BS EN 62037-2:2013

BSI Standards Publication

Passive RF and microwave devices, intermodulation level measurement

Part 2: Measurement of passive intermodulation in coaxial cable assemblies

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National foreword

This British Standard is the UK implementation of EN 62037-2:2013. It is identical to IEC 62037-2:2012. Together with BS EN 62037-1:2012, BS EN 62037-3:2012, BS EN 62037-4:2012, BS EN 62037-5:2013 and BS EN 62037-6:2013, it supersedes BS EN 62037:2000, which will be withdrawn on 15 July 2015.

The UK participation in its preparation was entrusted to Technical Committee EPL/46, Cables, wires and waveguides, radio frequency connectors and accessories for communication and signalling.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English version

Passive RF and microwave devices, intermodulation level measurement - Part 2: Measurement of passive intermodulation in coaxial cable assemblies

(IEC 62037-2:2012)

Dispositifs RF et à micro-ondes passifs, mesure du niveau d'intermodulation - Partie 2: Mesure de l'intermodulation passive dans les cordons coaxiaux (CEI 62037-2:2012)

Passive HF- und Mikrowellenbauteile, Messung des Intermodulationspegels - Teil 2: Messung der passiven Intermodulation in konfektionierten Koaxialkabeln (IEC 62037-2:2012)

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 46/408/FDIS, future edition 1 of IEC 62037-2, prepared by IEC/TC 46 "Cables, wires, waveguides, R.F. connectors, R.F. and microwave passive components and accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62037-2:2013.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-09-12
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-12-12

This document partially supersedes EN 62037:1999.

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Endorsement notice

The text of the International Standard IEC 62037-2:2012 was approved by CENELEC as a European Standard without any modification.

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated re

Passive RF and microwave devices, intermodulation level measurement - Part 1: General requirements and measuring methods	EN 62037-1	2012

CONTENTS

PASSIVE RF AND MICROWAVE DEVICES, INTERMODULATION LEVEL MEASUREMENT –

Part 2: Measurement of passive intermodulation in coaxial cable assemblies

1 Scope

This part of IEC 62037 defines a procedure to measure levels of passive intermodulation generated by a coaxial cable assembly.

This test method is applicable to jumper cables, i.e. cable assemblies intended to provide interface flexibility between rigid devices.

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

3 Abbreviations

DUT Device under test

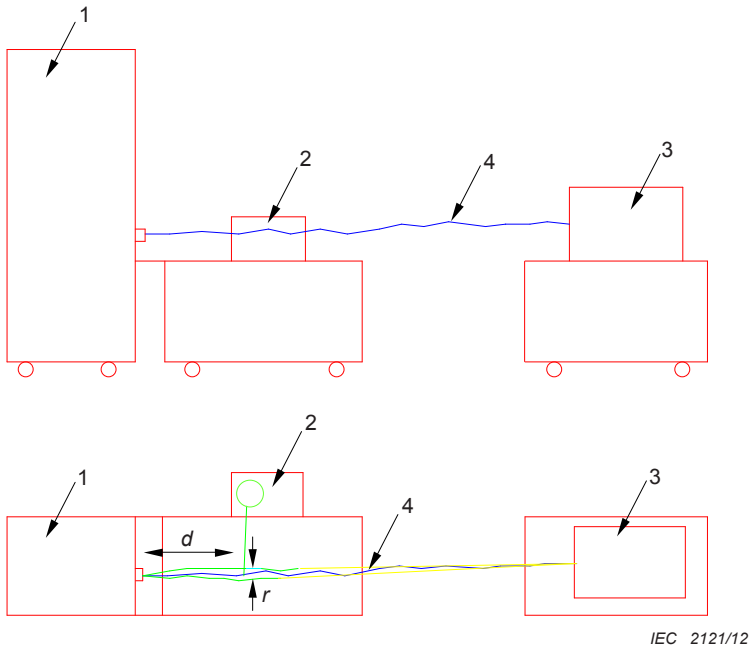
PIM Passive intermodulation

4 Test set-up

Set-up 1 and set-up 2 are applicable in this PIM-test. Either set-up 1 (reverse method, see 6.2.2 of IEC 62037-1:2012), or set-up 2 (forward method, see 6.2.3 of IEC 62037-1:2012), may be used for cable assemblies, provided that the attenuation of the assembly is not greater than 1 dB. For higher attenuation, the reverse method shall be used.

The connector under test should be clamped and mechanically secured to prevent its movement during the test.

A describable and repeatable mechanical stress is applied to the DUT. This mechanical stress is defined by a distance *d*, between the end of the cable-entry (the last rigid mechanical point of the connector) and the point of the deflection, and circular movement around the cable axis with a radius *r*. This test shall be performed on each end independently. An example of a test set-up is shown in Figure 1. The cable movement is depicted in Figure 2. The rotational radius (*r*) and distance (*d*) is defined in Table 1. The cable attachment to the termination should be supported.

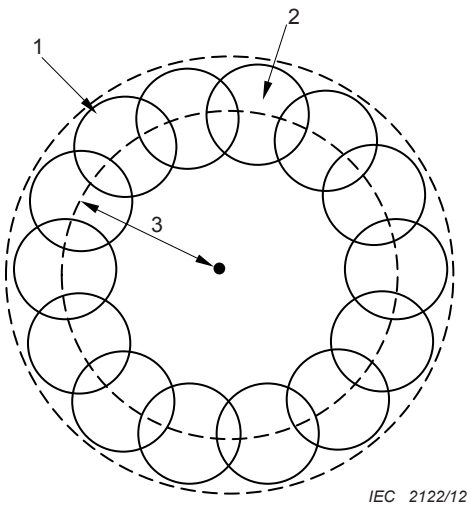


Key

1 PIM test set-up
2 moving unit
3 termination
4 DUT

The distance, *d* and the radius, *r* are related to the nominal outside diameter, ø of the cable.

Figure 1 – PIM test set-up example



Key

1 cable DUT
2 circular movement of cable
3 radius of deflection, *r*

Figure 2 – Rotation of cable

Table 1 – Minimum requirement of cable parameters

Cable	*d* (see Figure 1)	*r* (radius)
Braided and foil wrapped cables	6 × ø cable	ø +10 mm
Foam dielectric/helical and annular corrugation / ø<= 16 mm	10 × ø cable	ø +10 mm
Foam dielectric/helical and annular corrugation / ø> 16 mm	*	ø +10 mm
Air dielectric/helical corrugation	12 × ø cable	ø +10 mm
Other cable constructions	*	*
* to be defined between customer and supplier, or as specified by the manufacturer.		

Other values may be used as specified by the customer and supplier or by the manufacturer.

The movement of the cable shall be carried out with a minimum of 3 cycles and a rate of (5 ± 2) s per revolution.

Torsion shall not be applied to the cable. It is recommended to rotate the cable clockwise.

5 Procedure

The procedure is as follows:

a) calibrate the set-up;
b) connect the DUT to the set-up;
c) read the PIM before applying mechanical stress;
d) apply mechanical stress to the DUT according to Table 1;
e) read the maximum PIM level while applying mechanical stress to the DUT;

NOTE If using a spectrum analyser, it is helpful to use the “max-hold” function.

f) stop the mechanical stress;
g) read the PIM level after applying mechanical stress.

6 Report

The report should include the following:

a) radius;
b) distance from the PIM tester;
c) PIM levels during rotation;
d) PIM levels after rotation.

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