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Methods of measurement and declaration of the detection range of detectors – Passive infrared detectors for major and minor motion detection

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CONTENTS

FOREWORD 4
INTRODUCTION 6
INTRODUCTION to Amendment 1 6
1 Scope 7
2 Normative references 7
3 Terms and definitions 7
4 General requirements on tests 9
5 Test environment 10
6 Test equipment 11
6.1 Test person for major motion detection 11
6.2 Test dummies for major motion detection when using automated test systems 11
6.3 Test arm for minor motion detection 16
7 Test procedure 18
7.1 General 18
7.2 Pre-conditioning of the detector 19
7.3 Major motion detection 20
7.3.1 Detection via walking test 20
7.3.2 Detection via an automated test system 22
7.4 Minor motion detection 23
7.5 Determining the detection boundary 25
7.5.1 Determining the detection boundary ~~for~~ during the human walking test (tangential movement +~~10~~ 5° from the detector) 25
7.5.2 Determining the detection boundary for automated test (tangential movement ±5° from the detector) 27
8 Presentation of test results 28
8.1 General 28
8.2 Major motion radial and tangential area 29
8.3 Minor motion area (D) 30
8.5 Large major motion tangential areas and detection boundary 32
8.4 Creation of 3D data model for detection display of major motion 32
Bibliography 35

Figure 1 – Radial motion 8
Figure 2 – Tangential motion 8
Figure 3 – Example of ~~a major motion detector~~ detection area 9
Figure 4 – Test dummy perspective view 12
Figure 5 – Full size test dummy for testing motion detection 13
Figure 6 – Scaled 1:2 test dummy for testing motion detection 14
Figure 7 – Scaled 1:5 test dummy for testing motion detection 15
Figure 8 – Test arm for testing minor motion detection 17
Figure 9 – Example of a test grid for tangential walking and minor motion 20
Figure 10 – Test grid for radial walking test 21
Figure 11 – Test setup for tangential movements (top view) 22
Figure 12 – Test setup for radial movements (side view) 23

Figure 13 – Test setup for minor motion detection (view from above) 24
Figure 14 – Walking test pattern for determining the detection boundary 27
Figure 15 – Symbol used when the major motion coverage pattern has been determined using a human subject 29
Figure 16 – Symbol used when the major motion coverage pattern has been determined by an automated test system 29
Figure 17 – Diagram for major motion and detection boundary with sample results for 90° 30
Figure 18 – Example of measurement result of a minor motion measurement 31
Figure 19 – Display of minor motion measurement 31
Figure 20 – Example of a 3D model 34

Table 1 – Relation between the declared mounting height, the mounting height of the device under test (DUT) and test dummy used 16
Table 2 – Tangential moving distance related −5° to +5° to the distance from the detector 28

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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METHODS OF MEASUREMENT AND DECLARATION OF THE DETECTION RANGE OF DETECTORS –

Passive infrared detectors for major and minor motion detection

FOREWORD

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IEC 60730-1 edition 1.1 contains the first edition (2020-06) [documents 23B/1319/FDIS and 23B/1320/RVD] and its amendment 1 (2025-05) [documents 23B/1491/CDV and 23B/1509A/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 63180 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories.

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

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

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- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

Passive infrared detectors are an important element in an energy efficient building. They allow for switching on and off and for controlling loads in order to achieve an optimum degree of comfort and energy efficiency.

The detectors covered in this document are motion detectors using passive infrared (PIR) technology in electronic control devices and appliance switches whether stand-alone (direct control of one or more applications) or as part of home and building electronic systems or building automation control systems (HBES/BACS) or similar. In the case of HBES/BACS, the resulting action depends on the programming of the relevant HBES/BACS.

The purpose of these detectors is to detect the movement of persons.

Detectors linked to a system may also be assigned other tasks: state reporting, power consumption, event reporting, scenarios, etc. These additional functions are not part of this document.

In order to achieve the energy efficiency targets and comfort, the detectors should operate accurately. In addition, the detection area will need to be provided with sufficient accuracy in order to allow integrators to choose the correct detectors for the needed action.

This document provides a methodology and test procedures for a manufacturer to declare and verify the detection performance of these devices with respect to the detection area.

INTRODUCTION to Amendment 1

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

a) improvement of general tolerances of the test environment and test equipment;

b) definition of the rotating point of the test arm;

c) addition of the recommended mounting heights for performing the tests;

d) addition of acceleration and deceleration speeds for scaled dummies;

e) modification of the pre-conditioning test at minimum and maximum declared ambient temperature with new performance criteria;

f) addition of an alternative test procedure for large tangential major motion detection areas.

METHODS OF MEASUREMENT AND DECLARATION OF THE DETECTION RANGE OF DETECTORS –

Passive infrared detectors for major and minor motion detection

1 Scope

This document provides a methodology and test procedures to be able to declare and verify the detection area for motion detectors using passive infrared technology in electronic control devices and appliance switches, whether stand-alone (direct control of one or more applications) or as part of home and building electronic systems or building automation control systems (HBES/BACS) or similar.

It also provides a uniform way to present the test results.

The purpose of these detectors is to detect the major and minor movements of persons.

2 Normative references

There are no normative references in this document.

CONTENTS

FOREWORD 4
INTRODUCTION 6
INTRODUCTION to Amendment 1 6
1 Scope 7
2 Normative references 7
3 Terms and definitions 7
4 General requirements on tests 9
5 Test environment 10
6 Test equipment 11
6.1 Test person for major motion detection 11
6.2 Test dummies for major motion detection when using automated test systems 11
6.3 Test arm for minor motion detection 15
7 Test procedure 16
7.1 General 16
7.2 Pre-conditioning of the detector 18
7.3 Major motion detection 18
7.3.1 Detection via walking test 18
7.3.2 Detection via an automated test system 20
7.4 Minor motion detection 22
7.5 Determining the detection boundary 24
7.5.1 Determining the detection boundary during the human walking test (tangential movement + 5° from the detector) 24
7.5.2 Determining the detection boundary for automated test (tangential movement ±5° from the detector) 25
8 Presentation of test results 26
8.1 General 26
8.2 Major motion radial and tangential area 27
8.3 Minor motion area (D) 28
8.5 Large major motion tangential areas and detection boundary 30
8.4 Creation of 3D data model for detection display of major motion 30
Bibliography 31

Figure 1 – Radial motion 8
Figure 2 – Tangential motion 8
Figure 3 – Example of detection area 9
Figure 4 – Test dummy perspective view 11
Figure 5 – Full size test dummy for testing motion detection 12
Figure 6 – Scaled 1:2 test dummy for testing motion detection 13
Figure 7 – Scaled 1:5 test dummy for testing motion detection 14
Figure 8 – Test arm for testing minor motion detection 16
Figure 9 – Example of a test grid for tangential walking and minor motion 19
Figure 10 – Test grid for radial walking test 20
Figure 11 – Test setup for tangential movements (top view) 21
Figure 12 – Test setup for radial movements (side view) 22

Figure 13 – Test setup for minor motion detection (view from above) 23
Figure 14 – Walking test pattern for determining the detection boundary 25
Figure 15 – Symbol used when the major motion coverage pattern has been determined using a human subject 27
Figure 16 – Symbol used when the major motion coverage pattern has been determined by an automated test system 27
Figure 17 – Diagram for major motion and detection boundary with sample results for 90° 28
Figure 18 – Example of measurement result of a minor motion measurement 29
Figure 19 – Display of minor motion measurement 29
Figure 20 – Example of a 3D model 30

Table 1 – Relation between the declared mounting height, the mounting height of the device under test (DUT) and test dummy used 15
Table 2 – Tangential moving distance related −5° to +5° to the distance from the detector 26

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