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BSI Standards Publication

# Alarm systems — Intrusion and hold-up systems

## Part 10: Application specific requirements for Supervised Premises Transceiver (SPT)

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## National foreword

This British Standard is the UK implementation of EN 50131-10:2014.

The UK participation in its preparation was entrusted by Technical Committee GW/1, Electronic security systems, to Subcommittee GW/1/2, Installed alarm systems.

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

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# Alarm systems - Intrusion and hold-up systems - Part 10: Application specific requirements for Supervised Premises Transceiver (SPT)

Systèmes d'alarme - Systèmes d'alarme contre l'intrusion et les hold-up - Partie 10: Exigences d'application spécifiques pour les transmetteurs des locaux surveillés

Alarmanlagen - Einbruch- und Überfallmeldeanlagen - Teil 10: Anwendungsspezifische Anforderungen an Übertragungseinrichtungen (ÜE)




European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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### Tables

# Foreword

This document (EN 50131-10:2014) has been prepared by CLC/TC 79 "Alarm systems".

The following dates are fixed:

| | | |
|---|---|---|
| • latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2015-03-10 |
| • latest date by which the national standards conflicting with this document have to be withdrawn | (dow) | 2017-03-10 |

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The EN/TS 50131 series consists of the following parts, under the general title *Alarm systems – Intrusion and hold-up systems*:

| | |
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| Part 9 [1)] | Alarm verification – Methods and principles |
| Part 10 | Application specific requirements for Supervised Premises Transceiver (SPT) |

1) At draft stage.

## Introduction

This European Standard should be read in conjunction with EN/TS 50136 series, particularly EN 50136-2, and includes requirements for Supervised Premises Transceivers (SPT) specific to Intrusion and hold-up alarm system (I&HAS) applications.

EN 50131-1 requires that notification be by warning device (WD) and/or alarm transmission system (ATS). The SPT is the equipment that forms part of the ATS and provides the interface to the I&HAS. A WD is a local means of notification whereas the SPT is a means of initiating notification at a distance through Annunciation Equipment (AE), via a network and Receiving Centre Transceiver (RCT).

EN 50131-1 in particular states the Alarm Transmission System (ATS) performance criteria to be used with an I&HAS according to its security grade.

# 1 Scope

This European Standard specifies requirements for SPT used in I&HAS to transmit alarm and other messages to a location remote from the supervised premises.

NOTE 1 Requirements for the transmission of alarms are given in the EN/TS 50136 series of standards. EN 50136-2 gives requirements for SPT for use in any type of alarm system (e.g. fire, social care, intrusion, etc).

This European Standard gives specific requirements for SPT used in Intrusion and Hold-up Alarm Systems (I&HAS) and should be used in combination with EN 50136-2.

The requirements of this European Standard apply to different types of SPT including separate SPT, SPT located within the housings of other I&HAS components and also when the SPT functionality is integrated with the CIE or other parts of an I&HAS.

NOTE 2 To facilitate the differing requirements this European Standard includes a categorisation with three types (X, Y and Z).

This European Standard does not give requirements for the ATS network or performance.

# 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.

EN 50130-4, *Alarm systems – Part 4: Electromagnetic compatibility – Product family standard: Immunity requirements for components of fire, intruder hold up, CCTV, access control and social alarm systems*

EN 50130-5, *Alarm systems – Part 5: Environmental test methods*

EN 50131-1:2006, *Alarm systems – Intrusion and hold-up systems – Part 1: System requirements*

EN 50131-3, *Alarm Systems – Intrusion and hold-up systems – Part 3 Control and indicating equipment*

EN 50131-6, *Alarm systems – Intrusion and hold-up systems – Part 6: Power supplies*

EN 50136-1:2012, *Alarm systems – Alarm transmission systems and equipment – Part 1: General requirements for alarm transmission systems*

EN 50136-2:2013, *Alarm systems – Alarm transmission systems and equipment – Part 2: Requirements for Supervised Premises Transceiver (SPT)*

EN 60068-1:1994, *Environmental testing – Part 1: General and guidance (IEC 60068-1:1994)*

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

EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529)*

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

# 3 Terms, definitions and abbreviations

## 3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50131-1:2006 and EN 50136-1:2012 and the following apply.

**3.1.1**
**average current consumption**
average of all current consumed by the SPT during one hour of normal functioning, including the transmission of an alarm once every five minutes, using the transmission technology with the highest current consumption

**3.1.2**
**peak current consumption**
maximum momentary current consumed by the SPT

**3.1.3**
**External Power Source**
energy supply external to the I&HAS which may be non-continuous

Note 1 to entry: Refer to EN 50131-6. External Power Source (EPS) is applicable to types A and type B PS only. Typically, EPS is provided by mains AC.

## 3.2 Abbreviations

For the purposes of this document, the following abbreviations apply:

**AC** Alternating Current
**AE** Annunciation Equipment
**APS** Alternative Power Source
**ATS** Alarm Transmission System
**CIE** Control and Indicating Equipment
**EMC** Electromagnetic Compatibility
**EPS** External Power Source
**EUT** Equipment Under Test
**I&HAS** Intruder and Hold-up Alarm Systems
**PS** Power Supply
**RCT** Receiving Centre Transceiver
**SD** Storage Device
**SPT** Supervised Premises Transceiver
**WD** Warning Device

# 4 General requirements

## 4.1 Additional functions

Functions additional to the mandatory functions specified in this European Standard may be included providing that they do not influence the correct operation of the mandatory functions.

### 4.2 Equipment features

I&HAS SPT shall include features for the detection of input status, generation of output signals (to the CIE) and indications required to be compatible with EN 50131-1 and EN 50136-2

### 4.3 SPT structure

The SPT may be in a single housing or be distributed in multiple housings, and may be housed with other I&HAS components (e.g. CIE). The functionality of the SPT may be fully or partly integrated with other components of an I&HAS (e.g. CIE). The I&HAS specific functionality of the SPT may be provided separately from the generic alarm transmission functionality (i.e. functionality within the scope of EN 50136-2) or the two sets of functions may be combined (e.g. using a single processor). This standard defines three types of SPT according to this structure.

Type X – The SPT is a self-contained unit within its own housing.

Type Y – The SPT is a device intended to be installed inside a housing of another I&HAS component. For the purposes of conforming to this standard the housing shall be that of a CIE (conforming to EN 50131-3) or the PS (conforming to EN 50131-6).

Type Z – This type of SPT is one in which the CIE and SPT are integrated and the SPT cannot function independently.

NOTE The Generic alarm transmission functionality is that related to the requirements of EN 50136 series and the I&HAS specific functionality is that for the EN 50131 series.

See Annex A.

## 5 Security grade

The SPT shall comply with one of the four security grades described in EN 50131-1 (with grade 1 being the lowest and grade 4 being the highest).

## 6 Environmental performance

### 6.1 Requirements

The SPT shall be suitable for use in one of the environmental classes defined in EN 50131-1.

### 6.2 Environmental tests

EN 50130-5 describes environmental test methods relevant to I&HAS components. The tests applicable are specified in 10.7 of this European Standard.

EN 50130-4 specifies EMC susceptibility tests relevant to I&HAS components. The operating conditions for these tests are specified in 10.7 of this European Standard.

# 7 Functional requirements

## 7.1 Tamper

### 7.1.1 General

All terminals and means of mechanical and electronic adjustment shall be located within the housing in which the SPT is or will be located. The housing(s) shall be provided with the means to prevent access to internal elements to minimize the risk of tampering, according to the grade of the SPT.

NOTE For Type Y and Z SPT, tamper requirements are detailed in EN 50131-3 or EN 50131-6 (as applicable to the housing used) and may not be required to be tested under the requirements detailed within this European Standard.

Provision shall be made to allow adequate fixing of the housing to the mounting surface.

### 7.1.2 Tamper protection

The construction of the SPT housing(s) shall meet the tamper protection requirements of EN 50131-1 and the impact requirements of the appropriate grade according to Table 1.

Access to the inside of the SPT housing shall require the use of an appropriate tool.

**Table 1 – Tamper protection**

| | **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** |
|---|---|---|---|---|
| Severity level (IK code) (design specification) (re: EN 62262) | 04 | 06 | 06 | 06 |
| Impact energy (Joule) (test condition) | 0,5 | 1 | 1 | 1 |

### 7.1.3 Tamper detection

#### 7.1.3.1 General

A tamper signal or message shall be generated according to the requirements specified in Table 2 and before access can be gained to override the detection or interfere with the functionality of the SPT.

**Table 2 – Tamper detection**

| **Tamper detection** | **Grade 1** | **Grade 2** | **Grade 3** | **Grade 4** |
|---|---|---|---|---|
| Access to the inside of the housing | M | M | M | M |
| Removal from mounting | OP | OP | M | M |
| Removal from mounting (wire free) | OP | M | M | M |
| **Key**<br>M = Mandatory OP = Optional | | | | |

#### 7.1.3.2 Access to the housing

Opening the SPT housing by normal means shall generate a tamper signal or message.

The housing shall not permit the introduction of tools of dimensions as specified in Table 3 to defeat the tamper detection before it has operated.

**Table 3 – Tool dimension for tamper detection**

| | Grade 1 | Grade 2 | Grade 3 | Grade 4 |
|---|---|---|---|---|
| Steel rod as specified in EN 60529, with diameter | 2,5 mm | 2,5 mm | 1 mm | 1 mm |
| Flat bar of dimension | 10 mm × 1 mm × $L$, with $L$ > 300 mm | 10 mm × 1 mm × $L$, with $L$ > 300 mm | 5 mm × 0,5 mm × $L$, with $L$ > 300 mm | 5 mm × 0,5 mm × $L$, with $L$ > 300 mm |
| Steel wire of tensile strength 650 MPa - 825 MPa and dimensions | N/A | N/A | 1 mm Ø x 300 mm | 1 mm Ø x 300 mm |

In grades 1 and 2 only, this requirement does not include insertion of the tool via indicators or operating controls.

#### 7.1.3.3 Removal from mounting

Attempts to remove the SPT from its mounting surface for a distance greater than that defined in Table 4 shall generate a tamper signal or message according to Table 2.

It shall not be possible to defeat the removal from mounting detection by sliding a 25 mm × 1 mm × $L$ (with $L$ > 300 mm) blade or by use of pliers (of thickness 5 mm and reach 150 mm) between the mounting surface and the SPT.

**Table 4 – Removal from mounting**

| | Grade 1 | Grade 2 | Grade 3 | Grade 4 |
|---|---|---|---|---|
| Maximum distance before tamper detection | 10 mm | 10 mm | 5 mm | 5 mm |

## 7.2 Monitoring of substitution

Grade 4 SPT shall provide means for the CIE to monitor substitution of the SPT as required by EN 50131-1:2006, 8.7.3 and 8.7.4.

NOTE This requirement refers to the ability of the CIE to determine that the SPT has not been substituted. There are separate requirements in EN 50136-1 related to detection of substitution of the SPT and protection of the information transmitted by the ATS.

## 7.3 Wireless interconnections

Wireless communication between CIE and SPT shall fulfill the requirements of EN 50131-5-3.

### 7.4 Power supply

#### 7.4.1 General

The requirements of EN 50131-1:2006, 9.2 and EN 50131-6 shall apply.

For the purposes of compliance with EN 50131-1:2006, Table 23, the average current consumption value shall be stated in the documentation. The peak current consumption shall also be stated in the documentation.

NOTE The documentation and measurement of current consumption enables confirmation that the rated output (continuous output current) of the power supply is sufficient for all components connected to it and that the necessary standby period can be achieved (refer to EN 50131-6 and EN 50131-1).

#### 7.4.2 SPT with type C PS

In accordance with EN 50131-1:2006, 9.2, SPT having a type C power supply shall be capable of operating for a minimum of one year between replacements of the power source. The SPT shall generate a fault signal or message before the voltage falls below the level required for normal operation.

## 8 Product documentation

For SPT of Type Y the product documentation shall state that the product meets the requirements of this European Standard only if housed in another component conforming to EN 50131-3 or EN 50131-6.

Information specified by EN 50131-1:2006, 14.2 and EN 50136-2:2013, Clause 7, shall be provided, along with the following:

a) operating temperature and humidity range;
b) weights and dimensions;
c) fixing details
d) where there are user serviceable parts (e.g. fuses) their type and value;
e) type of interconnections (interface to CIE);
f) terminal identifications;
g) the average current consumption of the SPT (not applicable to SPT with type C PS) (see 7.4.1);
h) lifetime of prime power source (for SPT with type C PS only);
i) permitted types of power source (for SPT with type C PS), (e.g. battery type);
j) the peak current consumption of the SPT;
k) suitable storage device type, capacity and low voltage failure threshold (where applicable);
l) programmable functions provided.

## 9 Marking and labelling

The SPT shall comply with the requirements for marking stated in EN 50131-1 and EN 50136-2 and additionally shall be marked with the standards to which the SPT claims compliance (i.e. to include this standard).

When space for marking of the SPT is limited, codes may be used providing these are described in the associated component documentation. When insufficient space is available for codes the component shall include means of identification which allows cross reference to documentation providing the required information

# 10 Tests

## 10.1 General

Where products are to be tested for compliance with this European Standard, the following tests and conditions shall apply.

NOTE 1 Type X or Type Y SPT may be tested independently of the associated CIE or Power Supply.

NOTE 2 When features defined in this European Standard as optional are not provided then the testing is not required.

## 10.2 Test conditions

### 10.2.1 Laboratory conditions and tolerance

Testing conditions shall be in accordance with EN 60068-1:1994, 5.3.1, as follows:

– temperature: 15 °C to 35 °C;

– relative humidity: 25 % to 75 %;

– air pressure: 86 kPa to 106 kPa.

### 10.2.2 Mounting

Except where shown otherwise, the SPT shall be mounted in accordance with the manufacturer's installation instructions. For environmental testing, the EUT shall be mounted in its correct operational orientation. The material used for the mounting surface shall not influence the test results.

The manufacturer shall supply any additional equipment necessary to carry out the tests by agreement with the test house.

All input signals/messages (e.g. inputs or bus line from CIE) shall be correctly terminated according to the manufacturer's instructions.

### 10.2.3 Reduced functional test

For the purposes of performing the environmental tests (10.7) and impact tests (10.3.1), a reduced functional test shall be applied. The reduced functional test shall be as required by EN 50136-2. For SPT with type C PS, this reduced functional test also applies (see 10.5.3).

NOTE 1 The reduced functional test includes transmission of at least one alarm and verification that transmission has been correct and successful.

Where power for the SPT is provided by an integral PS of type A or B, the reduced functional test shall be carried out with the EPS at nominal value, and with the APS at a level of at least 80 % of full capacity and connected according the manufacturer's instructions. For an SPT requiring a type C PS, the SD shall be at a level of at least at 80 % of full capacity.

NOTE 2 The description of the type (A, B or C) of PS can be found in EN 50131-1.

Where it is intended that power for the SPT be provided by a separate PS, the reduced functional test shall be carried out using a PS with sufficient current and at the nominal voltage as declared in the manufacturer's documentation.

### 10.2.4 Documentation

The product documentation (as required in Clause 8) shall be provided with the SPT.

#### 10.2.5 Additional equipment

When, for test purposes, the manufacturer supplies additional equipment, the manufacturer shall also supply connection drawings, operational description and instructions for use (e.g. CIE simulator to verify tamper detection outputs).

### 10.3 Tamper security tests

#### 10.3.1 Tamper protection

##### 10.3.1.1 Principle

The principle of this test is to use impact testing to verify that the SPT housing meets the tamper protection requirements of 7.1.2.

For Type Y and Z SPT, the tamper test procedure detailed in EN 50131-3 or EN 50131-6 (as applicable to the housing used) shall apply.

##### 10.3.1.2 Procedure

Subject the SPT housing to impact testing using the methodology of EN 50130-5, with equipment meeting the requirements of EN 60068-2-75 at the severity levels specified in 7.1.2.

##### 10.3.1.3 Measurement

Assess the EUT as described in the reduced functional test in 10.2.3.

##### 10.3.1.4 Pass/fail criteria

The EUT shall meet the requirements of the reduced functional test before, during and after the test.

The generation of signals or messages is permitted as a result of this test.

There shall be no signs of mechanical damage that will permit access to internal elements of the SPT housing unless a tamper signal or message has been generated.

#### 10.3.2 Tamper detection – Access to the inside of the housing

##### 10.3.2.1 Principle

The principle of this test is to verify that it is not possible to insert a tool into the SPT in its normal mounting position and defeat the operation of the tamper detection circuitry before a tamper signal or message is generated (see 7.1.3.2).

For Type Y and Z SPT, the tamper test procedure detailed in EN 50131-3 or EN 50131-6 (as applicable to the housing used) shall apply

##### 10.3.2.2 Test conditions

The SPT shall be functional (i.e. powered).

Test operatives should take care to avoid personal injury.

##### 10.3.2.3 Mounting

Mount the SPT according to the manufacturer’s instructions with the housing securely closed.

#### 10.3.2.4 Procedure

For Type X SPT open the SPT housing by normal means, whilst attempting to introduce a sabotage tool as specified in 7.1.3.2, into the EUT without causing physical damage before the tamper detection device operates.

NOTE The tool may be inserted through any aperture, before or during the process of opening the housing. For Grades 3 and 4, this includes apertures for indicators and operating controls that are accessible to a level 1 user.

If the tool is successfully inserted, it shall be manoeuvred to try to interfere with the tamper detection device. The wire test includes forming the wire as appropriate.

Attempts shall be restricted to 5 minutes per tool (10 minutes for Grade 4). If the test fails, it shall be repeated, and a further failure within 4 further attempts shall result in the overall test failing.

#### 10.3.2.5 Measurement

Record the generation of the tamper signal or message.

#### 10.3.2.6 Pass/fail criteria

Opening the SPT by normal means shall only be possible by following the procedure defined by the manufacturer and shall generate a tamper signal or message.

Either, the tamper detection device shall not have been defeated before the generation of a tamper signal or message, or visible damage has been caused in order to defeat the tamper detection device.

### 10.3.3 Tamper detection – Removal from mounting

#### 10.3.3.1 Principle

The principle of this test consists of removing the SPT from its mounting surface and monitoring the EUT to determine whether a tamper signal or message is generated within the required time period when the maximum permitted distance (see 7.1.3.3) is exceeded.

For Type Y and Z SPT, the tamper test procedure detailed in EN 50131-3 or EN 50131-6 (as applicable to the housing used) shall apply

#### 10.3.3.2 Test conditions

The SPT shall be functional (i.e. powered).

Test operatives should take care to avoid personal injury.

#### 10.3.3.3 Mounting

Position the EUT on a horizontal flat surface, taking into account any requirements specified by the manufacturer to operate the removal from mounting detection device.

#### 10.3.3.4 Procedure

Lift the EUT from the flat surface in a perpendicular direction to the mounting surface by a distance exceeding that specified in 7.1.3.3, whilst monitoring the tamper signal or message output.

Attempt to slide a test blade as defined in 7.1.3.3 to defeat the removal from mounting detection before and during the above test.

Attempt to use pliers as specified in 7.1.3.3 to defeat the removal from mounting detection before and during the above test.

Attempts shall be restricted to 5 minutes per tool (10 minutes for Grade 4). If the test fails, it shall be repeated, and a further failure within 4 further attempts shall result in the overall test failing.

#### 10.3.3.5 Measurement

Monitor the tamper signal or message output.

Record whether it was possible to prevent the generation of a tamper signal or message using the test blade or pliers.

#### 10.3.3.6 Pass/fail criteria

The tamper signal or message shall have been generated within 11 s of the EUT exceeding the distance specified in 7.1.3.3.

NOTE The period of 11 s includes 400 ms for detection of tamper (as stated in EN 50131-1:2006, 8.9.1) and 10 s (as stated in EN 50131-1:2006, 8.9.2) and therefore permits this test to be performed in conjunction with a CIE in situations where measurements cannot otherwise be made.

It shall not have been possible to prevent the generation of a tamper signal or message using the test blade or pliers.

## 10.4 Substitution tests

### 10.4.1 Tests for monitoring of substitution of components

The manufacturer shall provide information from which it can be verified that the method of monitoring is compliant with the requirement of EN 50131-1:2006, 8.7.3.

### 10.4.2 Tests for monitoring of substitution – Timing requirements

The manufacturer shall provide information from which it can be verified that the method of monitoring is compliant with the timings requirement specified in EN 50131-1:2006, 8.7.4.

## 10.5 Power supply

### 10.5.1 General

For all SPT including PS, the tests of EN 50131-6 applicable to the type of PS shall be passed.

### 10.5.2 Average current consumption

#### 10.5.2.1 Principle

The principle of this test is to confirm by measurement that the average current consumption of the SPT does not exceed the amount claimed by the manufacturer in the product documentation.

This test is not applicable to SPT with PS of type C.

NOTE The description of the type (A, B or C) of PS can be found in EN 50131-1.

#### 10.5.2.2 Test conditions

For SPT with integral PS, the test shall be carried out with the EPS at nominal value, and with the APS at a level of at least 80 % of full capacity and connected according the manufacturer’s instructions.

For SPT without integral PS, connect the SPT to a suitable variable, stabilized power supply with a current measuring meter in series. Connect a voltmeter across the power input terminals of the SPT. Set the voltage to the nominal supply voltage.

#### 10.5.2.3 Procedure

Connect the SPT to a CIE or CIE simulator. Connect the SPT to an RCT via ATS network, or simulator of this. Allow the SPT to complete any initial power-up activities and stabilise. The SPT shall be operated normally for a period of 1 h with transmission of an alarm once every 5 minutes.

Where differing technologies, e.g. a different path, may be selected then the technology with the highest current consumption shall be selected for the duration of the test.

#### 10.5.2.4 Measurement

The current consumed by the SPT shall be measured throughout the one-hour period and the average value calculated.

#### 10.5.2.5 Pass/fail criteria

The measured current shall be less than or equal to the average current consumption stated in the SPT documentation.

### 10.5.3 Test of SPT with type C power supply

#### 10.5.3.1 Principle

The principle of this test shall be to confirm by measurement that an SPT having a type C power supply is capable of operating for a minimum of one year between replacements of the power source.

The SPT shall generate a fault signal or message before the voltage falls below the level required for normal operation.

#### 10.5.3.2 Test conditions and procedure

The test conditions and procedure shall be appropriate to the test. The power source used during the test shall be typical of that specified in the documentation (refer to Clause 8). At the start of the test, the power source shall be in good condition with a life expectancy in accordance with its manufacturer's documentation.

The SPT manufacturer shall define a test procedure that, when applicable, shall be agreed by the test house. The test may include accelerated discharge of the power source, during which it may be disconnected from the SPT.

The SPT shall be monitored for generation of a fault signal or message caused by detection of reduced voltage. Following generation of the fault signal or message the reduced functional test shall be performed.

#### 10.5.3.3 Pass/fail criteria

The test shall be deemed to pass if the power source would not require replacement within one year under the conditions being simulated.

The SPT shall generate a fault signal or message before the voltage falls below the level at which the reduced functional test cannot be passed.

#### 10.5.4 Peak current consumption

##### 10.5.4.1 Principle

The principle of this test is to confirm by measurement that the peak current consumption of the SPT does not exceed the amount claimed by the manufacturer in the product documentation.

For PS of type C, the ability of the SD to deliver this peak current shall be confirmed by reference to data from the SD manufacturer.

##### 10.5.4.2 Test conditions and procedure

The manufacturer shall declare the conditions under which the peak current consumption should occur. The test conditions and procedure shall be appropriate to measuring this current.

##### 10.5.4.3 Measurement

The current consumed by the SPT shall be measured and the peak value calculated.

##### 10.5.4.4 Pass/fail criteria

The measured current shall be less than or equal to the peak current consumption stated in the SPT documentation.

For PS of type C the ability of the SD to deliver this peak current shall be confirmed by reference to data from the SD manufacturer.

### 10.6 Documentation and marking

#### 10.6.1 Principle

The principle of this test is to verify that the marking of the SPT and the documentation supplied with the SPT meet the requirements of Clauses 8 and 9.

#### 10.6.2 Procedure

Examine the marking of the SPT.

Examine the documentation supplied by the SPT manufacturer.

#### 10.6.3 Pass/fail criteria

The documentation shall meet the requirements of Clause 8.

The marking on the SPT shall meet the requirements of Clause 9.

NOTE Durability tests of labelling are carried out as part of the Low Voltage Directive testing.

### 10.7 Environmental and EMC tests

The environmental classification is described in EN 50131-1. Relevant environmental tests carried out shall be in accordance with EN 50130-5.

For operational tests, the SPT shall not generate tamper, fault or other signals or messages, but shall pass the reduced functional test, when subjected to the specified range of environmental conditions and shall continue to function normally.

For endurance tests, the SPT shall continue to meet the requirements of this European Standard after being subjected to the specified range of environmental conditions.

See Table 5 for the relevant tests for each environmental class. These tests apply to all security grades.

A quantity of representative samples, each able to be subjected to the reduced functional test, shall be provided to the test house for the environmental testing. SPT Type Y shall be provided mounted in a representative housing which shall meet the requirements of either EN 50131-3 or EN 50131-6.

**Table 5 – Environmental and EMC tests and severity**

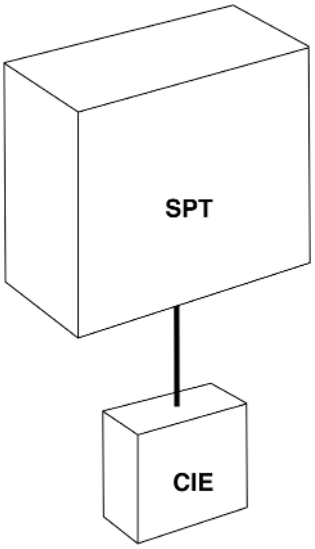
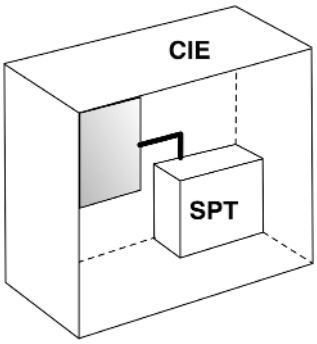
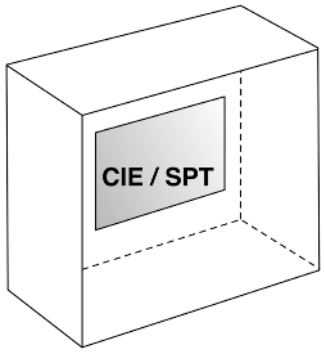
| | Reduced functional test | Test | Type | Class I | Class II | Class III | Class IV |
|---|---|---|---|---|---|---|---|
| 1 | B, D, A | Dry heat | Operational | M | M | M | M |
| 2 | B, A | Dry heat | Endurance | N/A | N/A | N/A | M |
| 3 | B, D, A | Cold | Operational | M | M | M | M |
| 4 | B, D, A | Damp heat, steady state | Operational | M | N/A | N/A | N/A |
| 5 | B, A | Damp heat, steady state | Endurance | M | M | M | M |
| 6 | B, D, A | Damp heat, cyclic | Operational | N/A | M | M | M |
| 7 | B, A | Damp heat, cyclic | Endurance | N/A | N/A | M | M |
| 8 | B, D, A | Water ingress | Operational | N/A | N/A | M | M |
| 9 | B, A | Sulphur dioxide ($S0_2$) | Endurance | N/A | N/A | M | M |
| 10 | B, A | Salt mist, cyclic | Endurance | N/A | N/A | N/A | M |
| 11 | B, C, A | Impact | Operational | M | M | M | M |
| 12 | B, C, A | Shock | Operational | M | M | M | M |
| 13 | B, A | Vibration, sinusoidal | Operational | M | M | M | M |
| 14 | B, C, A | EMC | Operational | M | M | M | M |

**Key**
A After conditioning and recovery period
B Before conditioning
C Monitor during conditioning
D During conditioning, as specified in EN 50131-1:2006, Clause 12 and in EN 50130-5
M Mandatory
N/A Not applicable

# Annex A
(informative)

## Classification of SPT

This annex is intended to provide clarification to the types of SPT given in 4.3

| **Type X** | **Type Y** | **Type Z** |
|---|---|---|
|  |  |  |
| The SPT is mounted in a separate housing to the CIE or other parts of the I&HAS Example: a Power Supply | The SPT is mounted within the housing of CIE or Power Supply<br><br>The SPT may, for example, consist of an enclosed unit without tamper detection functions; or it may be one or more circuit boards; or some other construction. It may be connected to the CIE by cable or using a plug arrangement directly between the SPT and CIE circuit board. Other forms of connection are permitted.<br><br>The SPT manufacturer may also be the manufacturer of the CIE or PS but this is not always the case. | The SPT is integrated with CIE and cannot function independently".<br><br>The requirements of EN 50131-3, this standard and any other applicable standards (e.g. EN 50131-6) would apply in combination. |

## Bibliography

EN 50136 (all parts), *Alarm systems – Alarm transmission systems and equipment*

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