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Radio-frequency connectors -
Part 1-7: Electrical test methods - Uncertainty specification of frequency domain test for insertion loss

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

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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IEC TS 61169-1 has been prepared by subcommittee 46F: RF and microwave passive components, of IEC technical committee TC 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
46F/714/DTS	46F/723/RVDTS

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 Technical Specification 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 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

INTRODUCTION

This document relates to technical requirements for electrical test for radio-frequency connectors. In IEC 61169-2:2007, a frequency domain test method is described. However, the document does not contain the quantitative uncertainty specification for measurement instruments, i.e. vector network analyzers and terminations, for insertion loss. This document shows quantitative uncertainty specifications of electrical test for insertion loss of radio frequency connectors. In addition, it includes brief analysis of vector network analyzer measurement uncertainty for insertion loss measurements of radio frequency connectors.

1 Scope

This part of IEC 61169 relates to radio frequency connectors for RF transmission lines for use in telecommunications, electronics and similar equipment.

This document sets out the provisions for a report on the uncertainty specifications for insertion loss measurements, which apply to individual connector types, by vector network analyzers (VNAs). It is intended to establish concepts and procedures considering

– testing and measuring procedures concerning frequency domain electrical properties, and
– uncertainty specifications of VNAs measurements for insertion loss of RF connectors.

The test methods and procedures of this document are intended for acceptance and type approval testing.

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 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050 (all parts), *International Electrotechnical Vocabulary*, available at https://www.electropedia.org

IEC 60617, *Graphical symbols for diagrams*, available at http://std.iec.ch/iec60617

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

ISO 80000-1, *Quantities and units - Part 1: General*