Ningbo Energylux Optoelectronics Technology Co.,Ltd

TEST REPORT

Prepared For :	Ningbo Energylux Optoelectronics Technology Co.,Ltd No.518, Fangshan Road Qiaotouhu Ninghai Ningbo China
Product Name:	Smoke Alarm
Model :	ES-S08W, ES-S08, ES-S01, ES-S02, ES-S05, ES-S07, ES-S08RF, ES-HD01RF, ES-C01, ES-GA03, ES-CG01, ES-CG02
Prepared By :	BST Testing (Shenzhen) Co., Ltd. No.7 New Era Industrial Zone, Guantian Bao’an District, Shenzhen, Guangdong, China
Test Date:	Apr. 17, 2026 - Apr. 30, 2026
Date of Report :	Apr. 30, 2026
Report No.:	XDX16260430043004FAR

TEST REPORT

EN 14604:2005/AC:2008
Smoke alarm devices

Testing Laboratory Name ..... :	BST Testing (Shenzhen) Co.,Ltd.
Address ..... :	No.7, New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China
Testing location ..... :	BST Testing (Shenzhen) Co.,Ltd.
Applicant's Name ..... :	Ningbo Energylux Optoelectronics Technology Co.,Ltd
Address ..... :	No.518, Fangshan Road Qiaotouhu Ninghai Ningbo China
Manufacturer …… …..……:	Ningbo Energylux Optoelectronics Technology Co.,Ltd
Address …… …..…… :	No.518, Fangshan Road Qiaotouhu Ninghai Ningbo China
Test specification	
Standard..... :	EN 14604:2005/AC:2008
Directive..... :	305/2011 Directive; 89/106/EEC Directive
Procedure deviation ..... :	N/A
Non-standard test method ..... :	N/A
Test item description ..... :	Smoke Alarm
Trademark ..... :	N/A
Model and/or type reference ..... :	ES-S08W, ES-S08, ES-S01, ES-S02, ES-S05, ES-S07, ES-S08RF, ES-HD01RF, ES-C01, ES-GA03, ES-CG01, ES-CG02
Rating(s)..... :	See Copy of marking plate
Test case does not apply to the test object ... :	N/A
Test item does meet the requirement ..... :	P(ass)
Test item does not meet the requirement ..... :	F(ail)

General remarks

This report shall not be reproduced except in full without the written approval of the testing laboratory.
The test results presented in this report relate only to the item(s) tested.
”(see remark #)" refers to a remark appended to the report.
"(see Annex #)" refers to an annex appended to the report.
Clause numbers between brackets refer to clauses in EN 14604:2005
Throughout this report a comma is used as the decimal separator.

Copy of marking plate and summary of test results:

Product name: Smoke Alarm
Model: ES-S08W
Rating(s): DC9V Battery

Ningbo Energylux Optoelectronics Technology Co.,Ltd
No.518, Fangshan Road Qiaotouhu Ninghai Ningbo China

Prepared by : Lanya Li
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Andy / Manager

EN 14604:2005			
Clause	Requirement + Test	Result - Remark	Verdict
4	General requirements		P
4.1	Compliance In order to comply with this document the smoke alarm shall meet the requirements of this clause, which shall be verified by visual inspection or engineering assessment, shall be tested as described in Clause 5 and shall meet the requirements of the tests. For smoke alarms which a manufacturer claims are suitable for leisure accommodation vehicles, the tests in Annex L shall be applied.	Complied	P
4.2	Individual alarm indicator (optional) Alarm indicators, if fitted, shall be red and shall be separate from the mains-on indicator. This visual indicator may also perform another additional function but the alarm indication needs to be distinct from this additional function. The failure of any visual indicator shall not prevent the emitting of a fire alarm signal.	The alarm indicator is red	P
4.3	Mains-on indicator A smoke alarm intended to be connected to the AC mains shall be provided with a continuous mains- on indicator to indicate energization of the unit. This indicator shall be coloured green and shall be separate from any other indicators	Battery supply	N/A
4.4	Connection of external ancillary devices The smoke alarm may provide for connections to external ancillary devices (e.g. remote indicators, control relays, transmitters), but open- or short-circuit failure of these connections shall not prevent the correct operation of the smoke alarm.	Correct operation	P
4.5	Means of calibration The manufacturer's means of calibration shall not be readily adjustable, on site, after manufacture.		P
4.6	User replaceable components Except for batteries or fuses, a smoke alarm shall have no user replaceable or serviceable components.	Complied	P
4.7	Normal power source The power source of the smoke alarm may be internal or external to the smoke alarm housing. Where the power source is internal to the smoke alarm, the source shall meet the following requirements. The power source shall operate the smoke alarm for at least one year's life, including routine testing (see 4.1 5).	DC9V Battery supply	P
	The internal power source shall be replaceable by the user unless its operating life (see 4.1 5) in the smoke alarm is 1 0 years or greater.	15 years	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.8	Standby power source 4.8.1 General For smoke alarms intended for connection to an external power supply, for which an integral back- up/standby power facility is provided, the following requirements shall apply: a) primary cell battery back-up: the back-up power supply shall be capable of meeting the requirements of 4.1 5; b) rechargeable back-up power sources: the back-up power source shall be capable of supplying the quiescent load of the smoke alarm for a minimum period of 72 h followed by an alarm signal as specified in 5.1 7 for at least 4 min in the event of fire, or in the absence of a fire, a fault warning for at least 24 h.	Complied a) primary cell battery back-up	P
	In the absence of suitable test procedures to verify the back-up power source, data concerning the smoke alarm loads and the back-up facility characteristics shall be used to indicate that the above requirements can be met.		N/A
4.8.2	Monitoring of back-up power source The back-up power source shall be monitored by the smoke alarm for faults. These faults shall include low back-up, open circuit and short circuit failure of the back-up (see 5.23).	Complied	P
4.9	Electrical safety requirements The apparatus shall be designed and constructed so as to present no danger, either in normal use or under fault conditions, as determined by the tests and requirements in 5.24.	No danger	P
4.10	Routine test facility A routine test facility shall be provided on all smoke alarms to simulate either mechanically or electrically the presence of smoke in the sensing assembly. The test feature shall be accessible from outside the smoke alarm when installed as specified in the installation instructions.		P
4.11	Terminals for external conductors The smoke alarm or base, as appropriate, if intended to have external connections, shall provide for the connection of conductors by means of screws, nuts or equally effective devices. For mains-powered smoke alarms which utilize a "flying lead" – type connector, this connector shall be regarded as a conductor.		P
	If terminals are provided, they shall allow the connection of conductors having nominal cross-sectional areas of between 0,4 mm^2 and 1 ,5 mm^2 .	0.5mm^2	P
	Flying lead type connectors shall be subjected to a pull test, such that when the connector is subjected to a pull of 20 N without jerks for 1 min in any direction allowed by the design, the connector does not become detached.	Pull : 20 N for 1 min The connector does not become detached.	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.12	Smoke alarm signals In a smoke alarm which employs one or more non-fire alarm features the following operation shall be obtained: a) the smoke alarm fire alarm signal shall take precedence over any other signal even when such other signal is initiated first. b) distinctive signals shall be obtained between a smoke alarm's fire alarm and other non-fire alarm functions. Use of a common sounder is permitted if distinctive signals are obtained. If an audible fault signal is provided it shall be distinctive from all alarm signals but may be common to all functions employed.	Refer to the manufacturer's product manual	P
4.13	Battery removal indication The removal of any user-replaceable battery used to power, or provide back-up power, for the smoke detection circuit/sounder, from a battery or mains powered d.c. backed smoke alarm, shall result in a visual, mechanical or audible warning that the battery has been removed. The visual warning shall not depend upon a power source. NOTE Conformity may be achieved by, but is not restricted to, one of the following examples: a) a warning flag that will be exposed with the battery removed and the cover closed; b) a hinged cover or battery compartment that cannot be closed when the battery is removed; c) a unit that cannot be replaced upon its mounting base/bracket with the battery removed.	Refer to the manufacturer's product manual	P
4.14	Battery connections Lead or terminal connections to batteries shall be identified with the proper polarity (plus or minus). The polarity may be indicated on the unit adjacent to the battery terminals or leads.	Complied	P
	Any leads connecting the terminal connectors of batteries in smoke alarms to the smoke alarm circuit board shall be provided with strain relieving devices adjacent to both battery terminal connectors and the smoke alarm circuit board so that when the leads are subjected to a pull of 20 N without jerks for 1 min in any direction allowed by the design, the pull is not transmitted to the joints between the leads and the battery terminal connectors or between the leads and the smoke alarm circuit board.	Pull : 20 N for 1 min The connector does not become detached.	P
4.15	Battery capacity The batteries supplied with or specified for use in smoke alarms shall be capable of supplying the quiescent load of the smoke alarm together with the additional load resulting from a routine weekly 1 0 s test, for at least 1 year before the battery fault warning is given. At the point when the battery fault warning commences, the batteries shall have sufficient capacity to give an alarm signal as specified in 5.1 7 for at least 4 min in the event of fire, or in the absence of fire a battery fault warning for at least 30 days.	Refer to the manufacturer's battery specification sheet	P

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Clause	Requirement + Test	Result - Remark	Verdict
	In the absence of suitable test procedures to verify battery capacity, data concerning the smoke alarm loads and the battery characteristics shall be used to indicate that the above requirement can be met.		P
4.16	Protection against the ingress of foreign bodies The smoke alarm shall be so designed that a sphere of diameter (1 ,3 ± 0,05) mm cannot pass into the sensor chamber(s).	Complied	P
4.17	Additional requirements for software controlled smoke alarms		P
4.17.1	General For smoke alarms, which rely on software control in order to fulfil the requirements of this document, the requirements of 4.1 7.2, 4.1 7.3 and 4.1 7.4 shall be met.	Complied	P
4.17.2	Software documentation 4.17.2.1 The manufacturer shall submit documentation which gives an overview of the software design. This documentation shall be in sufficient detail for the design to be inspected for compliance with this document and shall include at least the following: a) a functional description of the main program flow (e.g. as a flow diagram or structogram) including: 1) a brief description of the modules and the functions that they perform; 2) the way in which the modules interact; 3) the overall hierarchy of the program; 4) the way in which the software interacts with the hardware of the smoke alarms; 5) the way in which the modules are called, including any interrupt processing. b) a description of which areas of memory are used for the various purposes (e.g. the program, site specific data and running data); c) a designation, by which the software and its version can be uniquely identified.	Refer to the manufacturer's product manual	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.17.2.2	The manufacturer shall have available detailed design documentation, which only needs to be provided if required by the testing authority. It shall comprise at least the following: a) an overview of the whole system configuration, including all software and hardware components; b) a description of each module of the program, containing at least: 1) the name of the module; 2) a description of the tasks performed; 3) a description of the interfaces, including the type of data transfer, the valid data range and the checking for valid data. c) full source code listings, as hard copy or in machine-readable form (e.g. ASCII-code), including all global and local variables, constants and labels used, and sufficient comment for the program flow to be recognized; d) details of any software tools used in the design and implementation phase (e.g. CASE-tools, compilers).	Refer to the manufacturer's product manual	P
4.17.3	Software design In order to ensure the reliability of the smoke alarm, the following requirements for software design shall apply: a) the software shall have a modular structure; b) the design of the interfaces for manually and automatically generated data shall not permit invalid data to cause errors in the program operation; c) the software shall be designed to avoid the occurrence of deadlock of the program flow.	Complied	P
4.17.4	The storage of programs and data The program necessary to comply with this document and any preset data, such as manufacturer's settings, shall be held in non-volatile memory. Writing to areas of memory containing this program and data shall only be possible by the use of a special tool or code and shall not be possible during normal operation of the detector.	Complies with this document and any preset data	P
	Site-specific data shall be held in memory which will retain data for at least two weeks without power from the mains or any replaceable battery, unless provision is made for the automatic renewal of such data, following loss of power, within 1 h of power being restored.	Auto Save	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.18	Inter-connectable smoke alarms If a means of connecting a number of smoke alarms to give a general alarm signal is provided the following shall apply (see 5.1 9). a) The audible alarm signal shall be emitted by all of the interconnecting smoke alarms when the smoke is detected by any one or more of them. If the smoke alarms are provided with an alarm silence facility, initiation of the alarm silence period of one of the smoke alarms shall not prevent the audible alarm signal being emitted by that smoke alarm when the smoke is detected by any of the other alarms. b) The interconnection of the maximum number of smoke alarms allowed by the manufacturer shall not have a significant effect on the sensitivity of the smoke alarms nor their ability to meet the battery capacity or sound output requirements (see 4.1 5 and 5.1 7). c) For battery-operated smoke alarms, open or short-circuits of the interconnecting leads either shall not prevent the smoke alarms from functioning individually or shall result in an alarm condition or fault warning.	Refer to the manufacturer's product manual	P
4.19	Marking and data 4.19.1 Smoke alarm marking Each alarm shall be indelibly marked with the following: a) the number and date of this document, i.e. EN 1 4604:2005X; b) the name or trade mark and address of the manufacturer or supplier; c) the date of manufacture, or the batch number; d) the manufacturer's recommended date for replacement, subject to normal, regular maintenance;	Refer to the manufacturer's product manual	P
	e) smoke alarms incorporating user replaceable batteries: the type or numbers of batteries recommended by the manufacturer and an instruction to the user "Test the alarm for correct operation using the test facility, whenever the battery is replaced"; which shall be visible during the operation of changing the batteries; f) smoke alarms incorporating non-replaceable batteries: the warning "WARNING — Battery not replaceable — See instruction manual" which shall be visible during normal use. Conformity shall be checked by visual inspection. The indelibility of the marking shall be checked by establishing that it cannot be removed when rubbed lightly with a piece of cloth soaked with petroleum spirit and then water.	Refer to the manufacturer's product manual	P
4.19.2	Packaging marking The point-of-sale carton, in which a smoke alarm employing a radionuclide is packaged, shall be permanently marked on the exterior with the trefoil symbol, name of radionuclide, and activity.		P

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Clause	Requirement + Test	Result - Remark	Verdict
4.19.3	Data Information supplied on or with smoke alarms shall include instructions on siting, installation and maintenance.		P
	The information provided with smoke alarms incorporating user-replaceable batteries shall include specific guidance on changing the batteries. This guidance shall include any advice which is necessary to ensure that the battery is properly connected. It shall also include a recommendation that the operation of the alarm is tested with the test facility whenever the batteries are replaced.	Refer to the manufacturer's product manual	P
	For smoke alarms incorporating non-replaceable batteries, information shall be given on the action to be taken if a battery fault warning is emitted.		P
	Information for smoke alarms intended for connection to mains supplies shall include a warning that draws attention to the hazards associated with mains voltages and recommends that the smoke alarm, together with any associated supply and interconnect wiring, be installed in accordance with appropriate national electrical installation regulations.	Refer to the manufacturer's product manual	P
5	Tests 5.1 General		P
5.1.1	Atmospheric conditions for tests Unless otherwise stated in a test procedure, the testing shall be carried out after the test specimen has been allowed to stabilize in the standard atmospheric conditions for testing as described in EN 60068-1 :1 9945 as follows: a) temperature 1 5 ° C to 35 ° C; b) relative humidity 25 % to 75 %; c) air pressure 86 kPa to 1 06 kPa. If variations in these parameters have a significant effect on a measurement, then such variations shall be kept to a minimum during a series of measurements carried out as part of one test on one specimen.	25.5° C 64%R.H 101kPa	P
5.1.2	Operating conditions for tests If a test method requires a specimen to be operational, then the specimen shall be connected to, or provided with, a suitable power source with characteristics as required by the manufacturer's data. Unless otherwise specified in the test method, the power source parameters applied to the specimen shall be set within the manufacturer's specified range(s) and shall remain substantially constant throughout the tests. The value chosen for each parameter shall normally be the nominal value, or the mean of the specified range.	Complied	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.3	Mounting arrangements The specimen shall be mounted by its normal means of attachment in accordance with the manufacturer's instructions. If these instructions describe more than one method of mounting then the method considered to be most unfavourable shall be chosen for each test.	Refer to the manufacturer's product installation manual	P
5.1.4	Tolerances If a specific tolerance or limit is not specified in a requirement or test procedure, a tolerance of ± 5 % shall be applied.	Applied	P
5.1.5	Measurement of response threshold value The specimen, for which the response threshold value is to be measured, shall be installed in the smoke tunnel, described in Annex A, in its normal operating position, by its normal means of attachment. The orientation of the specimen, relative to the direction of airflow, shall be the least sensitive orientation, as determined in the directional dependence test, unless otherwise specified in the test procedure.		P
	The air velocity in the proximity of the specimen shall be (0,2 ± 0,04) ms^{-1} during the measurement, unless otherwise specified in the test procedure.	The air velocity : 0.2ms^{-1}	P
	Unless otherwise specified in the test procedure, the air temperature in the tunnel shall be (23 ± 5) ° C and shall not vary by more than 5 ° C for all the measurements on a particular smoke alarm type.	25.5° C	P
	The specimen shall be connected to its power source as described in 5.1 .2, and shall be allowed to stabilize for at least 1 5 min, unless otherwise specified by the manufacturer.	30 min	P
	The test aerosol, as described in Annex B, shall be introduced into the tunnel such that the rate of increase of aerosol density is as follows: $0{,}015 \le \frac{\Delta m}{\Delta t} \le 0{,}1$ dB $m^{-1}min^{-1}$ for smoke alarms using scattered or transmitted light; $0{,}05 \le \frac{\Delta y}{\Delta t} \le 0{,}3$ min^{-1} for smoke alarms using ionization.		N/A
	The initially selected rate of increase in aerosol density shall be similar for all measurements on a particular smoke alarm type. All aerosol density measurements shall be made in the proximity of the specimen.		N/A
5.1.6	Provision for tests The following shall be provided for testing compliance: a) 20 specimens; b) data required in 4.1 9. The specimens submitted shall be deemed representative of the manufacturer's normal production with regard to their construction and calibration.	Complied b)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.1.7	Test schedule The smoke alarms shall be numbered as specified in 5.4.2. The tests on each smoke alarm indicated in Table 1 shall be carried out in the order in which they are listed.		P
5.2	Repeatability 5.2.1 Object To show that the smoke alarm has stable behaviour with respect to its sensitivity even after a number of alarm conditions.	Stable sensitivity	P
5.2.2	Test procedure The response threshold value of the specimen to be tested shall be measured as described in 5.1 .5 six times. The specimen's orientation relative to the direction of air flow is arbitrary, but it shall be the same for all six measurements.		P
5.2.3	Requirements The ratio of the response threshold values y max :y min or m max :m min shall be not greater than 1 ,6. The lower response threshold value y min shall be not less than 0,2 or m min shall be not less than 0,05 dB m^{-1} .	<1.6 >0,05 dB m^{-1}	P
5.3	Directional dependence 5.3.1 Object To show that the sensitivity of the smoke alarm is not unduly dependent on the direction of airflow around the smoke alarm.	Complied	P
5.3.2	Test procedure The response threshold value of the specimen to be tested shall be measured eight times as described in 5.1 .5 with the specimen being rotated 45° about its vertical axis between each measurement, so that the measurements are taken for eight different orientations relative to the direction of air flow.	Complied	P
	The maximum response threshold value shall be designated y_{max} or m_{max} , the minimum value shall be designated y_{min} or m_{min} . The orientations, for which the maximum and minimum response threshold values were measured, shall be noted.		N/A
5.3.3	Requirements The ratio of the response threshold values y max :y min or m max :m min shall not be greater than 1 ,6. The lower response threshold value y min shall not be less than 0,2 or m min shall not be less than 0,05 dB m^{-1} .	<1.6 >0,05 dB m^{-1}	P
5.4	Initial sensitivity 5.4.1 Object To establish the sensitivity of each smoke alarm prior to testing. This will be used as a baseline for the following tests.		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2	Test procedure Measure the response threshold value of the specimens as described in 5.1 .5. Number the smoke alarms in order of sensitivity, number 1 having the lowest response threshold and number 20 the highest response threshold.		P
5.4.3	Requirement The following relationships shall hold y max : y or m max : m ⩽ 1 ,33 and y :y min or m :m min ⩽ 1 ,5.	Complied	P
5.5	Air movement 5.5.1 Object To show that the sensitivity of the smoke alarm is not unduly affected by the rate of the air flow, and that it is not unduly prone to false alarms in draughts or in short gusts.	No impact	P
5.5.2	Test procedure The response threshold value of the specimen to be tested is measured as described in 5.1 .5 in the most and least sensitive orientations, and shall be appropriately designated y (0,2)max and y (0,2)min or m (0,2)max and m (0,2)min	Complied	P
5.5.3	Requirements One of the following relationships shall hold: a) $0{,}625 \leq \frac{y_{(0,2)\max.} + y_{(0,2)\min.}}{y_{(1,0)\max.} + y_{(1,0)\min.}} \leq 1{,}6$; or b) $0{,}625 \leq \frac{m_{(0,2)\max.} + m_{(0,2)\min.}}{m_{(1,0)\max.} + m_{(1,0)\min.}} \leq 1{,}6$ and the alarm shall emit neither a fault signal nor an alarm signal during the test with aerosol free air.	Complied	P
5.6	Dazzling 5.6.1 Object To show that the sensitivity of the smoke alarm is not unduly influenced by the close proximity of artificial light sources. This test is only applied to smoke alarms using scattered light or transmitted light as ionization chamber smoke alarms are considered unlikely to be influenced.	Not influenced	P
5.6.2	Test procedure The dazzling apparatus, described in Annex D, is installed in the smoke tunnel described in Annex A. The specimen is installed in the dazzling apparatus in the least sensitive orientation and connected to its power source as described in 5.1 .2. The following test procedure is then applied.	Complied	P
	The response threshold value is measured as described in 5.1 .5. The four lamps are switched simultaneously ON for 1 0 s and then OFF for 1 0 s, ten times. The four lamps are then switched ON again and after at least 1 min the response threshold value is measured as described in 5.1 .5, with the lamps ON. The four lamps are then switched OFF.	Complied	P

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5.6.3	Requirements During the periods when the switching sequences are being conducted and when the lamps are all on for at least 1 min, the specimen shall emit neither an alarm nor fault signal. For each orientation, the ratio of the response threshold m max :m min shall not be greater than 1 ,6.	<1 ,6	P
5.7	Dry heat 5.7.1 Object To demonstrate the ability of the smoke alarm to function correctly at high ambient temperatures, which may occur for short periods in the service environment.		P
5.7.2	Test procedure The specimen to be tested shall be installed in the smoke tunnel described in Annex A, in its least sensitive orientation, with an initial air temperature of (23 ± 5) ° C, and shall be connected to its power source as described in 5.1 .2.	25.5° C	P
	The air temperature in the tunnel shall then be increased to (55 ± 2) ° C, at a rate not exceeding 1 ° C min^{-1} , and maintained at this temperature for 2 h. The response threshold value shall then be measured as described in 5.1 .5 but with the temperature at (55±2)° C.	55° C	P
	Requirements No alarm of fault signals shall be given during the conditioning. The ratio of the response threshold values y max :y min or m max :m min shall not be greater than 1 ,6.	Complied	P
5.8	Cold (operational) 5.8.1 Object To demonstrate the ability of the smoke alarm to function correctly at low ambient temperatures, which may occur for short periods in the service environment.	Complied	P
5.8.2	Test procedure The specimen to be tested shall be installed in the smoke tunnel described in Annex A, in its least sensitive orientation, with an initial air temperature of (23 ± 5) ° C, and shall be connected to its power source as described in 5.1 .2.	25.5° C	P
	The air temperature in the tunnel shall then be decreased to (0 ± 2) ° C, at a rate not exceeding 1 ° Cmin $^{-1}$, and maintained at this temperature for 2 h. The response threshold value shall then be measured as described in 5.1 .5 but with the temperature at (0±2) ° C.	0° C	P
5.8.3	Requirement No alarm or fault signals shall be given during the conditioning. The ratio of the response threshold values y max :y min or m max :m min shall not be greater than 1 ,6.		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.9	Damp heat (operational) 5.9.1 Object To demonstrate the ability of the smoke alarm to function correctly after exposure to high relative humidity (without condensation) and temperature, which may occur for short periods in the service environment.	Complied	P
5.9.2	Test procedure The specimen to be tested shall be exposed to an initial air temperature of (40 ± 2) ° C, and a relative humidity of less than 45 %. After 2 h, the relative humidity is to be increased to (93 ± 3) % over a period of 1 h. This temperature and humidity shall be maintained for a period of 4 days. The specimen shall have a recovery period of 1 h to 2 h at the standard laboratory conditions. The response threshold value shall then be measured as described in 5.1 .5.	After test: Normal operation	P
5.9.3	Requirements No alarm or fault signals shall be given during the conditioning. The ratio of the response threshold values y max :y min or m max :m min shall not be greater than 1 ,6.	<1 ,6	P
5.10	Sulphur dioxide (SO 2) corrosion 5.10.1 Object To demonstrate the ability of the smoke alarm to withstand the corrosive effects of sulphur dioxide as an atmospheric pollutant.	Complied	P
5.10.2	Test procedure 5.10.2.1 Reference The test apparatus and procedure shall be as described in EN 60068-2-42:2003, except that the conditioning shall be as described below.		P
5.10.2.2	State of the specimen during conditioning The specimen shall be mounted as described in 5.1 .3. It shall not be supplied with power during the conditioning, but it shall have untinned copper wires, of the appropriate diameter, connected to sufficient terminals to allow the final measurement to be made, without making further connections to the specimen.		P
5.10.2.3	Conditioning The following conditioning shall be applied: Temperature (25 ± 2) ° C; Relative humidity (93 ± 3) %; SO 2 concentration (25 ± 5) ppm (by volume) i.e. (25 ± 5) x 1 0 -6 ; Duration 4 days.	25.5° C 94.5%R.H 25ppm Duration 4 days Test pass	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.10.2.4	Final measurements Immediately after the conditioning, the specimen shall be subjected to a drying period of 1 6 h at 40 ° C, ⩽ 50 % RH, followed by a recovery period of 1 h to 2 h at the standard laboratory conditions. After this recovery period, the response threshold value shall be measured as described in 5.1 .5.	Complied	P
5.10.3	Requirements The ratio of the response threshold values y max :y min or m max :m min shall not be greater than 1 ,6.	<1 ,6	P
5.11	Impact 5.11.1 Object To demonstrate the immunity of the smoke alarm to mechanical impacts upon its surface, which it may sustain in the normal shipping, installation and service environment, and which it can reasonably be expected to withstand.		P
5.11.2	Test procedure 5.11.2.1 Apparatus The test apparatus shall consist of a swinging hammer incorporating a rectangular-section aluminium alloy head (aluminium alloy AlCu4SiMg complying with EN 573-4, solution treated and precipitation treated condition) with the plane impact face chamfered to an angle of 60° to the horizontal, when in the striking position (i.e. when the hammer shaft is vertical). The hammer head shall be (50 ± 2,5) mm high, (76 ± 3,8) mm wide and (80 ± 4) mm long at mid height as shown in Figure E.1 . A suitable apparatus is described in Annex E.	Complied	P
5.11.2.2	State of the specimen during conditioning The specimen shall be rigidly mounted to the apparatus by its normal mounting means and shall be positioned so that it is struck by the upper half of the impact face when the hammer is in the vertical position (i.e. when the hammer head is moving horizontally). The azimuthal direction and position of impact, relative to the specimen, shall be chosen as that most likely to impair the normal functioning of the specimen. The specimen shall be connected to its power source as described in 5.1 .2.		P
5.11.2.3	Conditioning The following conditioning shall be applied: Impact energy (1 ,9 ± 0,1) J; Hammer velocity (1 ,5 ± 0,1 3) ms^{-1} ; Number of impacts 1 .	1.9J 1.5ms^{-1} Impact test pass	P
5.11.2.4	Measurements during conditioning The specimen shall be monitored during the conditioning and for a further 2 min after the impact to detect any alarm or fault signals.		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.11.2.5	Final measurements After the conditioning the response threshold value shall be measured as described in 5.1 .5. The greater of the response threshold value measured in this test and that measured for the same specimen in the initial sensitivity test shall be designated y max or m max , and the lesser shall be designated y min or m min	Impact test pass	P
5.11.3	Requirements No alarm or fault signals shall be given during the conditioning or the additional 2 min. The impact shall not detach the alarm from its base, or the base from the mounting.	The cover of the smoke alarm shall not unscrew or open.	P
5.12	Vibration (operational) 5.12.1 Object To demonstrate the immunity of the smoke alarm to vibration at levels considered appropriate to the normal service environment.		P
5.12.2	Test procedure 5.12.2.1 Reference The test apparatus and procedure shall be as described in EN 60068-2-6:1 9956 and as described below.		P
5.12.2.2	State of the specimen during conditioning The specimen shall be mounted on a rigid fixture as described in 5.1 .3 and shall be connected to its power source as described in 5.1 .2. The vibration shall be applied in each of three mutually perpendicular axes, in turn. The specimen shall be mounted so that one of the three axes is perpendicular to its normal mounting plane.	Meets vibration testing requirements	P
5.12.2.3	Conditioning The following conditioning shall be applied: Frequency range (1 0 to 1 50) Hz; Acceleration amplitude 5 m s $^{-2}$ ($\approx$ 0,5 g n); Number of axes 3; Sweep rate 1 octave min -1 ; Number of sweep cycles 1 per axis.	50Hz 5 m s $^{-2}$ Number of axes 3	P
5.12.2.4	Measurements during conditioning The specimen shall be monitored during the conditioning period to detect any alarm or fault signals.		P
5.12.2.5	Final measurements After the conditioning the specimen is to be inspected visually for mechanical damage both internally and externally. The response threshold value shall be measured as described in 5.1 .5.	No mechanical damage	P
5.12.3	Requirements No alarm or fault signals shall be given during the conditioning. No mechanical damage, eithe internally or externally, shall result. The lid of the smoke alarm shall not unscrew or open.	No unscrew or open	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.13	Vibration (endurance) 5.13.1 Object To demonstrate the ability of the smoke alarm to withstand the long term effects of vibration at levels appropriate to the shipping, installation and service environment.		P
5.13.2	Reference The test apparatus and procedure shall be as described in EN 60068-2-6:1 9956 and as described below.		P
5.13.2.1	State of the specimen during conditioning The specimen shall be mounted on a rigid fixture as described in 5.1 .3, but shall not be supplied with power during conditioning. The vibration shall be applied in each of three mutually perpendicular axes, in turn. The specimen shall be mounted so that one of the three axes is perpendicular to its normal mounting axis.	Meets vibration testing requirements	P
5.13.2.2	Conditioning The following conditioning shall be applied: Frequency range (1 0 to 1 50) Hz; Acceleration amplitude 1 0 m s -2 (1 ,0 g n); Number of axes 3; Sweep rate 1 octave min $^{-1}$; Number of sweep cycles 20 per axis.	50Hz 5 m s $^{-2}$ Number of axes 3 Sweep rate 1 octave min $^{-1}$	P
5.13.2.3	Final measurements After the conditioning the response threshold value shall be measured as described in 5.1 .5. The greater of the response threshold value measured in this test and that measured for the same specimen in the initial sensitivity test shall be designated y max or m max , and the lesser shall be designated y min or m min .	Meets vibration testing requirements	P
5.13.3	Requirements The ratio of the response threshold values y max :y min or m max :m min shall not be greater than 1 ,6.	<1 ,6	P
5.14	Electromagnetic Compatibility (EMC), immunity tests (operational) The following EMC immunity tests shall be carried out, as described in EN 501 30-4:1 995: a) mains supply voltage dips and short interruptions; b) electrostatic discharge; c) radiated electromagnetic fields; d) conducted disturbances induced by electromagnetic fields; e) fast transient bursts; f) slow high-energy voltage surges.		N/A
5.15	Fire sensitivity 5.15.1 Object To demonstrate the ability of the smoke alarm to respond to a broad spectrum of smoke types as required for general application in fire detection systems for residences.	Applicable to all types	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.15.2	Test procedure 5.15.2.1 General The fire sensitivity tests shall be conducted in a room as shown in Annex F. The specimens shall be subjected to the four test fires TF2 to TF5. The type, quantity and arrangement of the fuel and the method of combustion are described in Annexes G to J, for each test fire, along with the end of test condition and the required profile curve limits.	Complied	P
5.15.2.2	Mounting of the specimens The specimens shall be mounted in accordance with the manufacturer's instructions, such that they are in the least sensitive orientation, relative to an assumed air flow from the centre of the room to the specimen.	Refer to the manufacturer's product manual	P
5.15.2.3	Initial conditions Before each test fire the room shall be ventilated with clean air until it is free from smoke, and so that the conditions listed below can be obtained.		P
	The ventilation system shall then be switched off and all doors, windows and other openings shall be closed. The air in the room shall then be allowed to stabilize, and the following conditions shall be obtained before the test is started: Temperature $T = (23 \pm 5)$ °C[1) ; Air movement: negligible $y = 0{,}05$; $m = 0{,}02$ dB m^{-1}.	Complied	P
5.15.2.4	Recording of the fire parameters and response values During each test fire the fire parameters shown in Table 2 shall be recorded against the time from the start of the test. Each parameter shall be recorded continuously or at least once per second. **Table 2 — Fire parameters and response values** Parameter / Symbol / Units Temperature change / ΔT / °C Smoke density (ionization) / y / dimensionless Smoke density (optical) / m / dB m^{-1}	Complied	P
	The alarm signal given by the specimen shall be taken as the indication that an alarm has responded to the test fire.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The time of response of each specimen shall be recorded along with the fire parameters ΔT a , y a , and m a , at the moment of response. The response of the smoke alarm after the end of test condition has been reached shall be ignored.		P
5.15.3	Requirements All four specimens shall generate an alarm signal, in each test fire, before the specified end of test condition is reached.	Complied	P
5.16	Battery fault warning 5.16.1 Object To demonstrate that a smoke alarm will give an audible fault warning before an increase in the internal resistance or decrease in the terminal voltage of the battery prevents correct operation.		N/A
5.16.2	Test procedure 5.16.2.1 Connect the alarm as shown in Figure 1 and apply the tests described in 5.1 6.2.2 to 5.1 6.2.5.		N/A
5.16.2.2	With the series resistor R set to zero and the supply voltage V set to the rated battery voltage V R , measure the response threshold of the alarm in accordance with 5.1 .5.		N/A
5.16.2.3	With the series resistor R set to zero, decrease the supply voltage V in stages of 0,1 volts at intervals of at least 1 min, until the fault warning is given. Record the supply voltage at which the fault warning is given as V E and measure the response threshold of the alarm in accordance with 5.1 .5.		N/A
5.16.2.4	With the supply voltage V set at V R , increase the resistance of the series resistor R from zero in increments of 1 Ω at intervals of at least 1 min until the fault warning is given. Record the resistance of the series resistor at which the fault warning is given as R A and measure the response threshold of the alarm in accordance with 5.1 .5.		N/A
5.16.2.5	Repeat the procedure described in 5.1 6.2.4 with the supply voltage V set at 0,75 (V R – V E) + V E , 0,5 (V R – V E) + V E , and 0,25 (V R – V E) + V E in turn, and record the resistances of the series resistor at which the fault warning is given as R B , R c and R D , respectively.		N/A
5.16.3	Requirements The ratio of the response thresholds measured in 5.1 6.2.3, 5.1 6.2.4 or 5.1 6.2.5 to the response threshold measured in 5.1 6.2.2 shall be not less than 0,625 and not greater than 1 ,6.		N/A
5.17	Sound output 5.17.1 Object To demonstrate that the smoke alarm is capable of providing an adequate sound output.	Complied	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.17.2	Method of test At least two samples shall be tested. Units intended additionally for multiple-station interconnection shall be tested in that configuration with the maximum line resistance and maximum number of networked alarms, and the sound output measured on the smoke alarm subject to an abnormal smoke condition.		P
	The smoke alarm shall be mounted on a mounting board as described in EN 54-3. The sound level shall be measured 3 m from the smoke alarm either directly in front of the smoke alarm or at an angle specified by the manufacturer within 45° of this. A sound level meter conforming to EN 61 672-1 :2003, class 2 or better shall be used.	Sound level meter compliant with EN 61 672-1:2003 Class 2 or higher	P
5.17.3	Requirements For battery operated alarms, the sound output shall be at least 85 dB(A) at 3 m after 1 min of alarm operation and at least 82 dB(A) after 4 min of alarm operation.	>85 dB(A)	P
	For mains powered alarms, the sound output shall be at least 85 dB(A) at 3 m after 4 min of alarm operation.		P
	For both battery operated and main powered alarms, the maximum sound output shall be 1 1 0 dB(A) at 3 m after 1 min of alarm operation. The maximum nominal frequency shall not exceed 3,5 kHz.	>110dB(A)	P
5.18	Sounder durability 5.18.1 Object To demonstrate the ability of the smoke alarm's sounder to operate as intended after prolonged operation.		P
5.18.2	Test procedure Connect the specimen to its power source as described in 5.1 .2. Battery operated smoke alarms shall use a stabilized supply adjusted to the specified voltage.	Refer to the manufacturer's product manual	P
5.18.3	Requirements The specimen shall meet the sound output requirements as specified in 5.1 7.	Complied	P
5.19	Inter-connectable smoke alarms 5.19.1 Object To demonstrate correct functioning of inter-connectable smoke alarms.		N/A
	Test procedure 5.19.2.1 Connect the alarm under test with the maximum number of smoke alarms allowed in the manufacturer's instructions (see 4.1 9).		N/A
5.19.2.2	With the smoke alarms interconnected in accordance with 5.1 9.2.1 , measure the response threshold of the alarm under test in accordance with 5.1 .5.		N/A
5.19.2.3	For battery-operated smoke alarms repeat the test in 5.1 9.2.2 with the interconnecting leads short circuited.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.19.2.4	With smoke alarms interconnected in accordance with 5.1 9.2.1 , repeat the sound output test in 5.1 7 on one of the smoke alarms. During this test ensure that the other interconnected smoke alarms are sufficiently screened or distanced so that their audible alarm signals do not influence the measurement.		N/A
5.19.2.5	For battery-operated smoke alarms repeat the test in 5.1 9.2.4 with interconnecting leads short-circuited.		N/A
	Reassess the battery capacity requirements taking into account the load introduced by interconnecting the maximum permitted number of smoke alarms.		N/A
5.19.3	Requirements 5.19.3.1 All the interconnected smoke alarms shall give an audible alarm signal within 1 min when tested in accordance with 5.1 9.2.1 .		N/A
5.19.3.2	The ratio(s) of the response thresholds measured in accordance with 5.1 9.2.2 and, for battery operated smoke alarms the response thresholds measured in accordance with 5.1 9.2.3, to the response threshold measured for the same specimen in accordance with 5.4 shall be between 0,625 and 1 ,6.		N/A
5.19.3.3	The sound output shall be at least 85 dB(A) when measured in accordance with 5.1 9.2.4 and, for battery-operated smoke alarms, when measured in accordance with 5.1 9.2.5.		N/A
5.19.3.4	The assessment in 5.1 9.2.6 shall indicate that the battery capacity requirements specified in 4.1 5 can still be met.		N/A
5.20	Alarm silence facility (optional) 5.20.1 Object If means of temporarily disabling or desensitising a smoke alarm are provided the following shall apply. a) The initiation of the alarm silence period shall require the operation of a manual control on the smoke alarm. b) Operation of the alarm silence control shall desensitise the smoke alarm for at least 5 min. The sensitivity of the smoke alarm shall be restored within 1 5 min of operation of the alarm silence control. If the alarm silence period is adjustable it shall not be possible to set it to less than 5 min or to more than 1 5 min. c) Continuous operation of the alarm silence control shall not lead to the smoke alarm being desensitised for more than 1 5 min without an audible warning being given.	Refer to the manufacturer's product manual	P
5.20.2	Test requirement 5.20.2.1 Generate smoke in accordance with 5.1 .5, in the smoke tunnel specified in Annex A, with an air velocity of (0,2 ± 0,04) m s^{-1} and an air temperature of (22 ± 5) ° C, but increase the smoke density to three times the response threshold recorded for alarm number 1 6 (m 1 6 or y 1 6), when tested in accordance with 5.3.2.	25.5° C 0.2m s^{-1}	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.20.2.2	Repeat the test in 5.20.2.1 but with a supply voltage of V E , as determined in 5.1 6.2.3.		P
5.20.2.3	With the supply voltage corresponding to that of a new battery, put alarm number 1 6 into the alarm silence condition by the operation of the alarm silence control. Measure the response threshold as described in 5.1 .5 but with the smoke generation commencing (1 5 ± 0,25) min after the operation of the alarm silence control.	15min	P
5.20.2.4	Repeat the test described in 5.20.2.3 but with a supply voltage of V E , as determined in 5.1 6.2.3.		N/A
5.20.2.5	Repeat the test in 5.20.2.3 but, after operating the alarm silence control, hold the control on continuously for the remainder of the test.		N/A
5.20.3	Requirements 5.20.3.1 When tested in accordance with 5.20.2.1 and 5.20.2.2, the alarm shall not emit an alarm signal during the first 5 min after the alarm silence control is operated.	Complied	P
5.20.3.2	The ratio of the response thresholds measured in accordance with 5.20.2.3 and 5.20.2.4 to the response threshold recorded for alarm number 1 6 when tested in accordance with 5.4 shall be not less than 0,625 and not greater than 1 ,6.	Complied	P
5.20.3.3	When tested in accordance with 5.20.2.5 either: a) within 1 5 min of the initial operation of the alarm silence control the alarm shall emit an audible signal (alarm or battery fault warning) for as long as the control is held on; or b) the ratio of the response threshold measured during the test to the response threshold recorded for the same alarm when tested in accordance with 5.4 shall be not less than 0,625 and not greater than 1 ,6.	Complied	P
5.21	Variation in supply voltage 5.21.1 Object To show that, within the specified range(s) of the supply voltage, the sensitivity of the smoke alarm is not unduly dependent on these parameters.		P
5.21.2	Test procedure The response threshold value of the specimen to be tested shall be measured as described in 5.1 .5, under the extremes of the specified supply conditions (e.g. maximum and minimum voltage).		P
5.21.3	Requirements The ratio of the response threshold values y max : y min or m max : m min shall not be greater than 1 ,6. The lower response threshold value y min shall not be less than 0,2 or m min shall not be less than 0,05 dB m^{-1} .	<1 ,6 >0,05 dB m^{-1}	P
5.22	Battery reversal 5.22.1 Object To demonstrate the ability of the smoke alarm to function properly after being misconnected with respect to polarity.	Refer to the manufacturer's product manual	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.22.2	Test procedure Any user-replaceable batteries shall be fitted with reversed polarity for 1 0 s to 1 5 s, if it is possible to establish the reversed connection with the intended battery type, without causing mechanical damage to the smoke alarm.		P
5.22.3	Requirements The ratio of the response threshold values y max :y min or m max :m min shall not be greater than 1 ,6. When voltage V E minus 5 % is applied, the battery fault warning shall be given.	<1 ,6	P
5.23	Back-up power source 5.23.1 Object To demonstrate that the back-up power source is correctly monitored.	Complied	P
5.23.2	Test procedure 5.23.2.1 Low back-up The test procedure set out in 5.1 6 shall be used to simulate the depletion of the back-up power source to the point where a low back-up warning is given.		P
5.23.2.2	Open circuit The back-up power supply shall be disconnected or removed as appropriate and mains power applied to the unit.	Complied	P
5.23.2.3	Short-circuit The back-up power supply shall be disconnected and replaced with a short-circuit between the back-up terminals and the mains power applied to the unit.	Complied	P
5.23.3	Requirements When tested as described in 5.23.2.1 , a low back-up signal shall be obtained both with mains power to the unit and without mains power to the unit. When tested as described in 5.23.2.2, the smoke alarm shall give an audible warning. When tested as described in 5.23.2.3, the smoke alarm shall give an audible warning.		P
5.24	Electrical safety – assessment and testing to determine the adequacy of personal protection against hazardous currents passing through the human body (electric shock), excessive temperature and the start and spread of fire	Complied	P
5.24.1	Marking The apparatus shall be marked in accordance with EN 60065:2002, Clause 5.		P
	For class I apparatus, the following information shall be given close to the mains input terminals: "WARNING — THIS APPARATUS MUST BE EARTHED" If live parts are made accessible when a cover is removed or opened, a warning shall be displayed which is visible before the cover is removed or opened.	Refer to the manufacturer's product manual	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.24.2	Heating under normal operating conditions The apparatus shall conform to the requirements of EN 60065:2002, Clause 7.		P
5.24.3	Shock hazard under normal operating conditions The apparatus shall conform to the requirements of EN 60065:2002, Clauses 8 and 9 when mounted in any orientation on a vertical surface and when mounted on the underside of a horizontal surface.	Complied	P
5.24.4	Insulation requirements Apparatus intended to be operated from a supply greater than 34 V (peak or d.c.) shall conform to the requirements of EN 60065:2002, Clause 1 0 disregarding the test specified in 1 0.1 of that standard.	DC9V battery	P
5.24.5	Fault conditions The apparatus shall conform to the requirements of EN 60065:2002, Clause 1 1 .		N/A
5.24.6	Mechanical strength The apparatus shall conform to the requirements of EN 60065:2002, Clause 1 2 disregarding 1 2.1 .1 of that standard.	DC500V No breakdown	P
5.24.7	Clearances and creepage distances The apparatus shall conform to the requirements of EN 60065:2002, Clause 1 3.	Cr>1.2mm Cl>0.5mm	P
5.24.8	Components Resistors, capacitors, inductors and transformers, the short-circuiting or disconnecting of which would cause an infringement of the requirements for operation under fault conditions, in respect of overheating, fire or shock hazard, shall conform to the relevant requirements of EN 60065:2002, Clause 1 4.	Refer to the manufacturer's product manual	P
5.24.9	Protection against the start and spread of fire The apparatus shall conform to the requirements of EN 60065:2002, Clause 20.		P
5.24.10	Parts connected to the supply mains The apparatus shall comply with the requirements of Clause 1 3 of EN 60065:2002.		P
5.24.11	Wiring connections The apparatus shall comply with the requirements of 3.1 , 3.2, 3.3 and 3.4 of EN 60950-1 :2001 2.		P
5.24.12	Resistance to the effects of heat and fire The apparatus shall comply with the requirements of EN 60950-1 :2001 2, 4.7, 4.7.1 , 4.7.2, and 4.7.3	Plastic enclosure: 650℃, Incombustible	P
5.24.13	Definitions For definitions of terms used in the clauses of EN 60065:2002 or EN 60950-1 :2001 2 referred to above, reference shall be made to Clause 2 of EN 60065:2002 or 1 .2 of EN 60950-1 :2001 2 respectively.		P
Annex A	(normative) Smoke tunnel for response threshold value measurements		P

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Clause	Requirement + Test	Result - Remark	Verdict
Annex B	(normative) Test aerosol for response threshold value measurements		P
	A polydispersive aerosol shall be used as the test aerosol. The maximum of its particle size mass distribution shall be between 0,5 μm and 1 μm. The refractive index of the aerosol particles shall be approximately 1 ,4.	Complied	P
	The test aerosol shall be generated, reproducible and stable with regard to the following parameters: ---particle size distribution; ---optical constants of the particles; ---particle shape; ---particle structure.	Complied	P
Annex C	(normative) Smoke measuring instruments C.1 Obscuration meter C.2 Measuring ionization chamber (MIC)		N/A
	(normative) Apparatus for dazzling test		N/A
Annex E	(informative) Apparatus for impact test		N/A
Annex F	(normative) Fire test room		N/A
Annex G	(normative) Smouldering pyrolysis wood fire (TF2) G.1 Fuel G.2 Hotplate G.3 Arrangement G.4 Heating rate G.5 End of test condition G.6 Test validity criteria		N/A
Annex H	(normative) Glowing smouldering cotton fire (TF3) H.1 Fuel H.2 Arrangement H.3 Ignition H.4 End of test condition H.5 Test validity criteria		N/A
Annex I	(normative) Flaming plastics (polyurethane) fire (TF4) I.1 Fuel I.2 Arrangement I.3 Ignition I.4 End of test condition I.5 Test validity criteria		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex J	(normative) Flaming liquid (n-heptane) fire (TF5) J.1 Fuel J.2 Arrangement J.3 Ignition J.4 End of test condition J.5 Test validity criteria		N/A
Annex K	(informative) Information concerning the construction of the smoke tunnel		N/A
Annex L	(normative) Alarms suitable for installation in leisure accommodation vehicles (LAVs) L.1 Temperature cycle test L.1.1 Method of test L.1.2 Requirements		N/A
Annex M	(informative) Information concerning the construction of the measuring ionization chamber		N/A
Annex ZA	(informative) Clauses addressing the provisions of the EU Construction Products Directive (89/106/EEC) ZA.1 Scope and relevant clauses ZA.2Procedures for the attestation of conformity of smoke alarms covered by this standard ZA.2.1 System of attestation of conformity ZA.2.2 Evaluation of conformity ZA.2.2.1 General ZA.2.2.2 Type testing ZA.2.2.3 Factory production control ZA.3CE Marking and labelling and accompanying documentation		N/A

ANNEX A:

Photo-documentation

Sample Photo:

Photo 1

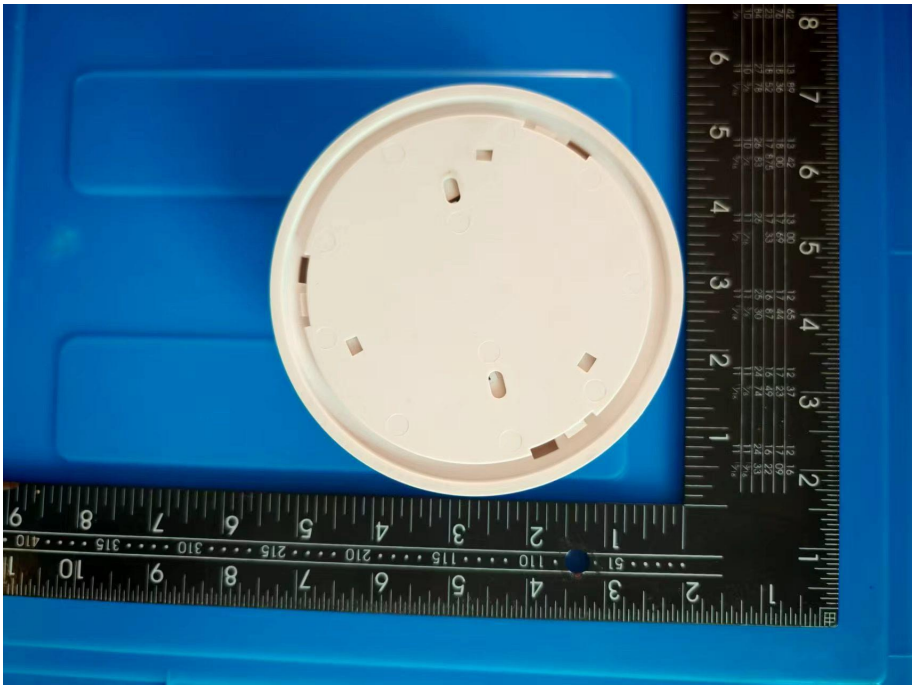

Photo 2

Photo 3

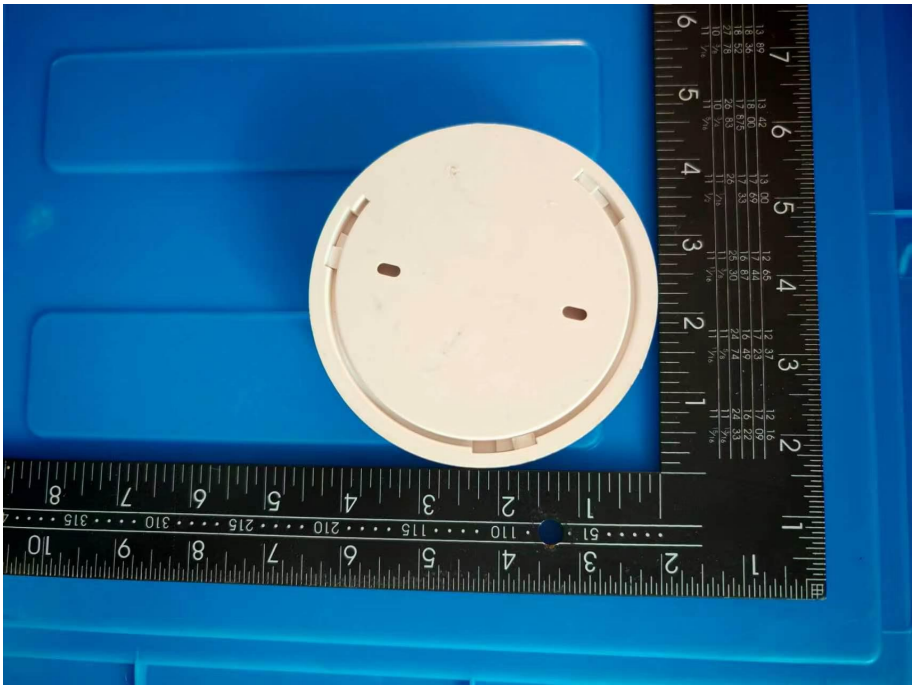

Photo 4

※※※※※END OF REPORT※※※※※