



IEC 61196-1-127

Edition 1.0 2024-03

INTERNATIONAL STANDARD



**Coaxial communication cables –
Part 1-127: Electrical test methods – Link loss of radiating cable**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.120.10

ISBN 978-2-8322-8314-1

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 Test equipment.....	6
4.1 Signal generator	6
4.2 Receiver	6
4.3 Trolley	6
4.4 Antenna	6
4.5 Load	6
4.6 Connecting cables and connectors.....	6
4.7 Data collection system and calculations	7
5 Test arrangements	10
5.1 General.....	10
5.2 Free-space method.....	10
5.3 Ground-level method.....	12
6 Test conditions	14
7 Test methods.....	14
7.1 General.....	14
7.2 Complete sample test method	14
7.2.1 Test sample (TS) preparation	14
7.2.2 Test procedure	14
7.3 Segmented samples test method	14
7.3.1 Test sample (TS) preparation	14
7.3.2 Test procedure	15
7.4 Attenuation and coupling loss test method	16
7.4.1 General	16
7.4.2 Test sample (TS) preparation	18
7.4.3 Test procedure	18
8 Requirement.....	18
9 Test report.....	19
Figure 1 – Illustration of section-wise link loss calculation of 50 % reception probability	8
Figure 2 – Illustration of link loss calculation of 50 % reception probability of entire tested length.....	9
Figure 3 – Test arrangement for free-space method.....	11
Figure 4 – Antenna orientations with free-space method.....	12
Figure 5 – Test arrangement for ground-level method.....	13
Figure 6 – Antenna orientations with ground-level method	13
Figure 7 – Segmented test samples	15
Figure 8 – Segmented samples test	16
Figure 9 – Schematic diagram of the link loss of the radiating cable.....	17
Figure 10 – Segmented test samples for attenuation + coupling loss test method	17

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COAXIAL COMMUNICATION CABLES –

Part 1-127: Electrical test methods – Link loss of radiating cable

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 shall 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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 61196-1-127 has been prepared by subcommittee 46A: Coaxial cables, 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
46A/1661/FDIS	46A/1670/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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61196 series, published under the general title *Coaxial communication cables*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

COAXIAL COMMUNICATION CABLES –

Part 1-127: Electrical test methods – Link loss of radiating cable

1 Scope

This part of IEC 61196 applies to radiating cables. It specifies a test method for determining the link loss of radiating cables for use in communication systems.

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 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 61196-1, *Coaxial communication cables – Part 1: Generic specification – General, definitions and requirements*

IEC 61196-1-123, *Coaxial communication cables – Part 1-123: Electrical test methods – Test for attenuation constant of radiating cable*

IEC 61196-1-124, *Coaxial communication cables – Part 1-124: Electrical test methods – Test for coupling loss of radiating cable*

IEC 61196-4, *Coaxial communication cables – Part 4: Sectional specification for radiating cables*