Partie 71: Spécification intermédiaire pour connecteurs RF coaxiaux avec conducteur extérieur présentant un diamètre intérieur de 5 mm – Impédance caractéristique de 50 ohms (type NEX10®)**



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://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 corrigendum or an amendment might have been published.

#### IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

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 It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

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

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://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: [sales@iec.ch](mailto:sales@iec.ch).

#### IEC Products & Services Portal - [products.iec.ch](http://products.iec.ch)

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

---

### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Recherche de publications IEC -

[webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).

#### IEC Products & Services Portal - [products.iec.ch](http://products.iec.ch)

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

---

**Radio-frequency connectors –**

**Part 71: Sectional specification for RF coaxial connectors with inner diameter of outer conductor 5 mm – Characteristic impedance 50 Ohms – type NEX10®**

**Connecteurs pour fréquences radioélectriques –**

**Partie 71: Spécification intermédiaire pour connecteurs RF coaxiaux avec conducteur extérieur présentant un diamètre intérieur de 5 mm – Impédance caractéristique de 50 ohms (type NEX10®)**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

---

ICS 33.120.30

ISBN 978-2-8322-1430-5

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

|   |    |
|---|----|
| FOREWORD.....   | 4  |
| INTRODUCTION.....   | 6  |
| 1 Scope.....  | 7  |
| 2 Normative references .....  | 7  |
| 3 Terms and definitions .....   | 7  |
| 4 Mating face and gauge information .....   | 8  |
| 4.1 General purpose connector: Grade 2 .....  | 8  |
| 4.1.1 Screw type connector with pin centre contact .....  | 8  |
| 4.1.2 Quick lock type connector with pin centre contact.....  | 9  |
| 4.1.3 Connector with socket centre contact .....  | 11 |
| 4.2 Gauges.....   | 13 |
| 4.2.1 Gauge pin for socket centre contact.....  | 13 |
| 4.2.2 Gauge rings for plug outer contact.....   | 14 |
| 4.3 Standard test connectors: Grade 1.....  | 15 |
| 4.3.1 Standard test connector with pin centre contact.....  | 15 |
| 4.3.2 Standard test connector with socket centre contact .....  | 17 |
| 5 Quality assessment procedures .....   | 20 |
| 5.1 General.....  | 20 |
| 5.2 Ratings and characteristics .....   | 20 |
| 5.3 Test schedule and inspection requirements.....  | 22 |
| 5.3.1 Acceptance tests .....  | 22 |
| 5.3.2 Periodic tests.....   | 23 |
| 5.4 Procedures for the quality conformance .....  | 25 |
| 5.4.1 Quality conformance inspection .....  | 25 |
| 5.4.2 Qualification approval and its maintenance.....   | 25 |
| 6 Instructions for preparation of detail specifications .....   | 26 |
| 6.1 General.....  | 26 |
| 6.2 Identification of the component .....   | 26 |
| 6.3 Performances .....  | 26 |
| 6.4 Marking, ordering information and related matters .....   | 26 |
| 6.5 Selection of tests, test conditions and severities .....  | 26 |
| 6.6 Blank detail specification pro-forma for RF coaxial connector with inner<br>diameter of outer conductor 5 mm with screw coupling-characteristic<br>impedance 50 ohms (type NEX10®)..... | 27 |
| Bibliography.....   | 32 |
| Figure 1 – Screw type connector with pin centre contact.....  | 8  |
| Figure 2 – Quick lock type connector with pin centre contact W .....  | 10 |
| Figure 3 – Connector with socket centre contact .....   | 12 |
| Figure 4 – Gauge pin for socket centre contact .....  | 14 |
| Figure 5 – Gauge rings for plug outer contact .....   | 15 |
| Figure 6 – Standard test connector with pin centre contact interface.....   | 16 |
| Figure 7 – Standard test connector with socket centre contact interface .....   | 18 |
| Table 1 – Dimensions of screw type connector with pin centre contact.....   | 9  |

Table 2 – Dimensions of quick lock type connector with pin centre contact ..... 10

Table 3 – Dimensions of connector with socket centre contact ..... 13

Table 4 – Dimensions of gauge pin for socket centre contact ..... 14

Table 5 – Dimensions of gauge rings for plug outer contact ..... 15

Table 6 – Interface dimensions of standard test connector with pin centre contact ..... 17

Table 7 – Interface dimensions of standard test connector with socket centre contact ..... 19

Table 8 – Ratings and characteristics ..... 20

Table 9 – Acceptance tests ..... 23

Table 10 – Periodic tests ..... 24

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RADIO-FREQUENCY CONNECTORS –****Part 71: Sectional specification for RF coaxial connectors  
with inner diameter of outer conductor 5 mm –  
Characteristic impedance 50 Ohms – type NEX10®**

## 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.

IEC 61169-71 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. It is an International Standard.

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

|              |                  |
|--------------|------------------|
| Draft        | Report on voting |
| 46F/618/FDIS | 46F/622/RVD      |

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](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.

## INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent. IEC takes no position concerning the evidence, validity, and scope of this patent right.

The holder of this patent right has assured IEC that s/he is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from the patent database available at [patents.iec.ch](https://patents.iec.ch).

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

## RADIO-FREQUENCY CONNECTORS –

### Part 71: Sectional specification for RF coaxial connectors with inner diameter of outer conductor 5 mm – Characteristic impedance 50 Ohms – type NEX10®

#### 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 connector, typically for use in 50  $\Omega$  radio communication systems, type NEX10®<sup>1</sup>.

This document describes mating face dimensions for general purpose connectors (grade 2), dimensional details of standard test connectors (grade 1), gauging information and tests selected from IEC 61169-1, applicable to all detail specifications relating to type NEX10® RF coaxial 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 type NEX10® RF coaxial connectors are used with all kinds of RF cables and microstrip circuits in radio frequency transmission systems with operating frequencies up to 20 GHz.

NOTE Metric 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*

IEC 62153-4-7, *Metallic cables and other passive components test methods – Part 4-7: Electromagnetic compatibility (EMC) -Test method for measuring of transfer impedance  $Z_T$  and screening attenuation  $a_S$  or coupling attenuation  $a_C$  of connectors and assemblies – Triaxial tube in tube method*

ISO 3290-1, *Rolling bearings-balls – Part 1: steel balls*

#### 3 Terms and definitions

No terms and definitions are listed in this document.

---

<sup>1</sup> NEX10® is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of this product.