LVD TEST REPORT

EN 14604:2005

Smoke alarm devices

EN 50291-1:2018

Gas detectors - Electrical apparatus for the detection of carbon monoxide in domestic premises

Part 1: Test methods and performance requirements

For

Shenzhen Kaimingxin Technology Co., Ltd

501 Jinxing Mall, No.1 Jinxing Road, Xinmu Community, Pinghu Street, Longgang District, Shenzhen

Model: JA-999, JA-995, JA-996, JA-997, JA-998, JA-915, JA-916, JA-917, JA-918, JA-919, JA-701, JA-702, JA-703, JA-SM885, JA-SM886, JA-SM887, JA-SM888, JA-601, JA-602, JA-603, JA-SC105, JA-SC106, JA-SC107, JA-SC108, JA-501, JA-502, JA-503

2024-05-22

This Report Concerns:	**Equipment Type:**
☒ Original Report	Smoke and carbon monoxide detectors

Test Engineer:	Eric Tao/ Eric Tao
Report Number:	TH2404396-C02-R01
Test Date:	2024-05-08 to 2024-05-22
Reviewed By:	Robin Liu/ Robin Liu
Approved By:	Prince Huang/ Prince Huang
Prepared By:	**Shenzhen Tian Hai Test Technology Co.,Ltd.** 4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guan Lan street, Longhua district, Shenzhen Tel : 86-755-86615100 Fax: 86-755-86615105

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen Tian Hai Test Technology Co., Ltd.

EN 14604:2005

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Gas detectors - Electrical apparatus for the detection of carbon monoxide in domestic premises

Part 1: Test methods and performance requirements

Report		
Report reference No.	:	TH2404396-C02-R01
Tested by (+signature)	:	Eric Tao
Reviewed by (+signature)	:	Robin Liu
Approved by (+signature)	:	Prince Huang
Date of issue	:	2024-05-22
Testing laboratory		
Name	:	**Shenzhen Tian Hai Test Technology Co.,Ltd.**
Address	:	4F, A3 BLDG, The Silicon Valley Power intelligent terminal industrial park, Guan Lan street, Longhua district, Shenzhen
Test location	:	Same as above
Client		
Applicant Name	:	**Shenzhen Kaimingxin Technology Co., Ltd**
Address	:	501 Jinxing Mall, No.1 Jinxing Road, Xinmu Community, Pinghu Street, Longgang District, Shenzhen
Manufacturer	:	**Shenzhen Kaimingxin Technology Co., Ltd**
Address	:	501 Jinxing Mall, No.1 Jinxing Road, Xinmu Community, Pinghu Street, Longgang District, Shenzhen
Test specification		
Standards	:	EN 14604:2005 EN 50291-1:2018
Non-standard test method	:	N.A.
Test item		
Description	:	**Smoke and carbon monoxide detectors**
Trademark	:	/
Model and or type reference	:	JA-999, JA-995, JA-996, JA-997, JA-998, JA-915, JA-916, JA-917, JA-918, JA-919, JA-701, JA-702, JA-703, JA-SM885, JA-SM886, JA-SM887, JA-SM888, JA-601, JA-602, JA-603, JA-SC105, JA-SC106, JA-SC107, JA-SC108, JA-501, JA-502, JA-503
Rating	:	DC 4.5V,＜10uA,0.1W
Note	:	All tests on model JA-999.

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Test case verdicts	
Test case does not apply to the test object	: N (Not apply)
Test item does meet the requirement	: P(Pass)
Test item does not meet the requirement	: F(Fail)
General remarks:	
""See remark #)""refers to a remark appended to the report. ""See appended table)""refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. The test results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory.	
Attachment include: Appendix for photos	

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EN 14604:2005			
Clause	**Requirement Test**	**Result**	**Verdict**
4	**General requirements**		P
4.1	Compliance		P
	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.		P
4.2	Individual alarm indicator (optional)		P
	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.		P
4.3	Mains-on indicator		N
	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. if more than one light-emitting indicator is provided on the smoke alarm, the mains-on indicator shall be green, an alarm indicator shall be red, and a fault indicator shall be amber or yellow.		N
4.4	Connection of external ancillary devices		N
	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.		N
4.5	Means of calibration		P
	The manufacturer's means of calibration shall not be readily adjustable, on site, after manufacture.		P
4.6	User replaceable components		N
	Except for batteries or fuses, a smoke alarm shall have no user replaceable or serviceable components.		N
4.7	Normal power source		P
	The power source of the smoke alarm may be internal or external to the smoke alarm housing.	internal	P
	Where the power source is internal to the smoke alarm, the source shall meet the following requirements.		P
	The power source shall operate the smoke alarm for at least one year's life, including routine testing.		P
	A distinctive audible fault signal shall be given before the battery is incapable of operating for alarm purposes.		P
	The smoke alarm shall be capable of producing an alarm signal for at least 4 min at the battery voltage at which a fault signal is normally obtained or 30 days of fault signal operation.		P

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EN 14604:2005			
Clause	**Requirement Test**	**Result**	**Verdict**
	The internal power source shall be replaceable by the user unless its operating life in the smoke alarm is 10 years or greater.	replaceable by the user	P
4.8	Standby power source	No standby power source	N
4.8.1	General		N
	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:		N
	a)primary cell battery back-up: the back-up power supply shall be capable of meeting the requirements of 4.15		N
	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 5.17 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.		N
	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
4.8.2	Monitoring of back-up power source		N
	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.		N
4.9	Electrical safety requirements		P
	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.		P
4.10	Routine test facility		P
	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		N
	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. f terminals are provided, they shall allow the connection of conductors having nominal cross-sectiona areas of between 0.4 mm“ and 1.5 mm" Disconnection of the conductors. oiaccess to the conductors for disconnection, shall not be possible without the use of a tool. Terminals shall be designed so that they clamp the conductor between metal surfaces without rotation of those surfaces but with sufficient contact pressure and without damage to the conductor.		N

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EN 14604:2005			
Clause	**Requirement Test**	**Result**	**Verdict**
	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.		N
4.12	Smoke alarm signals		P
	In a smoke alarm which employs one or more non-fire alarm features the following operation shall be obtained:		P
	a) the smoke alarm fire alarm signal shall take precedence over any other signal even when such other signal is initiated first.		P
	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.		P
4.13	Battery removal indication		P
	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.		P
4.14	Battery connections		P
	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.		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 foi1 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		P
4.15	Battery capacity		P
	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 weekly10 s test, for at least 1 year before the battery fault warning is given. At the point when the batter)fault warning commences, the batteries shall have sufficient capacity to give an alarm signal as specified in 5.17 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.		P
	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		P

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EN 14604:2005			
Clause	**Requirement Test**	**Result**	**Verdict**
	The smoke alarm shall be so designed that a sphere of diameter (1,3 0,05) mm cannot pass into the sensor chamber(s).		P
4.17	Additional requirements for software controlled smoke alarms.		N
4.18	Inter-connectable smoke alarms		N
4.19	Marking and data		P
4.19.1	Smoke alarm marking		P
	Each alarm shall be indelibly marked with the following:		P
	a) the number and date of this document, i.e.EN 14604:2005;		P
	b) the name or trade mark and address of the manufacturer or supplier;	Shenzhen Kaimingxin Technology Co., Ltd	P
	c)the date of manufacture, or the batch number;		P
	d)the manufacturer's recommended date for replacement, subject to normal, regular maintenance.		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;		P
	f)smoke alarms incorporating non-replaceable batteries: the warning "WARNING- Battery not replaceable - See instruction manual" which shall be visible during normal use.		P
	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.		P
4.19.2	Packaging marking		P
	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
4.19.3	Data		P
	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.		P
5	**Tests**		P
5.1	General		P
5.2	Repeatable		P

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EN 14604:2005			
Clause	**Requirement Test**	**Result**	**Verdict**
	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 than0.05 dB m^{-1}.		P
5.3	Directional dependence		P
	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
	The lower response threshold value Y_{min} shall not be less than 0,2 or mmin shall not be less than0,05 dB m^{-1}.		P
5.4	Initial sensitivity		P
	The following relationships shall hold y_{max}: or m_{max}: m < 1,33 and:y_{min} or m :m_{min} < 1,5.		P
5.5	Air movement		P
5.6	Dazzling		N
5.7	Dry heat		P
	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.	<1,6	P
5.8	Cold(Operational)		P
	No alarm or fault signals shall be given during the conditioning		P
	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
5.9	Damp heat(Operational)		P
	No alarm or fault signals shall be given during the conditioning		P
	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		P
	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		P
	No alarm or fault signals shall be given during the conditioning or the additional 2 min.		P
	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
	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
5.12	Vibration(Operational)		P
	No alarm or fault signals shall be given during the conditioning. No mechanical damage, either internally or externally, shall result, The lid of the smoke alarm shall not unscrew or open.		P
	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
5.13	Vibration (endurance)		P

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EN 14604:2005			
Clause	**Requirement Test**	**Result**	**Verdict**
	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)		P
	The following EMC immunity tests shall be carried out, as described in EN 50130-4:1995.		P
5.15	Fire sensitivity		P
	All four specimens shall generate an alarm signal, in each test fire, before the specified end of test condition is reached.		P
5.16	Battery fault warning		P
	The ratio of the response thresholds shall be not less than 0,625 and not greater than 1,6.	<1,6	P
5.17	Sound output		P
	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.		P
	For mains powered alarms, the sound output shall be at least 85 dB(A) at 3 m after 4 min of alarm operation.		N
	For both battery operated and main powered alarms, the maximum sound output shall be 110 dB(A)at 3 m after 1 min of alarm operation.		N
	The maximum nominal frequency shall not exceed 3,5 kHz.		P
5.18	Sound durability		P
	The specimen shall meet the sound output requirements as specified in 5.17.		P
5.19	Inter-connectable smoke alarms		N
	All the interconnected smoke alarms shall give an audible alarm signal within 1 min when tested in accordance with 5.19.2.1.		N
	The ratios) of the response thresholds measured in accordance with 5.19.2.2 and, for battery operated smoke alarms the response thresholds measured in accordance with 5.19.2.3, to the response threshold measured for the same specimen in accordance with 5.4 shall be between 0.625and 1.6.		N
	The ratios) of the response thresholds measured in accordance with 5.19.2.2 and, for battery operated smoke alarms the response thresholds measured in accordance with 5.19.2.3, to the response threshold measured for the same specimen in accordance with 5.4 shall be between 0.625and 1.6.		N
	The assessment in 5.19.2.6 shall indicate that the battery capacity requirements specified in 4.15 can still be met.		N
5.20	Alarm silence facility (optional)		N
5.21	Variation in supply voltage		N
	The ratio of the response threshold values y_{max} : y_{min} or m_{max} : m_{min} shall not be greater than 1,6.		N
	The lower response threshold value y_{min} shall not be less than 0,2 or m_{min} shall not be less than005 dBm^{-1}.		N

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Clause	**Requirement Test**	**Result**	**Verdict**
5.22	Battery reversal		P
	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		N
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.		N

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Clause	**Requirement Test**	**Result**	**Verdict**
5	**Design requirements**		P
5.1	General requirements		P
5.1.1	Unless otherwise stated, the requirements specified are applicable to both type A and type B apparatus.	type B	P
5.1.2	The apparatus shall reliably detect the presence of carbon monoxide in domestic premises under the stated application conditions, shall produce an alarm, and in the case of type A apparatus, shall be able to initiate executive actions whenever the conditions (in terms of both level and duration) exceed pre-set alarm set points.		P
5.1.3	Apparatus which includes functionality additional to carbon monoxide detection shall perform according to the requirements of this European Standard and it is recommended that it meets the requirements of the applicable European Standard or equivalent relevant to the additional functionality.		N
5.1.4	The apparatus, electrical assemblies and components shall comply with the requirements of 5.2 to 5.14 and the performance requirements of Clause 6.		P
	For apparatus utilizing radio links, the requirements of Clause 7 shall be met.		N
	Apparatus shall be designed for continuous operation.	continuous operation	P
	The apparatus shall not be class 0 as defined in EN 60335-1:2012, 3.3.7.		P
5.1.5	Where the CO sensor is replaceable, the design of the apparatus shall be such that replacement of the sensor does not affect compliance with the requirements of this European Standard.		N
	This condition shall be verified using the information and the documentation given by the manufacturer of the apparatus.		N
5.1.6	The apparatus shall indicate end-of-life as per 5.5.4.		P
5.1.7	The apparatus shall be provided with an installation and maintenance instruction booklet or leaflet meeting the requirements of Clause 8.		P
5.1.8	The apparatus shall be designed so as to discourage unauthorised interference or adjustment.		P
5.1.9	Except for batteries and replaceable CO sensors, the apparatus shall not have any user replaceable or serviceable components.		P
5.2	Construction		P

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EN 50291-1:2018			
Clause	**Requirement Test**	**Result**	**Verdict**
	The apparatus shall comply with the appropriate requirements of EN 60335-1 as listed in Table 1. **Table 1 — Construction requirements** **Constructional requirement** / **EN 60335–1:2012 (Sub)clause** Protection against access to live parts — 8 Heating — Relevant parts of 11 Leakage current and electric strength at operating temperature — 13 Moisture resistance — 15.1 and 15.3 Leakage current and electrical strength — 16 Overload protection of transformers and associated circuits — 17 Abnormal operation — 19 Mechanical strength — 21 Construction — 22 Internal wiring — 23 Components — 24.1, 24.2 and 24.4 Supply connection and external flexible cords — 25.3 Terminals for external conductors — 26 Provision for earthing — 27 Screws and connections — 28 Clearances, creepage distances and solid insulation — 29 Resistance to heat and fire — 30 Resistance to rusting — 31		P
5.3	Visual indicators		P
5.3.1	The power supply visual indicator shall be fitted and shall be coloured green. For mains-powered apparatus the visual indicator shall be continuously illuminated. For battery powered apparatus the visual indicator shall flash at least once per minute.		P
5.3.2	The visual alarm indicator shall be fitted and shall be coloured red.		P
5.3.3	The visual fault indicator shall be fitted and shall be yellow.		P
5.3.4	The visual indicators shall be marked to show their function. Alternatively the function of the visual indicator may be marked somewhere else on the apparatus.		P
5.3.5	The visual indicators shall be visible when the apparatus is installed in its operating position according to the manufacturer's instructions.		P
5.4	Alarms		P
5.4.1	The apparatus shall have an audible alarm, see 6.3.16.		P

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<table>
<tr><th colspan="4">EN 50291-1:2018</th></tr>
<tr><th>Clause</th><th>Requirement Test</th><th>Result</th><th>Verdict</th></tr>
<tr><td>5.4.2</td><td>The visual alarm indicator and audible alarm shall operate simultaneously at the set points as listed in Table 2.
Table 2 — Alarm conditions<table><tr><th>CO concentration</th><th>Without alarm before</th><th>With alarm before</th></tr><tr><td>30 ppm</td><td>120 min</td><td>-</td></tr><tr><td>50 ppm</td><td>60 min</td><td>90 min</td></tr><tr><td>100 ppm</td><td>10 min</td><td>40 min</td></tr><tr><td>300 ppm</td><td>-</td><td>3 min</td></tr></table></td><td></td><td>P</td></tr>
<tr><td>5.4.3</td><td>An audible alarm shall have a continuous temporal pattern with no silent period greater than 6 s.</td><td><6s</td><td>P</td></tr>
<tr><td>5.4.4</td><td>The red visual indicators shall flash continuously or in sync with the temporal pattern.</td><td></td><td>P</td></tr>
<tr><td>5.4.5</td><td>Once activated, the alarm shall remain in operation until the carbon monoxide concentration has reduced to below 50 ppm, unless silenced manually by the user.</td><td></td><td>P</td></tr>
<tr><td>5.5</td><td>End-of-life</td><td></td><td>P</td></tr>
<tr><td>5.5.1</td><td>General</td><td></td><td>P</td></tr>
<tr><td></td><td>The end-of-life indicator shall be activated at a point that is determined either by prediction or inbuilt testing.</td><td></td><td>P</td></tr>
<tr><td></td><td>The manufacturer shall determine the minimum length of time, either by prediction or extended stability testing, until the application of test gas C would fail the requirements of Table 5.</td><td></td><td>P</td></tr>
<tr><td>5.5.2</td><td>Prediction of end-of-life</td><td></td><td>P</td></tr>
<tr><td></td><td>Where the apparatus utilizes the battery voltage to determine end-of-life, the manufacturer shall supply calculations of worst-case current consumption, worst-case battery capacity, typical duty-cycle, likely temperature excursions and sensor data to ensure that the operating lifetime of the battery does not exceed the lifetime of any other components including the sensor.</td><td></td><td>P</td></tr>
<tr><td></td><td>Where the apparatus utilizes the battery low voltage to determine end-of-life, the battery shall be tamperproof and it shall not be possible to remove it without the use of a tool.</td><td></td><td>P</td></tr>
<tr><td></td><td>The manufacturer shall submit to the test house, and retain evidence of, the methodology and any supporting calculations which have been used to predict the end-of-life.</td><td></td><td>P</td></tr>
<tr><td>5.5.3</td><td>Inbuilt testing of end-of-life</td><td></td><td>N</td></tr>
<tr><td></td><td>The manufacturer shall submit to the test house, and retain evidence of, the methodology and any supporting calculations which demonstrate the operation of the inbuilt testing of the end-of-life detection. This shall be a fully automated process.</td><td></td><td>N</td></tr>
<tr><td></td><td>The manufacturer shall submit to the test house, and retain evidence of, evidence that the frequency of testing is sufficient to detect the end-of-life, within 30 days of its occurrence.</td><td></td><td>N</td></tr>
<tr><td>5.5.4</td><td>End of life fault warnings</td><td></td><td>P</td></tr>
</table>

EN 50291-1:2018			
Clause	**Requirement Test**	**Result**	**Verdict**
	The end-of-life indication shall utilize either the visual fault warning or a separate end-of-life visual indicator.		P
5.6	Fault warnings		P
5.6.1	The apparatus shall provide an audible and visible fault warning within 10 min of loss of continuity or short circuit to the sensor if the sensor is replaceable or within 1 day if the sensor is non-replaceable.		P
5.6.2	The audible fault warning shall be clearly identified and different from a gas alarm.		P
5.6.3	The visual fault warning shall be as per 5.3.3.		P
5.6.4	The audible low battery warning shall be clearly identified and different from a gas alarm.		P
5.7	Alarm silence facility (optional)		P
5.7.1	The provision of a manually operated alarm silence button is optional.		P
5.7.2	The alarm silence button may be combined with the fault warning silence button (see 5.8) and the test button.		P
5.7.3	In an alarm condition the operation of the alarm silence button shall silence the audible alarm signal only. The visual alarm signal shall not be suppressed.		P
5.7.4	The audible alarm signal shall reactivate within 15 min from the time the alarm silence button is operated where the concentration of carbon monoxide surrounding the alarm remains at 50 ppm CO or greater. Continuous operation of the alarm silence facility shall not lead to the apparatus being silenced for more than 15 min without the audible alarm being reactivated.		P
5.7.5	It shall not be possible to create a silent period unless the apparatus is already in the alarm condition.		P
5.7.6	It shall not be possible to silence the alarm at concentrations above 300 ppm.		P
5.7.7	The user manual shall state that any remote silencing feature shall only be used in line of sight of the CO alarm.		P
5.8	Fault warning silence facility		P
5.8.1	The provision of a manually operated fault warning silence button is optional.		P
5.8.2	In a fault condition the operation of the fault silence button shall silence the audible fault signal only.The visual fault signal shall not be suppressed.		P
5.8.3	The audible fault warning shall reactivate within 24 h from the time the fault warning silence button is operated. Continuous operation of the fault warning silence facility shall not lead to the apparatus being silenced for more than 24 h without the audible fault warning being reactivated.		P
5.8.4	It shall not be possible to create a silent period unless it is already in the fault condition		P
5.8.5	The fault warning silence button may be combined with the alarm silence button and the test button.		P

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Clause	**Requirement Test**	**Result**	**Verdict**
5.8.6	If the fault warning silence facility is activated, it shall not inhibit the audible alarm signal.		P
5.8.7	The user manual shall state that any remote silencing feature shall only be used in line of sight of the CO alarm.		P
5.9	Transmittable output signal (applicable for type A apparatus only)		N
	The type A apparatus shall provide a transmittable output signal at each of the alarm conditions listed in Table 2.		N
	Open-circuit or short-circuit failure of the transmittable output signal shall not prevent the correct operation of the apparatus as a stand-alone alarm.		N
	The transmittable output signal shall be tested in accordance with 6.3.3.		N
5.10	Software-controlled apparatus		N
	The apparatus shall fulfil the requirements of EN 50271.		N
5.11	Labelling		P
5.11.1	All text on the apparatus shall be in accordance with national regulations.		P
5.11.2	The apparatus shall carry durable label(s) or markings carrying the following information:		P
	a) the manufacturer's or supplier's name, trademark or other means of identification;	Shenzhen Weijia security technology Co., LTD	P
	b) the name of apparatus, model number (if any) and the type of gas to be detected;	Smoke and carbon monoxide detectors	P
	c) the number of this European Standard;		P
	d) the type of apparatus, A or B;	B	P
	e) the serial number or manufacturing date code of the apparatus;		P
	f) for mains-powered apparatus the electricity supply voltage and frequency and maximum power consumption;		N
	g) for battery-powered apparatus the type and size of replacement batteries (where replaceable);		P
	h) indication of the maximum lifetime recommended for the apparatus.		P
5.11.3	The markings b) and h) shall be clearly visible with the apparatus in a typical installed position.		P

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Clause	**Requirement Test**	**Result**	**Verdict**
5.11.4	Where the sensor is replaceable, the apparatus shall carry the next replacement date of the sensor that shall be clearly visible with the apparatus in a typical installed position. This data shall be updated in the apparatus at each revision or replacement of the sensor, with the new date given by the manufacturer. If the updating procedure provides the application of a pre-printed label, this shall be supplied with the new sensor with a warning to replace the previous label attached to the apparatus with the new one: Every sensor shall be provided with a marking which allows traceability of the manufacturing and calibration information of each single sensor		P
5.11.5	The markings shall be legible and durable. The durability of the markings shall be checked by establishing that it cannot be removed when rubbed lightly with a piece of cloth soaked in petroleum spirit and then water. When symbols are used, they shall comply with EN 60335-1:2012, 7.6.		P
5.11.6	The apparatus shall carry a caution, on a label attached to the apparatus (or be marked on the apparatus), giving the following or equivalent information: CAUTION: READ THE INSTRUCTIONS CAREFULLY BEFORE OPERATING OR SERVICING.		P
5.12	Requirements for the use of batteries		P
5.12.1	Battery low voltage warning		P
	Battery-powered apparatus shall give a visual fault indicator per 5.3.3 and a coincident audible fault warning before a decrease in the performance of the battery prevents correct operation of the apparatus. This shall not inhibit the alarm condition.		P
	For a unit powered by a primary battery the low voltage warning duration shall be at least 30 days.		P
	The battery low voltage warning shall be indicated by:		P
	a) a visual fault indicator per 5.3.3, and		P
	b) an audible indicator which sounds at least once per minute coincident with the visual indicator.		P
	The battery low voltage warning audible indication shall be clearly different for the gas alarm indication.		P
5.12.2	Battery capacity		P

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Clause	**Requirement Test**	**Result**	**Verdict**
	Batteries shall be capable of supplying the quiescent load of the apparatus together with the additional load of routine testing, for a period of 12 months, or longer if specified by the apparatus manufacturer, before the battery low voltage 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 5.4 for at least 4 min in the event of CO, or in the absence of CO a battery fault warning for at least 30 days. The alarm manufacturer shall provide, to the test house, the discharge curves corresponding to the standby current of the alarm as well as accelerated discharge currents (for example 10X, 100X) for the batteries intended for use. This data and not the battery manufacturer data should be used to estimate the battery capacity.		P
5.12.3	Battery reversal		P
	The battery reversal test shall be applied to apparatus incorporating replaceable batteries if there is any possibility of the apparatus being subjected to reversed polarity of the supply during normal battery replacement.		P
5.12.4	Battery connections		P
	Where batteries are connected to a circuit board within the apparatus by flexible leads, strain relieving devices shall be fitted adjacent to both battery terminal connectors and the circuit board so that any pull on the leads shall not be transmitted to the battery terminals or circuit board.		P
5.12.5	Battery removal feature		P
	The removal of any user-replaceable battery used to power or provide back-up power, for the apparatus shall result in a visual warning that the battery has been removed. The visual warning shall not depend upon a power source.		P
5.13	Inter-connectable apparatus		N
6	**Test and performance requirements**		P
6.1	General requirements for tests		P
6.2	Normal conditions for tests		P
6.3	Test methods and performance requirements		P
6.3.1	General		P
6.3.2	CO gas test		P
	The apparatus shall respond as per Table 5 unless otherwise specified in the test. **Table 5 — Alarm conditions for test gases** Test gas reference / Without alarm before / With alarm before A / 120 min / - B / 60 min / 90 min C / 10 min / 40 min D / - / 3 min NOTE It is not expected that the apparatus will alarm with Test gas A beyond 120 min.		P

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Clause	**Requirement Test**	**Result**	**Verdict**
6.3.3	Transmittable output signal		P
	The apparatus shall provide the transmittable output signal in accordance with the manufacturer's specification.		P
6.3.4	Alarm conditions		P
	When exposed to CO - air mixtures in Table 4, the alarm shall operate according to the conditions in Table 5.Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P
6.3.5	Alarm during warm-up time		P
	The apparatus shall alarm within 15 min of being switched-on.		P
6.3.6	Response and recovery to a high CO volume ratio		P
	The apparatus shall not alarm during the initial exposure to clean air.		P
	The apparatus shall alarm within 3 min when exposed to the high CO volume ratio.		P
	After the exposure to the high CO volume ratio, the apparatus shall recover from the alarm state within 15 min, when exposed to clean air.		P
	The apparatus shall alarm according to the conditions stated in Table 5 for test gas B.		P
	After the exposure to test gas B, the apparatus shall recover from the alarm state within 6 min, when exposed to clean air.		P
6.3.7	Temperature effects		P
	When exposed to CO - air mixtures in Table 4, the alarm shall operate according to the conditions in Table 5.Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P
6.3.8	Humidity effects		P
	When exposed to CO - air mixtures in Table 4, the alarm shall operate according to the conditions in Table 5.Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P
6.3.9	Air velocity test		P
	Throughout the test, the alarm shall not operate.		P
6.3.10	Supply voltage variations (mains powered apparatus only)		P
	When exposed to test gas C in Table 4, the alarm shall operate according to the conditions in Table 5.Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P
6.3.11	Electromagnetic compatibility		P
	The apparatus shall meet the requirements of EN 50270.		P
6.3.12	Response to mixtures of carbon monoxide and other gases		P
	The apparatus shall not alarm during the initial exposure to clean air.		P
	When exposed to test gas mixture in Table 6, the alarm shall operate according to the conditions in Table 5.for test gas B. Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P

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Clause	**Requirement Test**	**Result**	**Verdict**
6.3.13	Effects of other gases		P
	The apparatus shall not alarm when exposed to the gases listed in 6.3.13.1.		P
	When exposed to test gas C in Table 4, the alarm shall operate according to the conditions in Table 5.Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P
6.3.14	Long term stability		P
	The apparatus shall not alarm when exposed to the test gas as specified in 6.2.3.		P
	When exposed to test gases A, B, C and D in Table 4, the alarm shall operate according to the conditions in Table 5. Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P
	An additional extended stability test is recommended to be carried out by the manufacturer to generate statistical data according typical lifetime for the quality management of the product.		P
6.3.15	Drop test		P
	When exposed to test gas C in Table 4, the alarm shall operate according to the conditions in Table 5.Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P
6.3.16	Alarm sound level		P
	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.		P
	For mains powered alarms, the sound output shall be at least 85 dB(A) at 3 m after 4 min of alarm operation.		N
	For both battery operated and main powered alarms, the maximum sound output shall not be higher than 110 dB(A) at 3 m after 1 min of alarm operation.		N
	The maximum nominal frequency shall not exceed 3,5 kHz.		P
6.3.17	Battery fault warning		P
	When exposed to test gas C in Table 4, the alarm shall operate according to the conditions in Table 5 for the power supply conditions in 6.3.17.1. Recovery from the alarm state shall take place within 6 min when exposed to clean air. The unit shall give a low battery warning as per 5.6.4.		P
6.3.18	Battery capacity		P
	The assessment of 6.3.18.1 shall indicate that the battery or batteries are capable of operating the apparatus for the periods specified in 5.12.2.		P
	The sound level specified in 6.3.16.2 is only required to be met at the start of the low battery voltage warning.		P
6.3.19	Battery reversal		P
	During stages a) and c) when exposed to test gas C in Table 4, the alarm shall operate according to the conditions in Table 5. Recovery from the alarm state shall take place within 6 min when exposed to clean air.		P

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Clause	**Requirement Test**	**Result**	**Verdict**
	During stage b) the power supply indicator shall not be activated.		P
	During stage d) the low battery voltage warning shall be given.		P
6.3.20	Battery connections with flexible leads only		N
	The strain relieving devices shall be effective in ensuring that strain is not imparted to the battery terminals or circuit board during the test. This shall be checked by visual inspection.		N
	No visible or electrical damage should be evident after the test.		N
6.3.21	Inter-connectable apparatus		N
	All the interconnected apparatus shall give an audible alarm signal within 1 min when tested in accordance with 6.3.21.1.1.		N
	When exposed to test gas C in Table 4, the alarm shall operate according to the conditions in Table 5. Recovery from the alarm state shall take place within 6 min when exposed to clean air.		N
	The sound output shall be at least 85 dB(A) when measured in accordance with 6.3.16.		N
	The assessment in 6.3.21.1.5 shall indicate that the battery capacity requirements specified in 5.12.2 can still be met.		N
6.3.22	Back-up power source		N
	When tested as described in 6.3.22.2.1, a low back-up signal shall be obtained both with mains power to the unit and without mains power to the unit.		N
	When tested as described in 6.3.22.2.2, the apparatus shall give an audible fault warning.		N
	When tested as described in 6.3.22.2.3, the apparatus shall give an audible fault warning.		N
6.3.23	Stability in high humidity (non- condensing) test		P
	The two apparatus shall not alarm when exposed to these conditions.		P
	When returned to normal conditions, after at least 6 h but not more than 24 h, the two apparatus shall operate when exposed to test gas C in Table 4. Recovery from the apparatus state shall take place within 6 min when exposed to clean air.		P
6.3.24	Stability to low humidity test		P
	The two apparatus shall not alarm when exposed to these conditions.		P
	When returned to normal conditions, after at least 6 h but not more than 24 h, the two apparatus shall operate when exposed to test gas C in Table 4. Recovery from the apparatus state shall take place within 6 min when exposed to clean air.		P
7	**Apparatus using radio links**		N
8	**User instructions**		P
8.1	All text in the instructions shall be in accordance with national regulations.		P

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Clause	**Requirement Test**	**Result**	**Verdict**
8.2	The instructions shall give complete, clear and accurate instructions for the installation, safe and proper operation, and regular checking of the apparatus. The advice should be in compliance with that given in EN 50292.		P
8.3	The instructions shall include at least the following information:		P
	a) for mains powered apparatus, the correct operating voltage, frequency, fuse-rating (if any) and method of connection to the mains supply system;		P
	b) for battery powered apparatus the type and size of replacement batteries, normal operating life, battery replacement instructions, and information on low battery conditions;		P
	c) guidance on siting and mounting of the apparatus and the warning that the apparatus should be installed by a competent person;		P
	d) actions to take if the apparatus alarms;		P
	e) an explanation of all visual and audible indicators, including silencing facilities, see 5.7 and 5.8, where relevant;		P
	f) a list of commonly occurring materials, vapours or gases, e.g. in cleaning fluids, polishes, paints, cooking operations, etc., which may affect the reliability of the apparatus in the short or long term;		P
	g) warning of the risk of electric shock or malfunction if the apparatus is tampered with;		P
	h) instructions on the use of any relevant test procedure supplied with the apparatus;		P
	i) the expected lifetime of the apparatus;		P
	j) for type A apparatus, instructions on the use and characteristics of the transmittable output signal;		N
	k) a note stating the working ranges of both temperature and humidity;		P
	l) the alarm conditions;		P
	m) a description of the effects of carbon monoxide on the human body, stating that the apparatus may not prevent the chronic effects of carbon monoxide exposure, and that the apparatus will not fully safeguard individuals at special risk;		P
	n) warning that installation of the apparatus should not be used as a substitute for proper installation, use and maintenance of fuel burning appliances including appropriate ventilation and exhaust systems;		P
	o) In the case of apparatus using radio links, the manufacturer shall specify the frequency band or bands used;		P
	p) the user manual shall state that any remote silencing feature shall only be used in line of sight of the CO alarm.		P
8.4	Information for carbon monoxide alarms provided with an alarm silence facility shall include a warning that if there is any question as to the cause of an alarm it should be assumed that the alarm is due to dangerous levels of carbon monoxide and the dwelling should be evacuated.		P
9	**Packaging**		P

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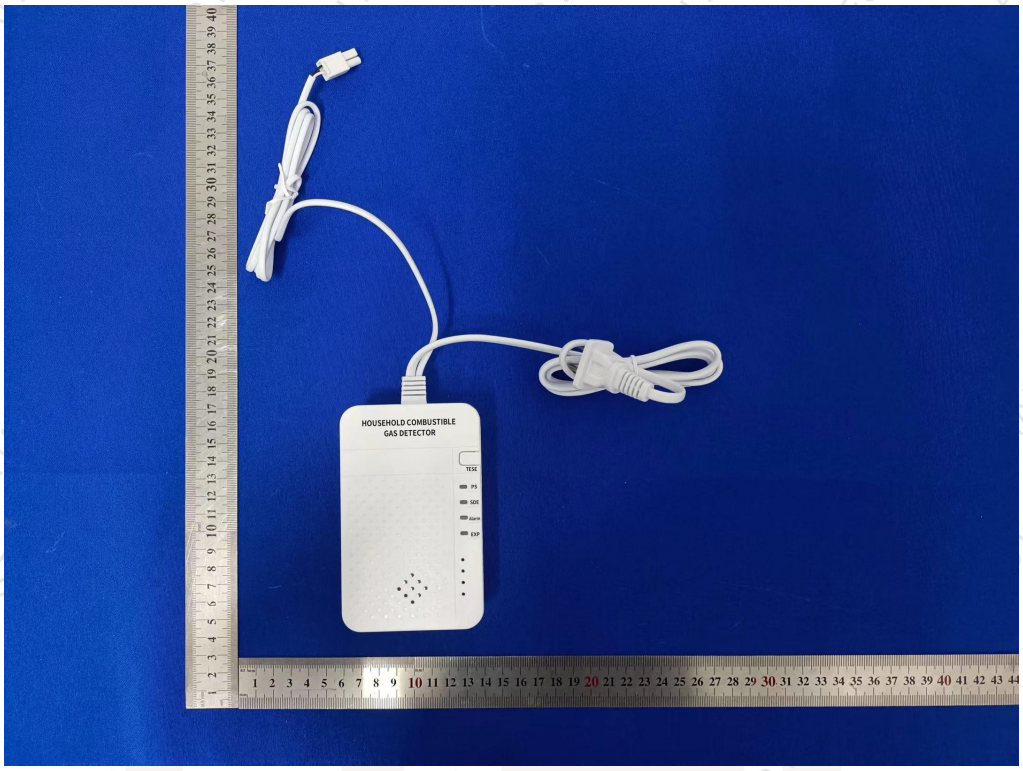
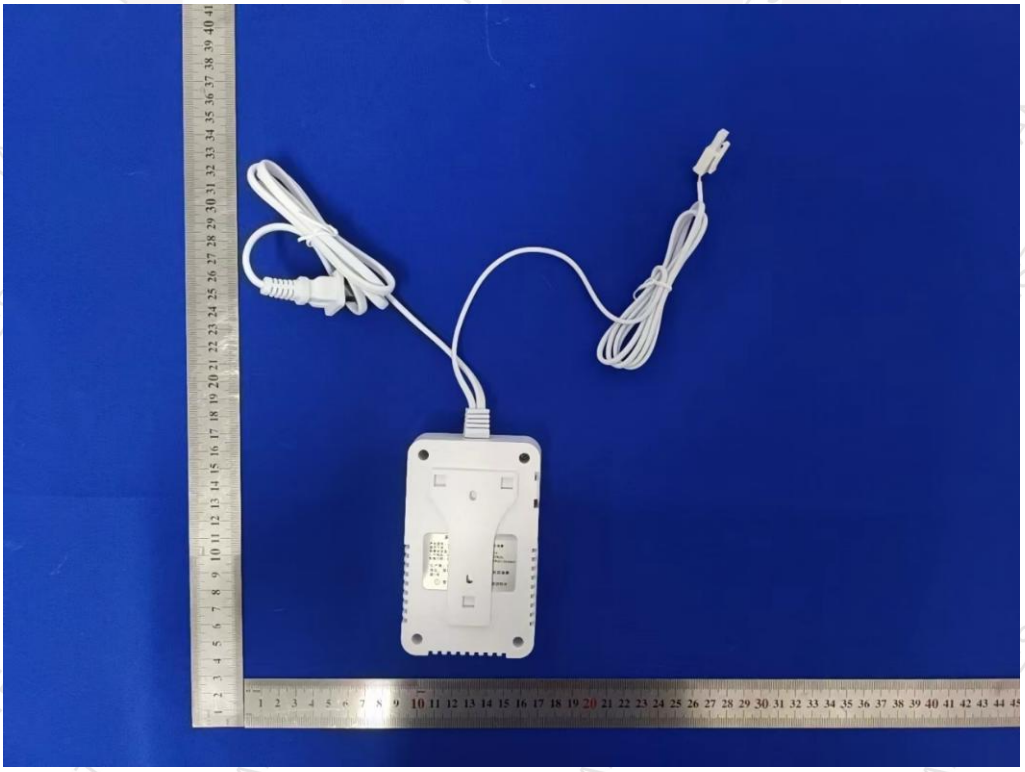
Clause	**Requirement Test**	**Result**	**Verdict**
9.1	All text on the packaging shall be in accordance with national regulations.		P
9.2	The apparatus packaging shall display:		P
	a) a warning that the apparatus should be installed by a competent person,		P
	b) the relevant information regarding storage and transport, and		P
	c) the expected lifetime of the sensor if it could be affected by storage time and if different to the lifetime of the apparatus.		P
9.3	The package shall clearly display the following message: This apparatus is designed to protect individuals from the acute effects of carbon monoxide exposure. It will not fully safeguard individuals with specific medical conditions. If in doubt consult a medical practitioner.		P

Appendix for photos

External Photos of EUT

JA-501





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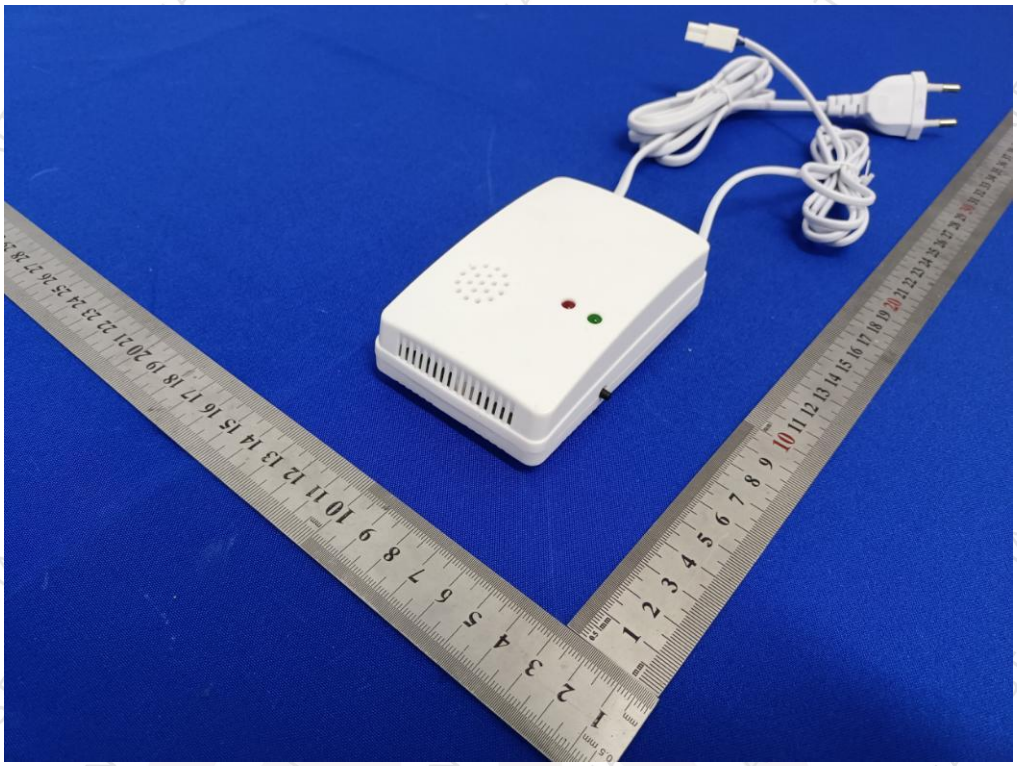
JA-502



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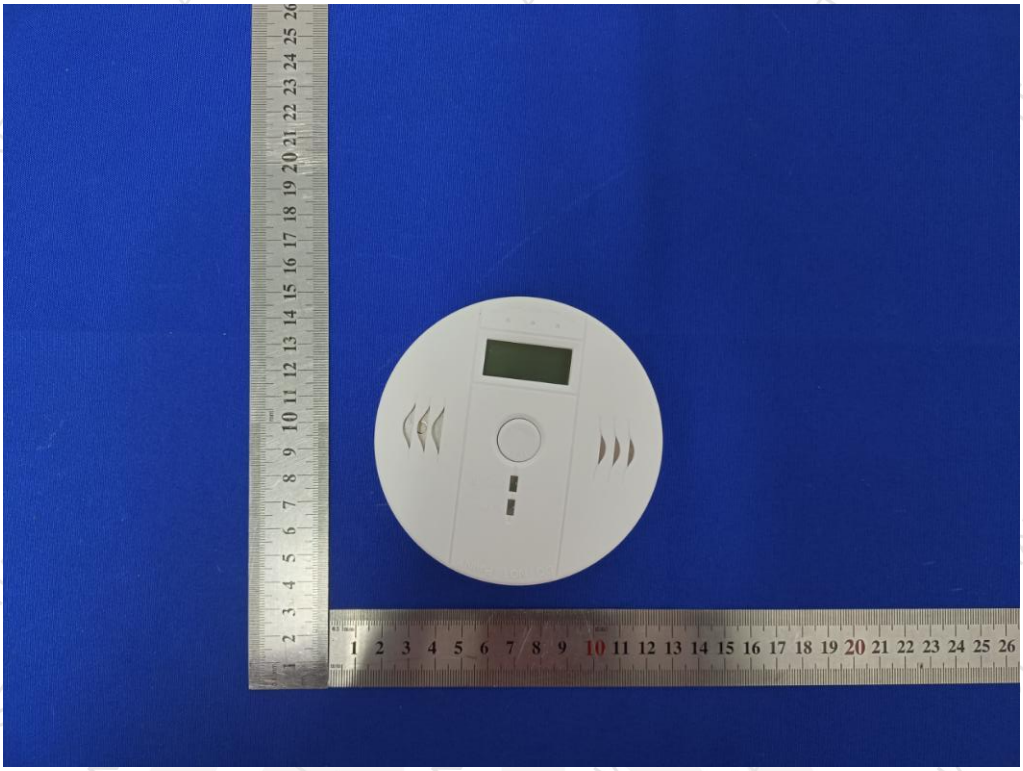
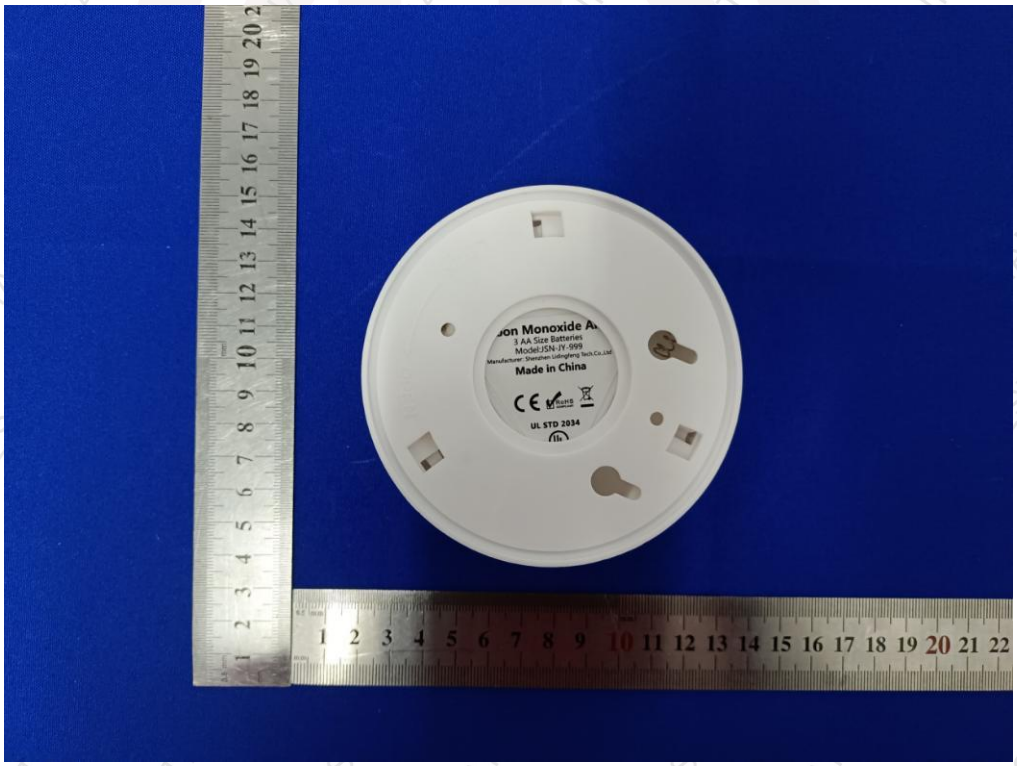
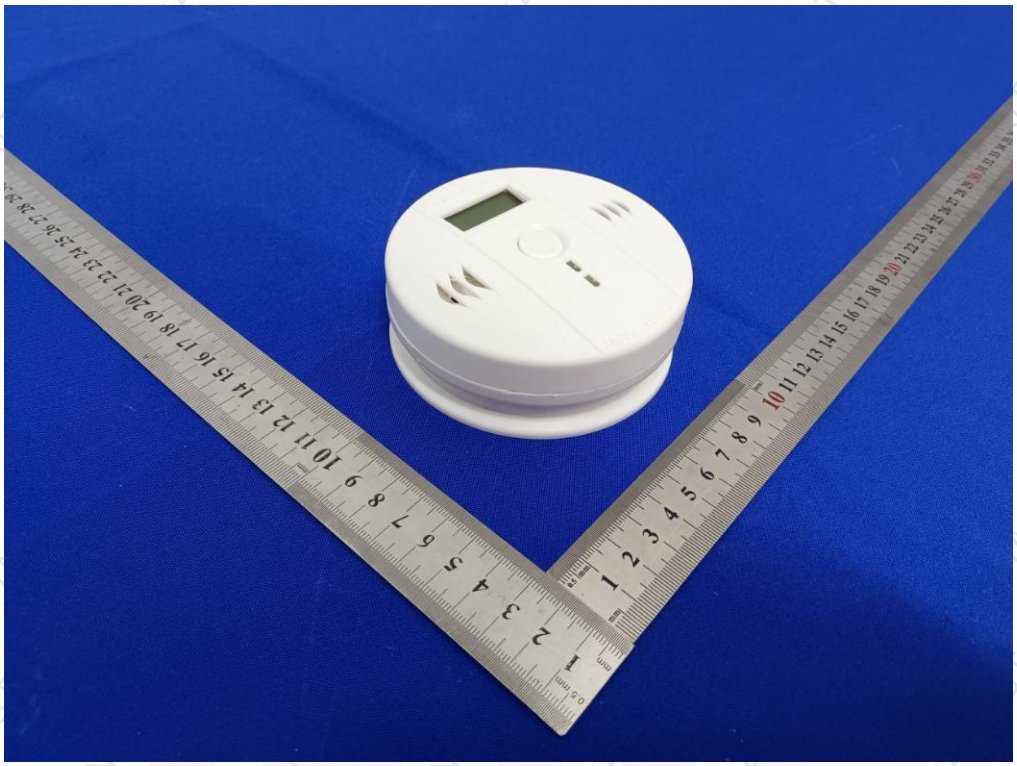
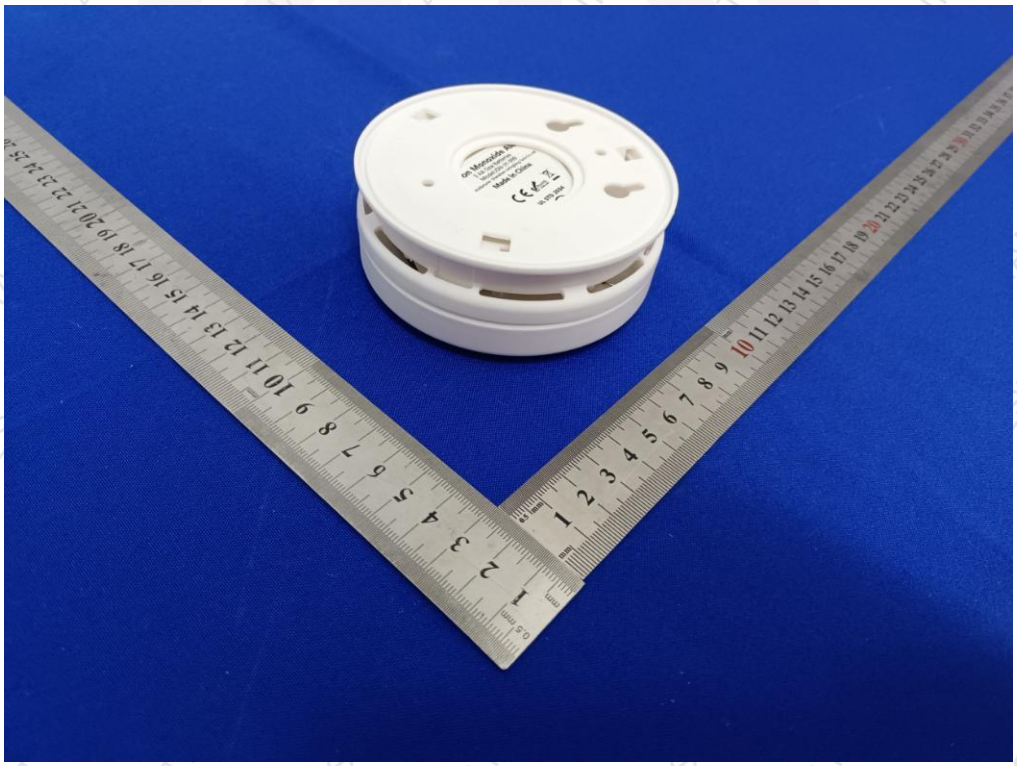
JA-999









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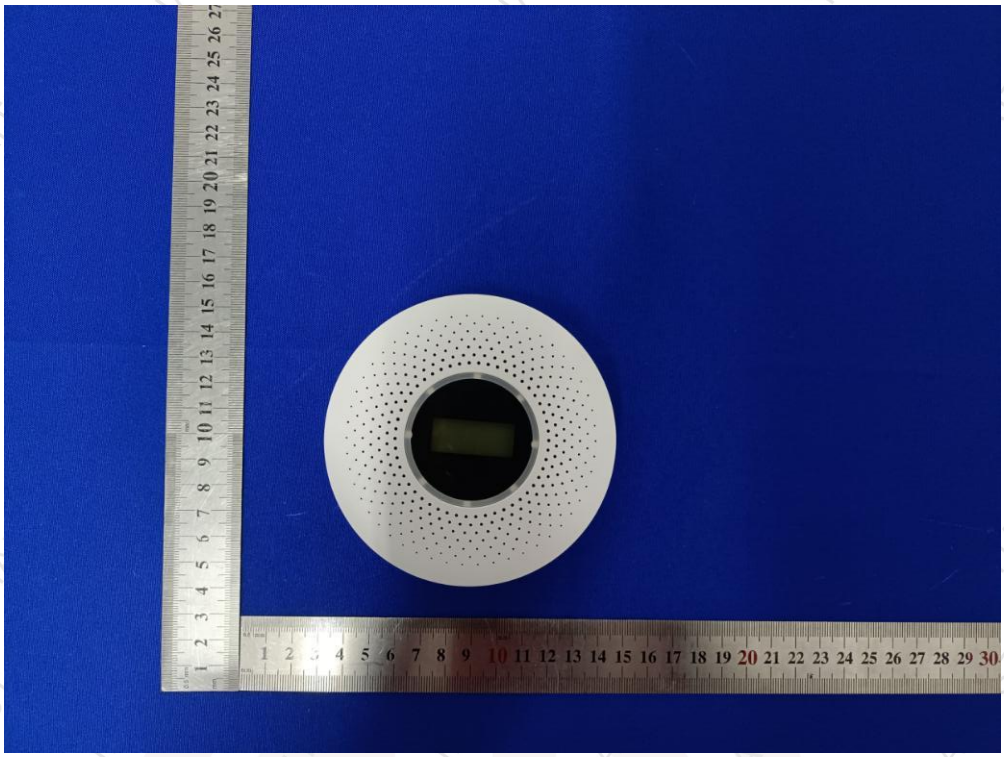
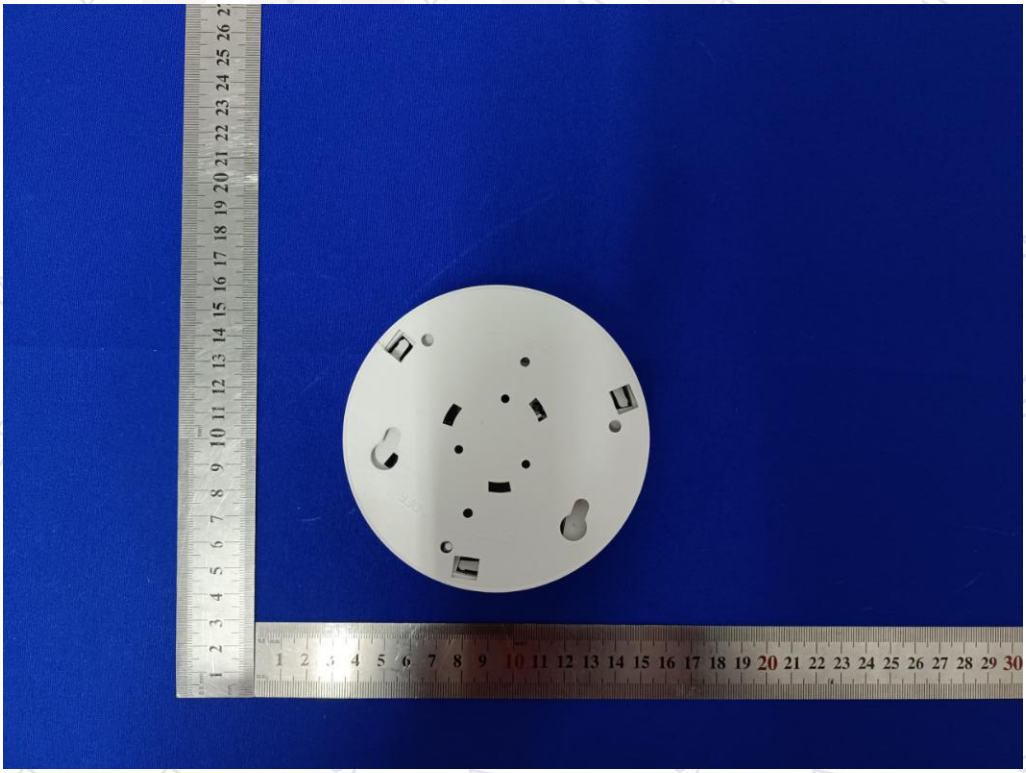
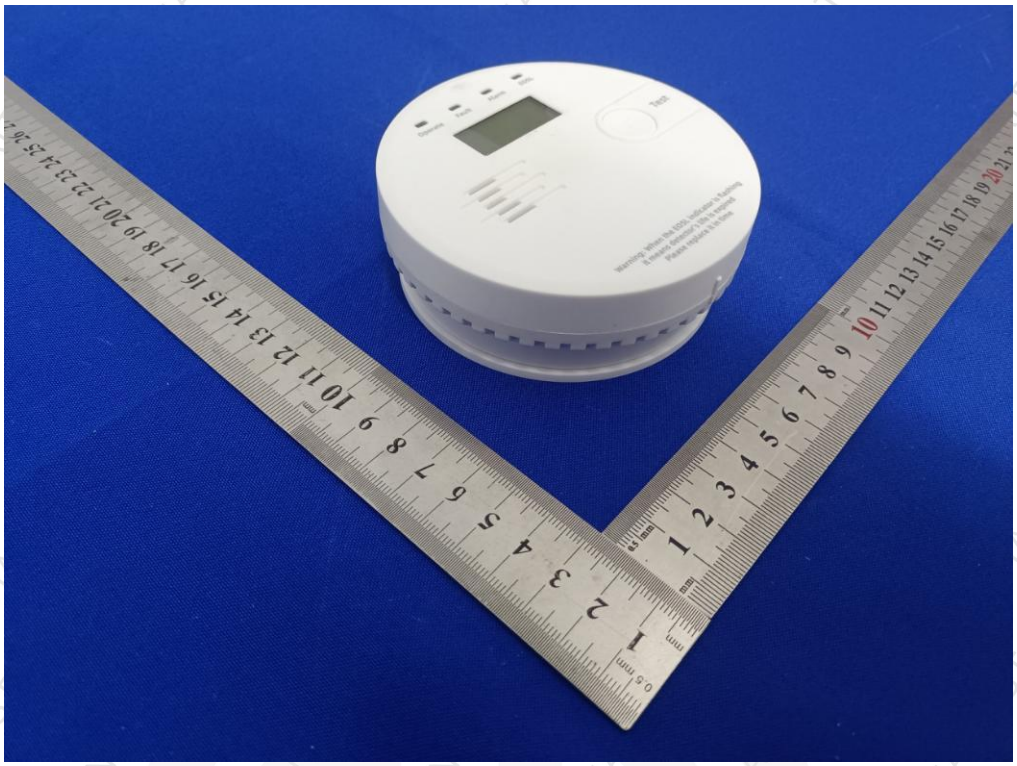
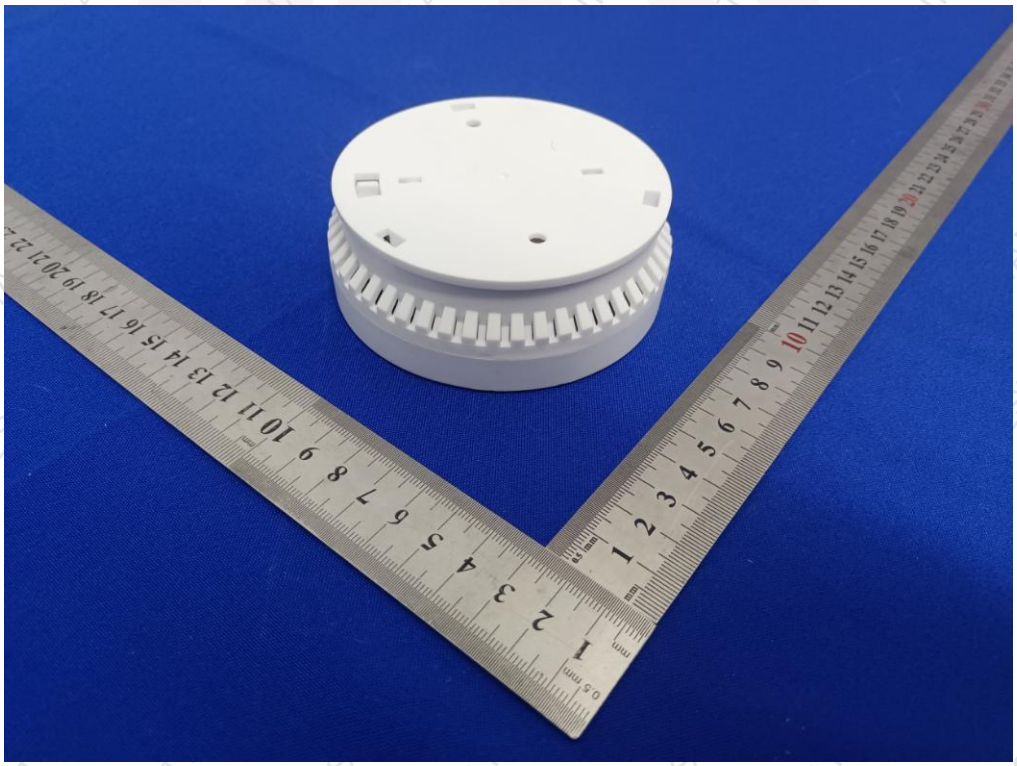




JA-701





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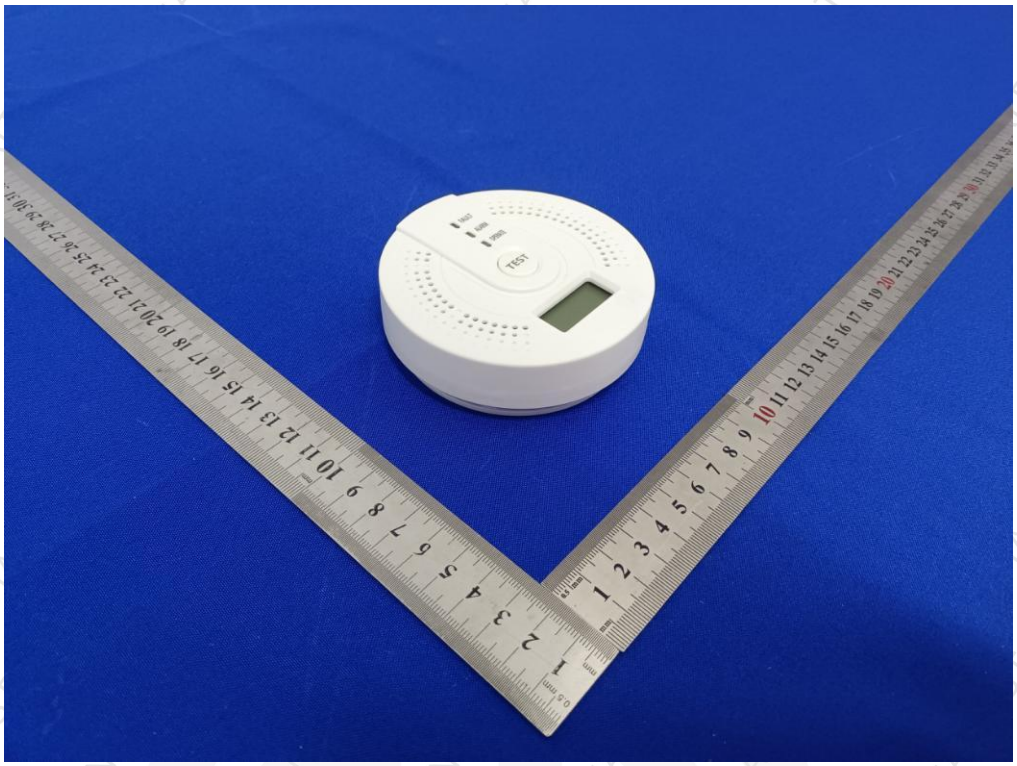

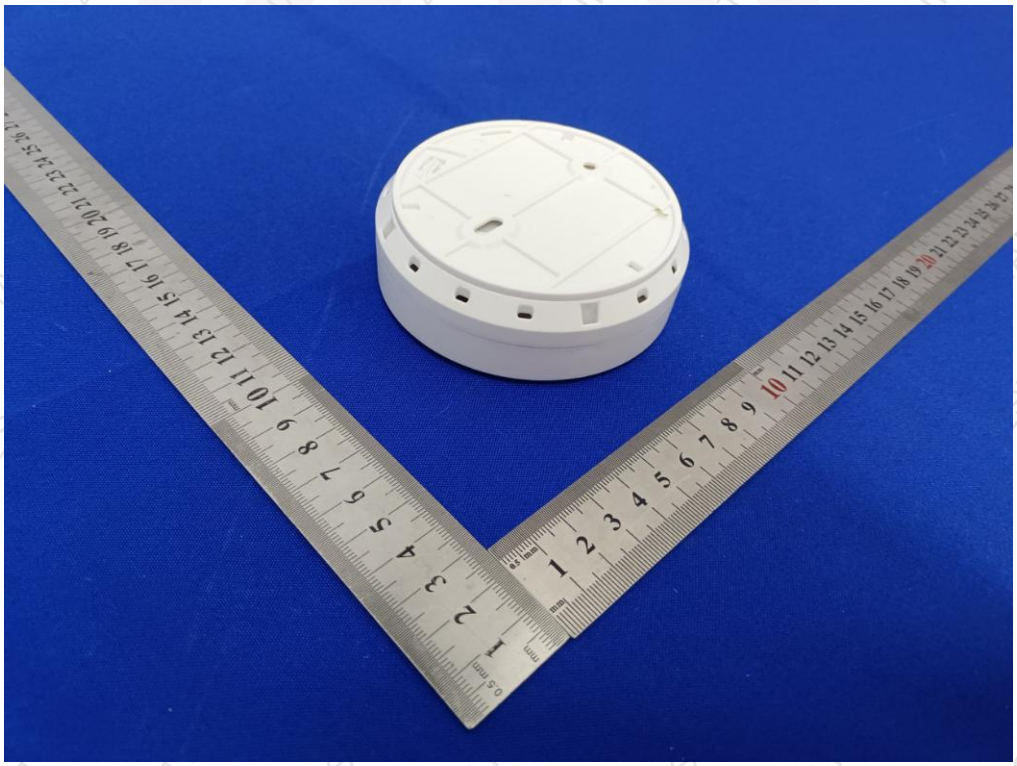

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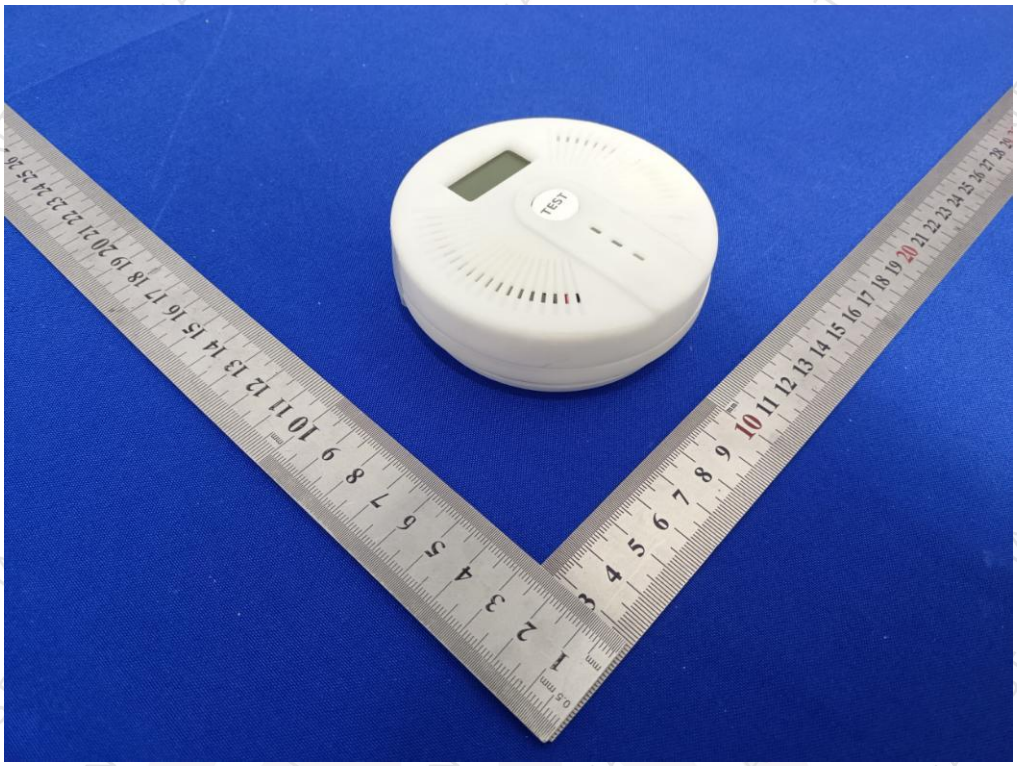
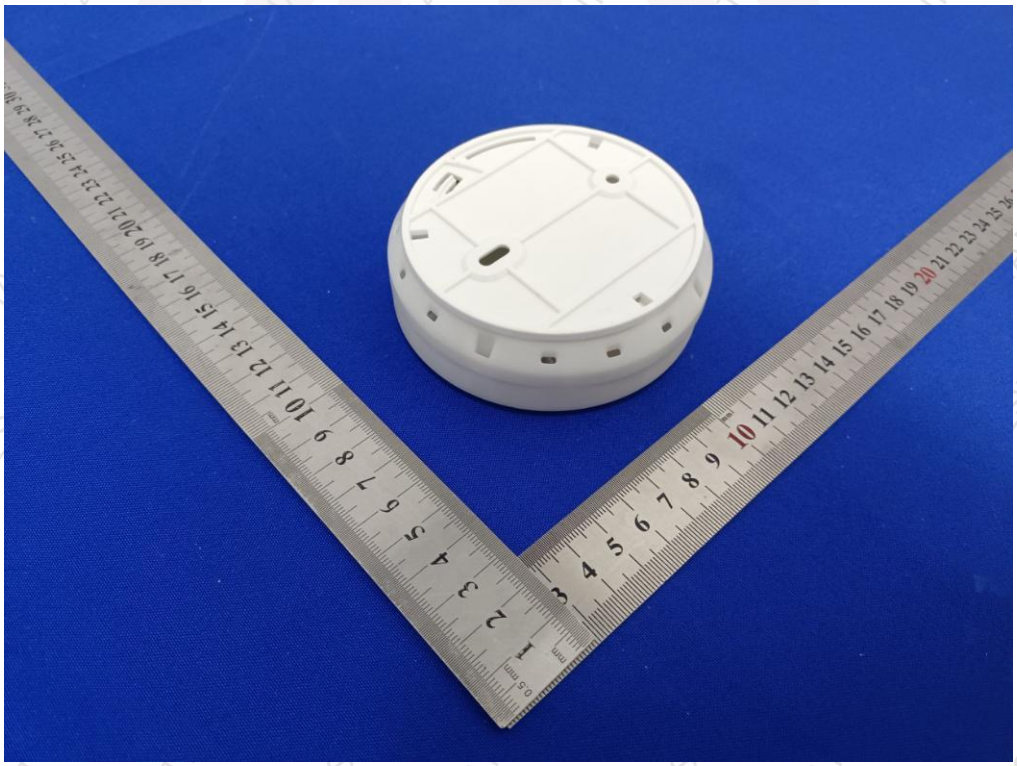
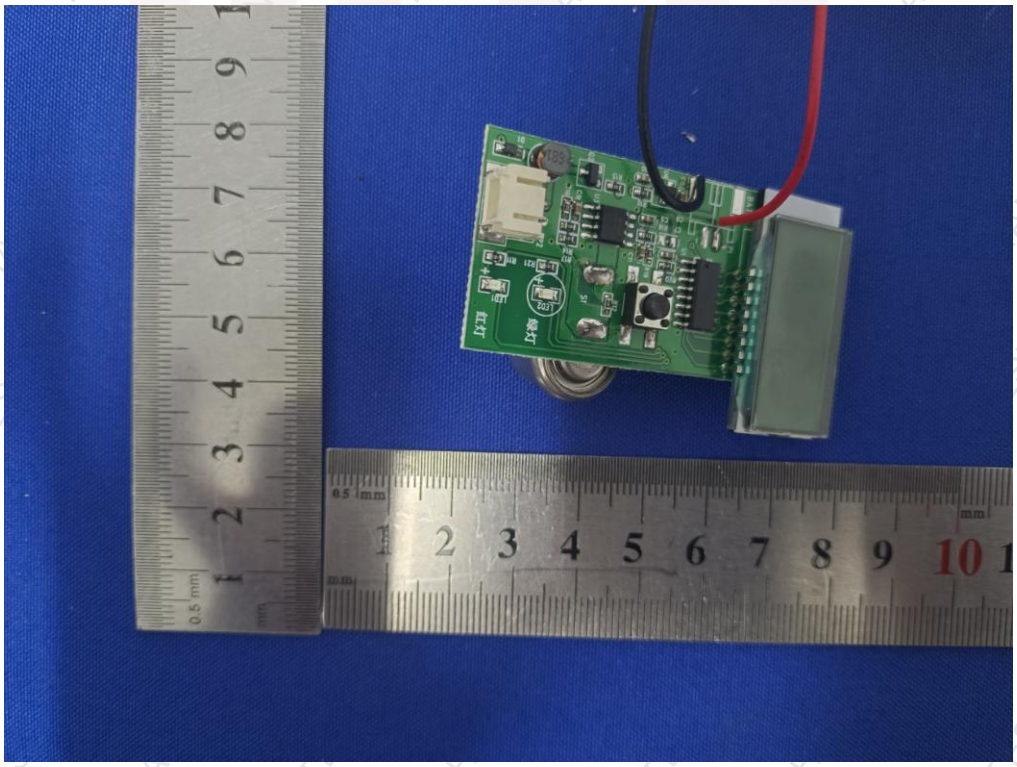
JA-996

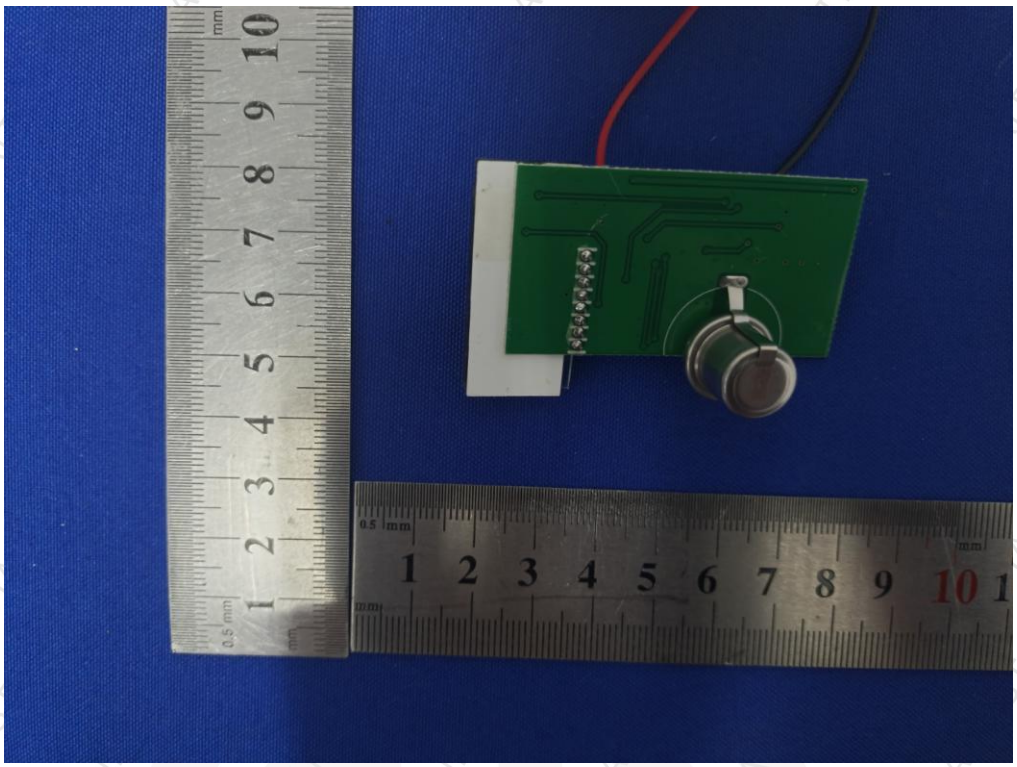




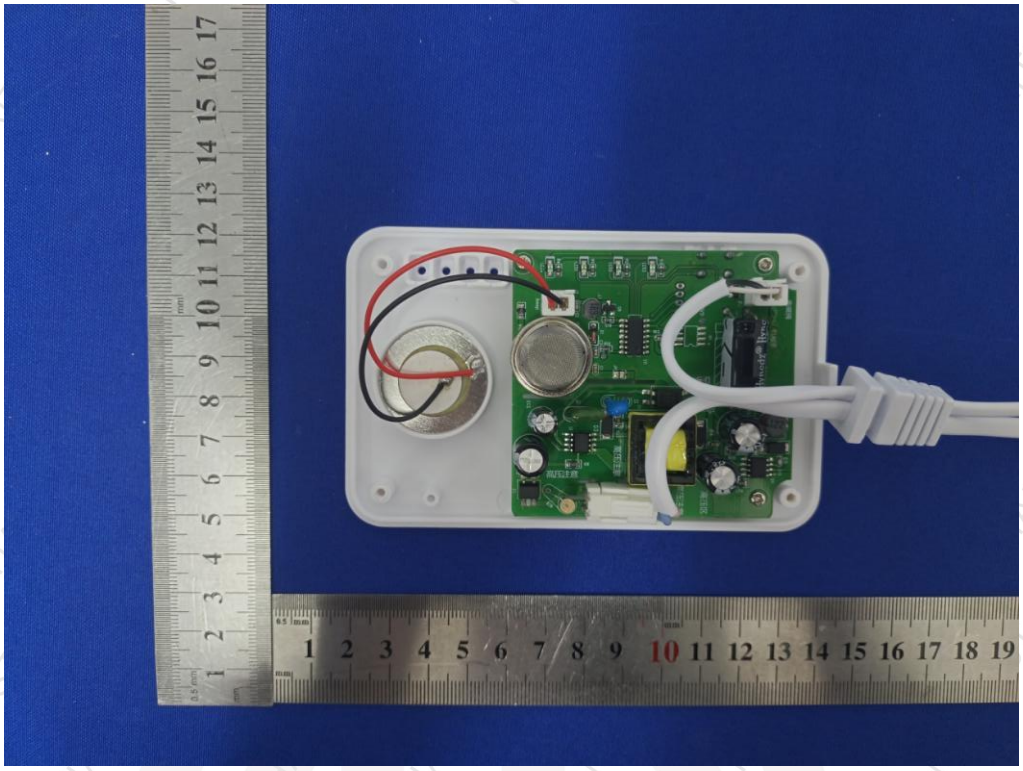
Internal Photos of EUT

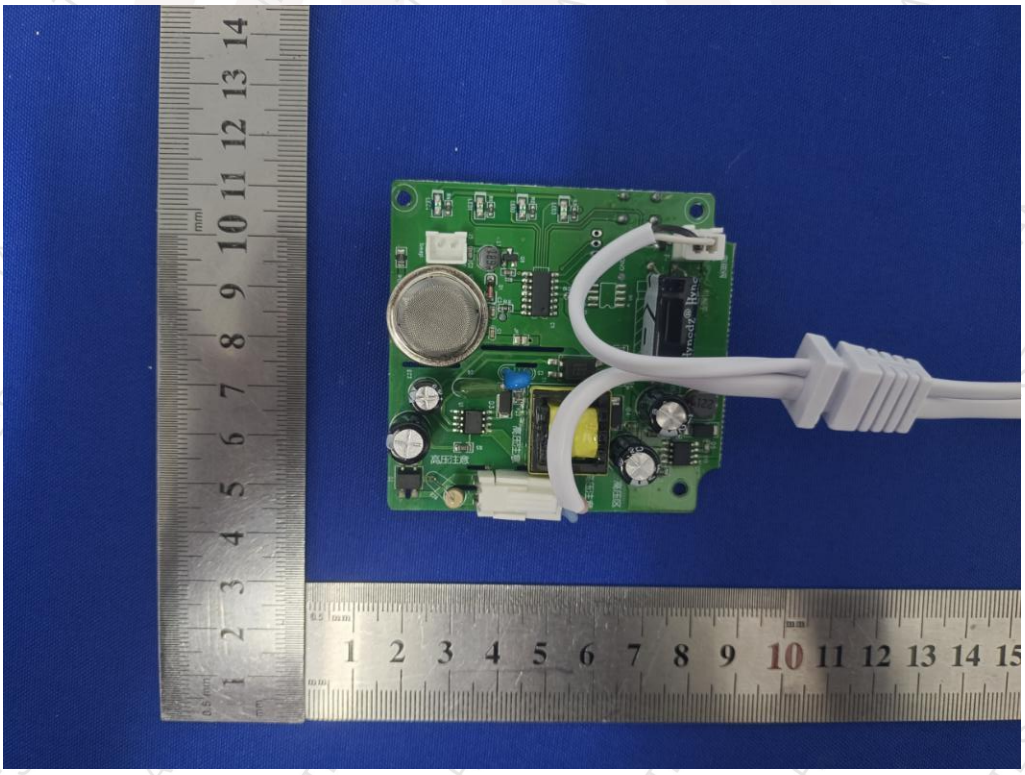
JA-996

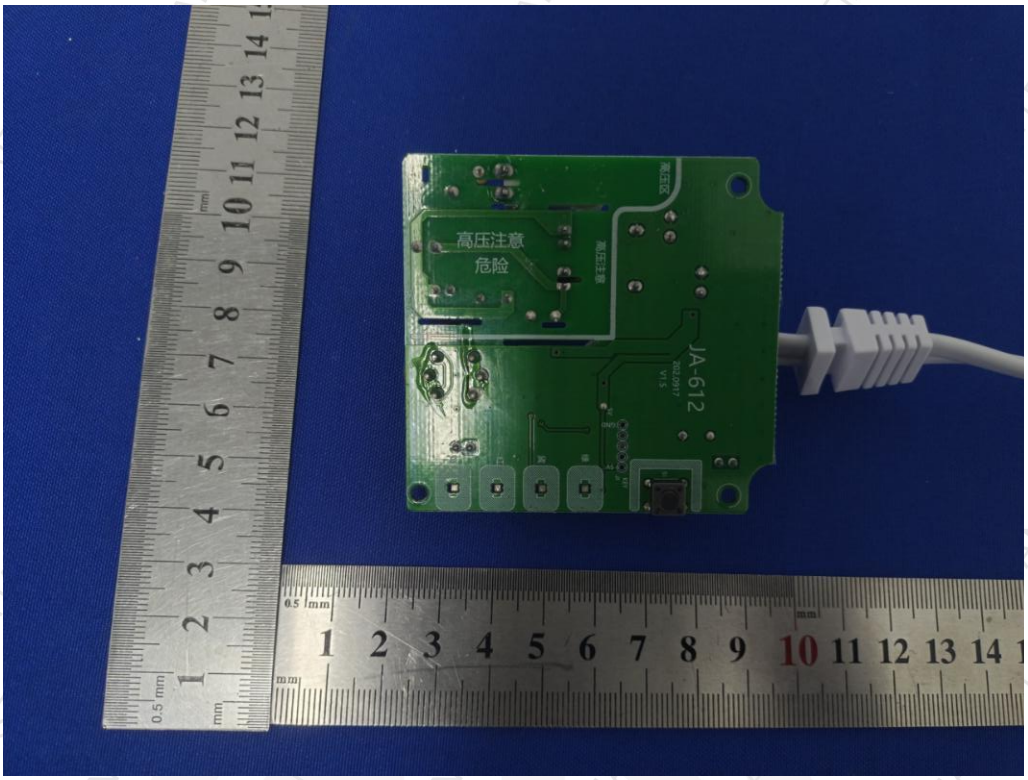




JA-502







******** END OF THE REPORT ********