

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Radio frequency and coaxial cable assemblies –
Part 2-7: Detail specification for cable assemblies for radio and TV receivers –
Frequency range 0 MHz to 3 000 MHz, IEC 61169-47 connectors**

**Ensembles de cordons coaxiaux et de cordons pour fréquences radioélectriques –
Partie 2-7: Spécification particulière pour cordons de connexion de récepteurs
radio ou TV – Bande de fréquences de 0 MHz à 3 000 MHz, connecteurs
IEC 61169-47**



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2015 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 Central Office
3, rue de Varembe
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.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

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

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

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 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC 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.

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.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

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

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

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

Plus de 60 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Radio frequency and coaxial cable assemblies –
Part 2-7: Detail specification for cable assemblies for radio and TV receivers –
Frequency range 0 MHz to 3 000 MHz, IEC 61169-47 connectors**

**Ensembles de cordons coaxiaux et de cordons pour fréquences radioélectriques –
Partie 2-7: Spécification particulière pour cordons de connexion de récepteurs
radio ou TV – Bande de fréquences de 0 MHz à 3 000 MHz, connecteurs
IEC 61169-47**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.120.10

ISBN 978-2-8322-2894-4

**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.**

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIO FREQUENCY AND COAXIAL CABLE ASSEMBLIES –

Part 2-7: Detail specification for cable assemblies for radio and TV receivers – Frequency range 0 MHz to 3 000 MHz, IEC 61169-47 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 60966-2-7 has been prepared by 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
46/530/FDIS	46/568/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 detail specification is to be read with IEC 60966-1:1999, with IEC 60966-2-1:2008 and with IEC 60966-2-2:2003.

A list of all parts of the IEC 60966 series, under the general title: *Radio frequency and coaxial cable assemblies*, can be found on the IEC website.

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

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.

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.

iTeh STANDARD PREVIEW

(standards.iteh.ai)

[IEC 60966-2-7:2015](https://standards.iteh.ai/catalog/standards/sist/e19b1056-767b-434f-bc6c-05ff7eb43b41/iec-60966-2-7-2015)

<https://standards.iteh.ai/catalog/standards/sist/e19b1056-767b-434f-bc6c-05ff7eb43b41/iec-60966-2-7-2015>

INTRODUCTION

This detail specification applies to flexible coaxial cables described in IEC 61196-6 and IEC 61196-7. It relates to cable assemblies for radio and TV receivers, and in particular to the cable assemblies subfamily F (IEC 61169-47).

This detail specification gives subfamily requirements and severities which shall be applied.

Under qualification approval, the qualification will be conducted in accordance with 12.2 of IEC 60966-2-1:2008 taking into account the specified variants. Only the tests whose results might depend on the variants will be repeated.

Under capability approval, the qualification will be conducted on the relating CQCs as defined in 12.3 of IEC 60966-2-1:2008 and described in the CM. Unless otherwise specified in the CM, only lot-by-lot tests from groups Ba and Eb will be conducted on delivered products; all other tests will be performed on CQCs as defined in 12.3 of IEC 60966-2-1:2008 and described in the CM.

Normative references

IEC 60966-1:1999, *Radio frequency and coaxial cable assemblies – Part 1: Generic specification – General requirements and test methods*

IEC 60966-2-1:2008, *Radio frequency and coaxial cable assemblies – Part 2-1: Sectional specification for flexible coaxial cable assemblies*

IEC 60966-2-2:2003, *Radio frequency and coaxial cable assemblies – Part 2-2: Blank detail specification for flexible coaxial cable assemblies*

IEC 61169-47, *Radio-frequency connectors – Part 47: Sectional specification for radio-frequency coaxial connectors with clamp coupling, typically for use in 75 Ω cable networks (type F-Quick)*



IEC 61196-6, *Coaxial communication cables – Part 6: Sectional specification for CATV drop cables*

IEC 61196-7, *Coaxial communication cables – Part 7: Sectional specification for cables for BCT cabling in accordance with ISO/IEC 15018 – Indoor drop cables for systems operating at 5 MHz – 3 000 MHz*

IEC 62153-4-7, *Metallic communication cable test methods – Part 4-7: Electromagnetic compatibility (EMC) – Test method for measuring the transfer impedance and the screening – or the coupling attenuation – Tube in tube method*

RADIO FREQUENCY AND COAXIAL CABLE ASSEMBLIES –

Part 2-7: Detail specification for cable assemblies for radio and TV receivers – Frequency range 0 MHz to 3 000 MHz, IEC 61169-47 connectors

[1] Prepared by IEC TC 46		[2] Document No. 60966-2-7 Issue: First issue Date:
[3] Available from: IEC 3 rue de Varembe Genève Suisse	[4] Generic specification: IEC 60966-1 Sectional specification: IEC 60966-2-1 Blank detail specification: IEC 60966-2-2	
[5] Additional references:		
Detail specification for coaxial cable assemblies for radio and TV receivers		
NOTE Example diagram, manufacturer to insert actual diagram.		
		
[6] Maximum diameter < 16,6 mm		
[7] Characteristic impedance: 75 Ω	[8] Frequency range: 0 MHz to 3 000 MHz	
[9] Weight: 40 g/m + 50 g (typically)	[10] Minimum inside radius: for static bending 25 mm for dynamic bending 75 mm	
[11] Climatic category: 40/70/21	[12] Applicable test group: Ba, Eb, Eh, Ee, Mn	
[13]		
Connector type: A		
IEC 61169-47 (F)		
Straight plug		
Cable type: IEC 61196-6, or equivalent ^a		
Marking: Optional		
Taper sleeves: On both ends (colour optional)		
[14] Variants	[15] Page 1 of 3 pages	

[16] Inspection values, ratings or characteristics	[17] Subclause ^b	[18] Value	[19] Remarks
Electrical			
Reflection properties	8.1	≥ 20 dB ≥ 18 dB ≥ 16 dB	5 MHz to 1 000 MHz 1 000 MHz to 2 000 MHz 2 000 MHz to 3 000 MHz
Insertion loss	8.3	< 0,08 dB + 0,4 dB/m	Up to 3 000 MHz
Screening effectiveness:			
Transfer impedance			
Class A	IEC 62153-4-7	< 5 mΩ/m	5 MHz to 30 MHz
Class B		< 15 mΩ/m	5 MHz to 30 MHz
Screening attenuation			
Class A	IEC 62153-4-7	> 85 dB	> 30 MHz to 1 000 MHz
		> 75 dB	> 1 000 MHz to 2 000 MHz
		> 65 dB	> 2 000 MHz to 3 000 MHz
Class B		> 75 dB	> 30 MHz to 1 000 MHz
		> 65 dB	> 1 000 MHz to 2 000 MHz
		> 55 dB	> 2 000 MHz to 3 000 MHz
Voltage proof	8.10	> 1,0 kV	50 Hz to 65 Hz peak value
Insulation resistance	8.11	> 10 ⁵ MΩ	Test voltage 500 V
Inner conductor continuity	8.12	OK	Low voltage DC
Outer conductor continuity	8.12	≤ 10 mΩ	After tensile test 9.1
Mechanical			
Tensile	9.1	> 45 N	Interface OK Duration 1 min Test 8.12
Flexure	9.2	> 500 cycles	Force 5 N 20/min Test 8.9
Flexing endurance	9.3	> 20 cycles	Test 8.12 and 8.9
Cable assembly crushing	9.4	> 700 N	Test 8.3

Recommended grouping of test			Recommended severity					[27] Length of specimen
[20] Group	[21] Subclause ^b	Test	[22] Periodicity	[23] IL	[24] AQL	[25] <i>n</i>	[26] <i>c</i>	
Ba	7.2	Visual inspection	lot by lot	S3	4.0			
	7.3	Dimensional inspection	lot by lot	S3	4.0			
Eh	8.1	Reflection properties	lot by lot	II	1.0			
	8.3	Insertion loss	lot by lot	II	1.0			
Eb	8.10	Voltage proof	lot by lot	II	1.0			
	8.11	Insulation resistance	lot by lot	II	1.0			
	8.12	Inner and outer conductor continuity	lot by lot	III	1.0			
Ee	IEC 62153-4-7	Transfer impedance	1 year	I		1	0	
	IEC 62153-4-7	Screening attenuation	1 year	I		1	0	
Mn	9.1	Tensile	3 years			3	0	On a CQC variant(e) 1 l = 300 mm
	9.2	Flexure	3 years					
	9.3	Flexing endurance	3 years					
	9.4	Cable assembly crushing	3 years					
^a Flexible cables for CATV applications are under discussion.								
^b The relevant standard could be the generic, the sectional or both of them or the standard stated.								

iTech STANDARD PREVIEW
(standards.iteh.ai)

IEC 60966-2-7:2015

<https://standards.iteh.ai/catalog/standards/sist/e19b1056-767b-434f-bc6c-05ff7eb43b41/iec-60966-2-7-2015>