

# INTERNATIONAL STANDARD



**Passive RF and microwave devices, intermodulation level measurement –  
Part 1: General requirements and measuring methods**



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## Passive RF and microwave devices, intermodulation level measurement – Part 1: General requirements and measuring methods

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

# **PASSIVE RF AND MICROWAVE DEVICES, INTERMODULATION LEVEL MEASUREMENT –**

## **Part 1: General requirements and measuring methods**

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International Standard IEC 62037-1 has been prepared by technical committee 46: Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories.

This first edition of IEC 62037-1 replaces IEC 62037, published in 1999. It constitutes a technical revision.

The text of this standard is based on the following documents:

FDIS	Report on voting
46/402/FDIS	46/416/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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts in the IEC 62037 series, published under the general title *Passive RF and microwave devices intermodulation level measurement*, can be found on the IEC website.

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,
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- replaced by a revised edition, or
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## **PASSIVE RF AND MICROWAVE DEVICES, INTERMODULATION LEVEL MEASUREMENT –**

### **Part 1: General requirements and measuring methods**

#### **1 Scope**

This part of IEC 62037 deals with the general requirements and measuring methods for intermodulation (IM) level measurement of passive RF and microwave components, which can be caused by the presence of two or more transmitting signals.

The test procedures given in this standard give the general requirements and measurement methods required to characterize the level of unwanted IM signals using two transmitting signals.

The standards in this series address the measurement of PIM, but do not cover the long term reliability of a product with reference to its performance.

This standard is to be used in conjunction with other appropriate part(s) of IEC 62037.

#### **2 Normative references**

None.

#### **3 Abbreviations**

CATV Community antenna television

DUT Device under test

IM Intermodulation

PIM Passive intermodulation

#### **4 Characteristics of intermodulation products**

PIM interference is caused by sources of non-linearity of mostly unknown nature, location and behaviour. A few examples are inter-metallic contacts, choice of materials, corrosion products, dirt, etc. Most of these effects are subject to changes over time due to mechanical stress, temperature changes, variations in material characteristics (cold flow, etc.) and climatic changes, etc.

The generation of intermodulation products originates from point-sources inside a DUT and propagate equally in all available directions.

The generation of passive intermodulation products (PIM) does not necessarily follow the law of the usual non-linear equation of quadratic form. Therefore, accurate calculation to other power levels causing the intermodulation is not possible and PIM comparisons should be made at the same power level.

Furthermore, PIM generation can be frequency-dependent. When PIM generation is frequency-dependant, the PIM performance shall be investigated over the specified frequency band.