

INTERNATIONAL STANDARD



**Coaxial communication cables –
Part 1-112: Electrical test methods – Test for return loss and voltage standing
wave ratio**

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CONTENTS

| | |
|---|----|
| FOREWORD..... | 3 |
| 1 Scope..... | 5 |
| 2 Normative references | 5 |
| 3 Terms and definitions | 5 |
| 4 Principle | 6 |
| 5 Test equipment..... | 7 |
| 6 Preparation of test sample (TS)..... | 7 |
| 7 Number of measuring points | 8 |
| 8 Test procedure | 9 |
| 8.1 General..... | 9 |
| 8.2 Two-port measurement | 10 |
| 8.3 One-port measurement | 10 |
| 9 Failure criterion | 10 |
| 10 Information to be given in the relevant specification..... | 11 |
| 11 Test report..... | 11 |
| Annex A (informative) Requirement on the frequency spacing for the measurement of return loss (RL) of RF cables | 12 |
| A.1 General..... | 12 |
| A.2 Physical basics | 13 |
| A.2.1 General | 13 |
| A.2.2 Return-loss model | 13 |
| A.3 Comparison between the theoretical and practical results | 19 |
| Annex B (informative) An example of dividing a specified frequency range to be measured into several frequency subintervals to measure return loss (RL) or voltage standing wave ratio (VSWR) of RF cables..... | 21 |
| Bibliography..... | 22 |
| | |
| Figure 1 – <i>S</i> -parameter representing transmission and reflection characteristics | 6 |
| Figure 2 – preparation of the test sample | 7 |
| Figure A.1 – Reflection model..... | 13 |
| Figure A.2 – Resonance peak..... | 18 |
| Figure A.3 – Comparison of theoretical and measured 3 dB bandwidths of resonance peaks..... | 19 |
| | |
| Table B.1 – An example of dividing a specified frequency range to be measured into several frequency subintervals to measure return loss (RL) or voltage standing wave ratio (VSWR) of for 50-141 type semi-flexible cables | 21 |

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COAXIAL COMMUNICATION CABLES –**Part 1-112: Electrical test methods –
Test for return loss and voltage standing wave ratio**

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IEC 61196-1-112 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.

This second edition cancels and replaces the first edition published in 2006. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) added "voltage standing wave ratio" in the title;
- b) added 3.1 voltage standing wave ratio (VSWR) and 3.2 return loss (RL);
- c) revised Clause 4 "Principle";

- d) added Figure 1 and Figure 2;
- e) revised Clause 7 "Number of measuring points";
- f) added Clause 8 "Test procedure";
- g) added Clause 10 "Information to be given in the relevant specification";
- h) added Annex B.

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

| Draft | Report on voting |
|---------------|------------------|
| 46A/1704/FDIS | 46A/1715/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.

This document is to be read in conjunction with IEC 61196-1:2005.

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.

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COAXIAL COMMUNICATION CABLES –

Part 1-112: Electrical test methods – Test for return loss and voltage standing wave ratio

1 Scope

This part of IEC 61196 applies to coaxial communications cables. It specifies test methods for determining return loss (RL) and voltage standing wave ratio (VSWR) of coaxial cables for use in communications 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 61196-1:2005, *Coaxial communication cables – Part 1: Generic specification – General, definitions and requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61196-1 and the following apply.

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

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

3.1

voltage standing wave ratio

VSWR

ratio, along a transmission line, of a maximum of the voltage to an adjacent minimum magnitude of the voltage of a standing wave, expressed as the following:

$$VSWR = \frac{|V_{\max}|}{|V_{\min}|} = \frac{|V_i + V_r|}{|V_i - V_r|} \quad (1)$$

where

$VSWR$ is the voltage standing wave ratio;

V_{\max} is the maximum magnitude of the voltage;

V_{\min} is the minimum magnitude of the voltage;

V_i is the voltage of incident wave;

V_r is the voltage of reflected wave.