

INTERNATIONAL STANDARD

**Passive RF and microwave devices, intermodulation level measurement –
Part 5: Measurement of passive intermodulation in filters**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PASSIVE RF AND MICROWAVE DEVICES, INTERMODULATION LEVEL MEASUREMENT –

Part 5: Measurement of passive intermodulation in filters

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

FDIS	Report on voting
46/409/FDIS	46/421/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.

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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.

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PASSIVE RF AND MICROWAVE DEVICES, INTERMODULATION LEVEL MEASUREMENT –

Part 5: Measurement of passive intermodulation in filters

1 Scope

This part of IEC 62037 defines test fixtures and procedures recommended for measuring levels of passive intermodulation generated by filters, typically used in wireless communication systems. The purpose is to define qualification and acceptance test methods for filters for use in low intermodulation (low IM) applications.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62037-1:2012, *Passive r.f. and microwave devices, intermodulation level measurement – Part 1: General requirements and measuring methods*

3 Abbreviations

DUT Device under test
IM Intermodulation
PIM Passive intermodulation

4 General comments on PIM testing of filter assemblies

4.1 Sources of error: back-to-back filters

Testing filter assemblies for PIM may be error prone if certain precautionary guidelines are not followed. Since PIM can be a frequency-dependent phenomenon, mathematically related to the harmonics of the input signals and combinations thereof, consideration should be given not only to the behaviour of the test set-up under fundamental stimulation, but also its harmonic performance. In particular, consider a receive-band PIM test set-up as shown in Figure 1. As shown, this set-up could be used to measure the PIM in a two-port device under test (DUT); however, the accuracy of the measurement could be in question due to the back-to-back filters (diplexers) used.