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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Alarm systems –
Part 1: Environmental test methods

Systèmes d'alarme –
Partie 1: Méthodes d'essais d'environnement

IEC 62599-1:2010

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ALARM SYSTEMS –

Part 1: Environmental test methods

FOREWORD

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International Standard IEC 62599-1 has been prepared by IEC technical committee 79: Alarm and electronic security systems.

This standard is based on EN 50130-5 (1995) and its amendments 1 (1998) and 2 (2003).

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

FDIS	Report on voting
79/276/FDIS	79/292/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 parts in the IEC 62599 series, under the general title *Alarm systems,* can be found on the IEC website.

The IEC 62599 series currently comprises this Part 1, covering environmental test methods, and Part 2, which deals with EMC immunity requirements.

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- withdrawn,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

INTRODUCTION

The purpose of environmental testing is to demonstrate that the equipment can operate correctly in its service environment and that it will continue to do so for a reasonable time. Alarm system equipment is, however, installed in many very different environments and it would be impractical to test every aspect of the most extreme conceivable environmental conditions.

The tests and severities listed in this part of IEC 62599 are, therefore, intended to provide a practical series of tests to determine the ability of the equipment to withstand the failure mechanisms most likely to be produced by the environment, in which that type of equipment can be expected to be installed (i.e. the normal service environment). This part includes only service environments, which relate to equipment installed in general industrial/commercial premises. Hence it should be noted that, additional precautions may be necessary, in particular installations, where some aspects of the environment can be identified as being unusually severe. A special additional severity has been added to the cold test, to cater for the especially cold conditions found in the very north of Europe.

The tests are intended to demonstrate failures due to realistic service environments. However, some significant failure mechanisms are brought about by changes which occur slowly under these realistic service conditions. In order to make tests in a practical and economic time, it is sometimes necessary to accelerate these changes by intensifying the conditions (e.g. by increasing the level of an environmental parameter or by increasing the time or frequency of its application).

The tests in this standard are therefore divided into two types:

Operational tests

In these tests, the specimen is subjected to test conditions, which correspond to the service environment. The object of these tests is to demonstrate the ability of the equipment to withstand and operate correctly in the normal service environment and/or to demonstrate the equipment's immunity to certain aspects of that environment. The specimen is therefore operational, its condition is monitored and it may be functionally tested during the conditioning for these tests.

Endurance tests

In these tests, the specimen may be subjected to conditions more severe than the normal service environment in order to accelerate the effects of the normal service environment. The object of these tests is to demonstrate the equipment's ability to withstand the long-term effects of the service environment. Since the test is intended to study the residual rather than the immediate effects of test conditioning, the specimen is not normally supplied with power or monitored during the conditioning period.

This standard is intended to act as a source document for environmental tests, which can be referred to in product-specific standards for components of alarm systems which fall within its scope. In order to obtain consistency between these standards, the working groups drafting the product-specific standards should select the tests and severities recommended for the appropriate equipment and environmental classes, unless there are good technical reasons to do otherwise.

ALARM SYSTEMS –

Part 1: Environmental test methods

1 Scope

This part of IEC 62599 specifies environmental test methods to be used for testing the system components of the following alarm systems, intended for use in and around buildings:

a) access control systems, for security applications;

b) alarm transmission systems[1];

c) CCTV systems, for security applications;

d) combined and/or integrated systems;

e) intruder and hold-up alarm systems;

f) remote receiving and/or surveillance centres;

g) social alarm systems.

This part specifies three equipment classes (fixed, movable and portable equipment) and four environmental classes.

The environmental classes only include the general service environments envisaged for equipment installed in typical residential, commercial and industrial environments. It may be necessary for the product standard to require additional or different environmental tests or severities where

1) there could be specific environmental problems (e.g. some different severities may be required for break glass detectors stuck to glass windows, due to the local extremes of temperature and humidity),

2) the test exposure falls within the intended detection phenomenon of the detector (e.g. during a vibration test on a seismic detector).

In order to provide reproducible test methods and to avoid the proliferation of technically similar test methods, the test procedures have been chosen, where possible, from internationally accepted standards. (e.g. IEC publications). For specific guidance on these tests, reference should be made to the appropriate document, indicated in the relevant subclauses. For more general guidance and background information on environmental testing reference should be made to IEC 60068-1 and IEC 60068-3.

This standard does not specify

i) the requirements or performance criteria to be applied, which should be specified in the relevant product standard,

ii) special tests only applicable to a particular device (e.g. the effects of turbulent air draughts on ultrasonic movement detectors),

iii) basic safety requirements, such as protection against electrical shocks, unsafe operation, insulation coordination and related dielectric tests,

iv) tests relating to deliberate acts of damage or tampering.

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[1] Apart from equipment which is part of a public communication network.

2 Normative references

The following referenced documents are indispensable for the application 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 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2:2007, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-5:1975, *Environmental testing – Part 2-5: Tests – Test Sa: Simulated solar radiation at ground level*

IEC 60068-2-6:2007, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration, sinusoidal*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Terst N: Change of temperature*

IEC 60068-2-18:2000, *Environmental testing – Part 2-18: Tests – Test R and guidance: Water*

IEC 60068-2-27:2008, *Environmental testing – Part 2-27: Tests – Test Ea and Guidance: Shock*

IEC 60068-2-30:2005, *Environmental testing – Part 2-30 Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-31:2008, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-42:2003, *Environmental testing – Part 2-42: Tests – Test Kc: Sulphur dioxide test for contacts and connections*

IEC 60068-2-52:1996, *Environmental testing – Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*

IEC 60068-2-75:1997, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60068-2-78:2001, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
Amendment 1 (1999)

IEC 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

3 Terms, definitions and abbreviations

For the purposes of this document, the following terms, definitions and abbreviations apply.

3.1 Terms and definitions

3.1.1
intruder alarm system
alarm system that detects and indicates the presence, entry or attempted entry of an intruder into supervised premises

3.1.2
hold-up alarm system
alarm system designed to permit the deliberate creation of an alarm condition in the case of a hold-up

3.1.3
social alarm system
alarm system providing facilities to summon assistance for use by persons who can be considered to be living at risk

3.1.4
fixed equipment
equipment fastened to a support or otherwise secured in a specific location, or equipment not provided with a carrying handle and having such a mass that it cannot easily be moved. (e.g. an intruder alarm system control panel screwed to the wall)

3.1.5
movable equipment
equipment which is not fixed equipment and which is not normally in operation while the location is changed. (e.g. a local unit or controller for a social alarm system, which is placed on a table top)

3.1.6
portable equipment
equipment designed to be in operation while being carried. (e.g. access control "Smart card" badge, electronic key, social alarm trigger device carried by the user)

3.1.7
preconditioning
treatment of a specimen before conditioning with the object of removing or partly counteracting the effects of its previous history

3.1.8
conditioning
exposure of a specimen to environmental conditions in order to determine the effect of such conditions on the specimen

3.1.9
recovery
treatment of a specimen after conditioning in order that the properties of the specimen may be stabilized before measurement.

3.2 Abbreviations

EMC: electromagnetic compatibility

ppm: parts per million

4 Environmental classes

This part of IEC 62599 specifies the tests and severities to be used for each of the following environmental classes:

I **Indoor but restricted to residential/office environment** (e.g. living rooms and offices)

II **Indoor in general**
(e.g. sales floors, shops, restaurants, stairways, manufacturing and assembly areas, entrances and storage rooms)

III **Outdoor but sheltered from direct rain and sunshine, or indoor with extreme environmental conditions** (e.g. garages, lofts, barns and loading bays)

IV **Outdoor in general**

Classes I, II, III and IV are progressively more severe, and therefore class IV equipment may be used in class III applications, etc.

A special suffix "A" can be added to classes III and IV, to cater for the especially cold conditions found in the very north of Europe. The environmental classes, IIIA and IVA, are identical to classes III and IV, respectively, apart from the conditioning temperature in the cold (operational) and temperature change (operational) tests. The testing for Classes IIIA and IVA shall, therefore, be conducted as for classes III and IV, respectively, except for these tests, in which the lower conditioning temperature, indicated in the appropriate tables (see 10.3.4 and 11.3.4), shall be used.

5 Standard laboratory conditions

Unless otherwise specified, the atmospheric conditions in the laboratory shall be the standard atmospheric conditions for measurements and tests, specified in 5.3.1 of IEC 60068-1:1988, as follows:

– temperature: 15 °C to 35 °C;
– relative humidity: 25 % to 75 %;
– air pressure: 86 kPa to 106 kPa.

NOTE If variations in these parameters have a significant effect on a measurement, then such variations should be kept to a minimum during a series of measurements carried out as part of one test on one specimen.

6 Tolerances

Unless otherwise stated, the tolerances for the environmental test parameters shall be as given in the basic reference standards for the test (e.g. the relevant part of IEC 60068-2).

7 Information to be included in the relevant product standard

The following information, which is required to conduct the environmental tests, shall be included in the relevant product standard making reference to this standard:

a) the equipment class (fixed, movable or portable – see Clause 3);
b) the mounting arrangements for the specimen;
c) any deviations from the specified test procedure(s) or test severity(ies);
d) any initial measurements or inspections, to be made before conditioning (e.g. a functional test);
e) the state of the specimen required during conditioning (e.g. the configuration and operating conditions);