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Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency electromagnetic field immunity test

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CONTENTS

FOREWORD 6
INTRODUCTION 8
1 Scope 9
2 Normative references 9
3 Terms, definitions and abbreviated terms 9
3.1 Terms and definitions 9
3.2 Abbreviated terms 13
4 General 14
5 Test levels and frequency ranges 14
5.1 Selection of test level 14
5.2 Test frequency ranges 16
6 Test equipment 17
6.1 Test instrumentation 17
6.2 Description of the test facility 17
6.3 Uniform field area (UFA) 18
6.3.1 Characteristics of the UFA 18
6.3.2 Constant field strength level setting method 23
6.3.3 Constant power level setting method 24
7 Test setup 25
7.1 General 25
7.2 Arrangement of table-top equipment 26
7.3 Arrangement of floor-standing equipment 28
7.4 Arrangement of wiring 29
7.5 Arrangement of human body-mounted equipment 30
8 Test procedure 30
8.1 General 30
8.2 Laboratory reference conditions 30
8.2.1 General 30
8.2.2 Climatic conditions 30
8.2.3 Electromagnetic conditions 30
8.3 Execution of the test 30
8.4 Step sizes 32
9 Evaluation of test results 32
10 Test report 32
Annex A (informative) Rationale for the choice of modulation for tests related to the protection against RF emissions from digital radio services 34
A.1 Summary of available modulation methods 34
A.2 Experimental results 35
A.3 Secondary modulation effects 38
A.4 Conclusion 38
Annex B (informative) Field generating antennas 39
B.1 Biconical antenna 39
B.2 Log-periodic antenna 39
B.3 Combination antennas 39
B.4 Horn antenna and double ridge wave guide antenna 39

Annex C (informative) Use of anechoic chambers 40
C.1 General anechoic chamber information 40
C.2 Use of ferrite-lined chambers at frequencies above 1 GHz 40
C.2.1 Problems caused by the use of ferrite-lined chambers for radiated field immunity tests at frequencies above 1 GHz 40
C.2.2 Solutions to reduce reflections 41
Annex D (informative) Amplifier compression and non-linearity 42
D.1 Objective of limiting amplifier distortion 42
D.2 Possible problems caused by harmonics and saturation 42
D.3 Limiting the harmonic content in the field 42
D.4 Effect of linearity characteristic on the immunity test 43
D.4.1 General 43
D.4.2 Evaluation method of the linearity characteristic 43
Annex E (informative) Guidance for product committees on the selection of test levels 47
E.1 General 47
E.2 Test levels related to general purposes 47
E.3 Test levels related to the protection against RF emissions from digital radio telephones 48
E.4 Special measures for fixed transmitters 49
Annex F (informative) Selection of test methods 50
Annex G (informative) Cable layout details 52
G.1 Intentions of EUT setup for radiated immunity test 52
G.2 Cable in the field 52
G.3 Cables leaving the test area 52
G.4 Turning the EUT cabinets 52
Annex H (informative) Examples of test setups for large and heavy EUTs 54
H.1 EUTs with bottom fed cables 54
H.2 EUTs with overhead cables 55
H.3 EUTs with multiple cables and AEs 56
H.4 Large EUTs with side fed cables and multiple UFA windows 57
Annex I (informative) Testing with multiple signals 58
I.1 General 58
I.2 Intermodulation 58
I.3 Power requirements 59
I.4 Level setting requirements 60
I.5 Linearity and harmonics checks 60
I.6 EUT performance criteria with multiple signals 60
Annex J (informative) Measurement uncertainty due to test instrumentation 61
J.1 General 61
J.2 Uncertainty budgets for level setting 61
J.2.1 Definition of the measurand 61
J.2.2 MU contributors of the measurand 61
J.2.3 Calculation examples for expanded uncertainty 62
J.2.4 Explanation of terms 63
J.3 Application 64
J.4 Reference documents 64
Annex K (informative) Calibration method for E-field probes 65
K.1 Overview 65

K.2 Probe calibration requirements 65
K.2.1 General 65
K.2.2 Calibration frequency range 65
K.2.3 Frequency steps 65
K.2.4 Field strength 66
K.3 Requirements for calibration instrumentation 66
K.3.1 General 66
K.3.2 Harmonics and spurious signals 66
K.3.3 Linearity check for probe 67
K.3.4 Determination of the gain of the standard horn antennas 68
K.4 Field probe calibration in anechoic chambers 69
K.4.1 Calibration environments 69
K.4.2 Validation of anechoic chambers for field probe calibration 69
K.4.3 Probe calibration procedure 75
K.5 Other probe calibration environments and methods 77
K.5.1 General 77
K.5.2 Field probe calibration using TEM cells 77
K.5.3 Field probe calibration using waveguide chambers 78
K.5.4 Field probe calibration using open-ended waveguides 79
K.5.5 Calibration of field probes by gain transfer method 79
K.6 Reference documents 79
Bibliography 81

Figure 1 – Definition of the 80 % amplitude modulated (AM) test signal and the waveshapes occurring 16
Figure 2 – Example of suitable test facility 18
Figure 3 – Level setting setup 19
Figure 4 – Dimensions of sixteen-point uniform field area 20
Figure 5 – Minimum UFA size having a fifth grid point in the centre 21
Figure 6 – Measuring setup 23
Figure 7 – Example of EUT setup and cable layout for table top EUT having a cable that leaves the test setup 26
Figure 8 – Example of EUT setup (top view) 28
Figure C.1 – Multiple reflections in an existing small anechoic chamber 41
Figure C.2 – Most of the reflected waves are eliminated (applies for top and side view) 41
Figure D.1 – Amplifier linearity measurement setup 44
Figure D.2 – Example of linearity curve 45
Figure D.3 – Example of gain deviation 45
Figure H.1 – Example of a test setup for EUT with bottom fed underground cables (CMADs not shown) 54
Figure H.2 – Example of a test setup for EUTs with overhead cables 55
Figure H.3 – Example of a setup of EUTs with multiple cables and AEs 56
Figure H.4 – Large EUTs with side fed cables and multiple UFAs 57
Figure I.1 – Test frequencies f_1 and f_2 and intermodulation frequencies of the second and third order 58
Figure J.1 – Example of influences upon level setting 62
Figure K.1 – Example of linearity for probe 68

Figure K.2 – Setup for measuring net power to a transmitting device 70
Figure K.3 – Test setup for chamber validation test..... 72
Figure K.4 – Detail for measurement position ΔL..... 72
Figure K.5 – Example of data adjustment..... 73
Figure K.6 – Example of the test layout for antenna and probe 74
Figure K.7 – Test setup for chamber validation test..... 74
Figure K.8 – Example of alternative chamber validation data 75
Figure K.9 – Field probe calibration layout..... 76
Figure K.10 – Field probe calibration layout (top view)..... 76
Figure K.11 – Cross-sectional view of a waveguide chamber 78

Table 1 – Test levels..... 15
Table 2 – Amplitude modulation characteristics at output of signal generator..... 15
Table 3 – Requirements for uniform field area for application of full illumination and partial illumination..... 22
Table A.1 – Comparison of modulation methods 35
Table A.2 – Relative interference levels 36
Table A.3 – Relative immunity levels..... 37
Table E.1 – Examples of test levels, associated protection distances and performance criteria 48
Table J.1 – Level setting process..... 62
Table J.2 – Test process..... 63
Table K.1 – Calibration field strength level..... 66
Table K.2 – Example for the probe linearity check..... 67

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-3: Testing and measurement techniques – Radiated, radio-frequency electromagnetic field immunity test

FOREWORD

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International Standard IEC 61000-4-3 has been prepared by subcommittee 77B: High frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

It forms part 4-3 of IEC 61000. It has the status of a basic EMC publication in accordance with IEC Guide 107.

This fourth edition cancels and replaces the third edition published in 2006, Amendment 1:2007 and Amendment 2:2010. This edition constitutes a technical revision.

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

a) testing using multiple test signals has been described;
b) additional information on EUT and cable layout has been added;
c) the upper frequency limitation has been removed to take account of new services;
d) the characterization of the field as well as the checking of power amplifier linearity of the immunity chain are specified.

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

FDIS	Report on voting
77B/830/FDIS	77B/825/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61000 series, published under the general title *Electromagnetic compatibility (EMC)*, 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 "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 61000 is published in separate parts according to the following structure:

Part 1: General

General considerations (introduction, fundamental principles)

Definitions, terminology

Part 2: Environment

Description of the environment

Classification of the environment

Compatibility levels

Part 3: Limits

Emission limits

Immunity limits (in so far as they do not fall under the responsibility of the product committees)

Part 4: Testing and measurement techniques

Measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as international standards or as technical specifications or technical reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example: IEC 61000-6-1).

This part is an international standard which gives immunity requirements and test procedures related to radiated, radio-frequency, electromagnetic fields.

ELECTROMAGNETIC COMPATIBILITY (EMC) –

Part 4-3: Testing and measurement techniques – Radiated, radio-frequency electromagnetic field immunity test

1 Scope

This part of IEC 61000 is applicable to the immunity requirements of electrical and electronic equipment to radiated electromagnetic energy. It establishes test levels and the required test procedures.

The object of this document is to establish a common reference for evaluating the immunity of electrical and electronic equipment when subjected to radiated, radio-frequency electromagnetic fields. The test method documented in this part of IEC 61000 describes a consistent method to assess the immunity of an equipment or system against RF electromagnetic fields from RF sources not in close proximity to the EUT. The test environment is specified in Clause 6.

NOTE 1 As described in IEC Guide 107, this is a basic EMC publication for use by product committees of the IEC. As also stated in Guide 107, the IEC product committees are responsible for determining whether this immunity test standard should be applied or not, and if applied, they are responsible for determining the appropriate test levels and performance criteria. TC 77 and its sub-committees are prepared to co-operate with product committees in the evaluation of the value of particular immunity tests for their products.

NOTE 2 Immunity testing against RF sources in close proximity to the EUT is defined in IEC 61000-4-39.

Particular considerations are devoted to the protection against radio-frequency emissions from digital radiotelephones and other RF emitting devices.

NOTE 3 Test methods are defined in this part for evaluating the effect that electromagnetic radiation has on the equipment concerned. The simulation and measurement of electromagnetic radiation is not adequately exact for quantitative determination of effects. The test methods defined in this basic document have the primary objective of establishing an adequate reproducibility of testing configuration and repeatability of test results at various test facilities.

This document is an independent test method. It is not possible to use other test methods as substitutes for claiming compliance with this document.

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 60050-161*, International Electrotechnical Vocabulary (IEV) – Part 161: Electromagnetic compatibility* (available at www.electropedia.org)