# TEST REPORT

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| Prepared For: | Mid Ocean Brands B.V.<br>Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong. |
| Manufacturer: | Mid Ocean Brands B.V.<br>Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong. |
| Product Name: | Wireless Speaker |
| Trade Name: | / |
| Main Test Model: | MO2728 |
| Additional Model: | / |
| Prepared By : | Dongguan True Safety Testing Co., Ltd.<br>Room 201, No.20, East of Houjie Avenue, Houjie, Dongguan, Guangdong, China |
| Test Date: | Jul. 02, 2025 To Jul. 07, 2025 |
| Date of Report : | Jul. 07, 2025 |
| Report No.: | TST20250700523SR |

| IP CODE Report<br>IEC 60529<br>Degrees of protection<br>provided by enclosures | |
|---|---|
| Testing Laboratory Name ..... | Dongguan True Safety Testing Co., Ltd. |
| Address ..... | Room 201, No.20, East of Houjie Avenue, Houjie, Dongguan, Guangdong, China |
| Testing location ..... | Dongguan True Safety Testing Co., Ltd. |
| Applicant's Name ..... | Mid Ocean Brands B.V. |
| Address ..... | Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong. |
| Manufacturer …… …… | Mid Ocean Brands B.V. |
| Address …… …… | Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong. |
| Test specification | |
| Standard..... | IEC 60529:1989+A1:1999+A2:2013 |
| Procedure deviation ..... | IPX4 |
| Non-standard test method ..... | N.A |
| Test item description ..... | Wireless Speaker |
| Trade Name | / |
| Model and/or type reference ..... | MO2728 |
| Test case verdicts | |
| 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 IEC 60529

Throughout this report a comma is used as the decimal separator.

Prepared by : Sgan

Test Engineer

Reviewer : CS chan

Supervisor

Approved & Authorized Signer : Andy

Andy / Manager

Dongguan True Safety Testing Co., Ltd. Approve

| IEC 60529 | | | |
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| Cl. | Requirement – Test | Result | Verdict |
| **5** | **Degrees of protection against access to hazardous parts and against solid foreign objects indicated by the first characteristic numeral** | | N/A |
| | The designation with a first characteristic numeral implies that conditions stated in both 5.1 and 5.2 are met. | | N/A |
| | - the enclosure provides protection of persons against access to hazardous parts by preventing or limiting the ingress of a part of the human body or an object held by a person; and simultaneously | | N/A |
| | - the enclosure provides protection of equipment against the ingress of solid foreign objects. | | N/A |
| | the tests establishing compliance with any one of the lower degrees of protection need not necessarily be carried out provided that these tests would obviously be met if applied. | | N/A |
| 5.1 | Protection against access to hazardous parts | | N/A |
| 5.2 | Protection against access solid foreign objects | | N/A |
| | First characteristic numeral is 0 Non-protected | | N/A |
| | First characteristic numeral is 1<br>Brief description: Protected against solid foreign objects of 50 mm Φ and greater<br>Definition: The object probe, sphere of 50 mm Φ, shall not fully penetrate | | N/A |
| | First characteristic numeral is 2<br>Brief description: Protected against solid foreign objects of 12.5 mm Φ and greater<br>Definition: The object probe, sphere of 12.5 mm Φ, shall not fully penetrate | | N/A |
| | First characteristic numeral is 3<br>Brief description: Protected against solid foreign objects of 2.5 mm Φ and greater<br>Definition: The object probe, sphere of 2.5 mm Φ, shall not penetrate at all | | N/A |
| | First characteristic numeral is 4<br>Brief description: Protected against solid foreign objects of 1.0 mm Φ and greater<br>Definition: The object probe of 1.0 mm Φ, shall not penetrate at all | | N/A |
| | First characteristic numeral is 5<br>Brief description: Dust-protected<br>Definition: Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety | | N/A |
| | First characteristic numeral is 6<br>Brief description: Dust-tight<br>Definition: No ingress of dust | | N/A |

| IEC 60529 | | | |
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| Cl. | Requirement – Test | Result | Verdict |
| **6** | **Degrees of protetion against ingress of water indicated by the second characteristic numeral** | | P |
| | The second characteristic numeral indicates the degree of protection provided by enclosures with respect to harmful effects on the equipment due to the ingress of water. | | P |
| | The tests for the second characteristic numeral are carried out with fresh water. The actual protection may not be satisfactory if cleaning operations with high pressure and/or solvents are used. | | P |
| | Second characteristic numeral is 0<br>Non-protected | | N/A |
| | Second characteristic numeral is 1<br>Brief description: Protected against vertically falling water drops<br>Definition: Vertically falling drops shall have no harmful effects | | N/A |
| | Second characteristic numeral is 2<br>Brief description: Protected against vertically falling water drops when enclosure tilted up to 15°<br>Definition: Vertically falling drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical | | N/A |
| | Second characteristic numeral is 3<br>Brief description:Protected against spraying water<br>Definition: Water sprayed at an angle up to 60° on either side of the vertical shall have no harmful effects | | N/A |
| | Second characteristic numeral is 4<br>Brief description: Protected against splashing water<br>Definition: Water splashed against the enclosure from any direction shall have no harmful effects | IPX4 | P |
| | Second characteristic numeral is 5<br>Brief description: Protected against water jets<br>Definition: Water projected in jets against the enclosure from any direction shall have no harmful effects | | N/A |
| | Second characteristic numeral is 6<br>Brief description: Protected against powerful water jets<br>Definition: Water projected in powerful jets against the enclosure from any direction shall have no harmful effects | | N/A |
| | Second characteristic numeral is 7<br>Brief description: Protected against the effects of temporary immersion in water<br>Definition: Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardized conditions of pressure and time | | N/A |
| | Second characteristic numeral is 8<br>Brief description: Protected against the effects of temporary immersion in water<br>Definition: ingress of water in quantities causing harmful effects shall not be possible when the enclosure | | N/A |

| IEC 60529 | | | |
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| Cl. | Requirement – Test | Result | Verdict |
| | is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for numeral 7 | | |
| **10** | **Marking** | | P |
| | The requirements for marking shall be specified in the relevant product standard.<br>Where appropriate, such a standard should also specify the method of marking which is to be used when<br>- one part of an enclosure has a different degree of protection to that of another part of the same enclosure;<br>- the mounting position has an influence on the degree of protection;<br>-the maximum immersion depth and time are indicated. | | P |
| **11** | **General requirements for tests** | | **P** |
| 11.1 | Atmospheric conditions for water or dust<br>Tests:<br>Temperature range: 15℃ to 35 ℃<br>Relative humidity: 25% to 75%<br>Air pressure: 86 kPa to 106 kPa<br>(860 mbar to 1 060 mbar). | | P |
| 11.2 | Test samples<br>The tests specified in this standard are type tests. | | P |
| **12** | **Tests for protection against access to hazardous parts indicated by the first characteristic numeral** | | N/A |
| 12.1 | Access probes<br>Access probes to test the protection of persons against access to hazardous parts | | N/A |
| 12.2 | Test conditions<br>For tests on low-voltage equipment, a low-voltage supply (of not less than 40 V and not more than 50 V) in series with a suitable lamp should be connected between the probe and the hazardous parts inside the enclosure. Hazardous live parts covered only with varnish or paint, or protected by oxidation or by a similar process, are covered by a metal foil electrically connected to those parts which are normally live in operation. The signal-circuit method should also be applied to the hazardous moving parts of high-voltage equipment. Internal moving parts may be operated slowly, where this is possible. | | N/A |
| 12.3 | Acceptance conditions<br>The protection is satisfactory if adequate clearance is kept between the access probe and hazardous parts. | | N/A |
| 12.3.1 | For low-voltage equipment (rated voltages not | | N/A |

| IEC 60529 | | | |
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| Cl. | Requirement – Test | Result | Verdict |
| | exceeding 1 000 V a.c. and I 500 V d.c.)<br>The access probe shall not touch hazardous live parts. | | |
| 12.3.2 | For high-voltage equipment (rated voltages exceeding 1 000 V a.c. and 1 500 V d.c.)<br>When the access probe is placed in the most unfavourable position(s), the equipment shall be capable of withstanding the dielectric tests as specified in the relevant product standard applicable to the equipment. | | N/A |
| 12.3.3 | For equipment with hazardous mechanical parts:<br>The access probe shall not touch hazardous mechanical parts. | | N/A |
| **13** | **Tests for protection against solid foreign objects indicated by the first characteristic numeral** | | N/A |
| 13.1&<br>13.2 | Test means & Test conditions<br>Test means and the main test conditions are given | | N/A |
| | For the first characteristic numeral 0: No test required | | N/A |
| | For the first characteristic numeral 1: Rigid sphere without handle or guard $50^{+0.05}$ mm diameter 50N± 10% | | N/A |
| | For the first characteristic numeral 2: Rigid sphere without handle or guard $12.5^{+0.2}$ mm diameter 30N± 10% | | N/A |
| | For the first characteristic numeral 3: Rigid steel rod $2.5^{+0.05}$ mm diameter with edges free from burrs 3N± 10% | | N/A |
| | For the first characteristic numeral 4: Rigid steel rod $1.0^{+0.05}$ mm diameter with edges free from burrs 1N± 10% | | N/A |
| | For the first characteristic numeral 5: Dust chamber figure 2, with or without under pressure | | N/A |
| | For the first characteristic numeral 6: Dust chamber figure 2, with under Pressure | | N/A |
| 13.3 | Acceptance conditions for first characteristic numerals 1,2,3,4<br>The protection is satisfactory if the full diameter of the probe specified in Table VII does not pass through any opening. | | N/A |
| 13.4 | Dust test for first characteristic numerals 5 and 6<br>The test is made using a dust chamber incorporating the basic principles shown in figure 2 whereby the powder circulation pump may be replaced by other means suitable to maintain the talcum powder in suspension in a closed test chamber.the talcum powder used shall be able to pass through a square-meshed sleeve the nominal wire diameter of which is 50 um and the nominal width of a gap between wires 75um.the amount of talcum powder to be used is 2 kg per cubic metre of the test chamber volume. It shall not have been used for | | N/A |

| IEC 60529 | | | |
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| Cl. | Requirement – Test | Result | Verdict |
| | more than 20 tests. | | |
| 14 | **Tests for protection against water indicated by the second characteristic numeral** | | P |
| 14.1 & 14.2 | Test means & Test conditions<br>Test means and the main test conditions are given | | P |
| | For the first characteristic numeral 0: No test required | | N/A |
| | For the second characteristic numeral 1: To test for compliance with IPX1, the sample is rotated on the turntable at 1 rpm and 100 mm eccentricity (the distance between the turntable's axis and the test sample's central axis) under water dripping at a rate of 1 mm/min for 10 minutes. | | N/A |
| | For the second characteristic numeral 2: For IPX2 testing, the sample is tilted at15° under water dripping at a rate of 3 mm/min for a total of 10 minutes, 2.5 minutes in each of four positions of tilt. | | N/A |
| | For the second characteristic numeral 3: For IPX3, the sample is positioned under oscillating spray tubes rotating at ±60° from the vertical for 5 minutes. The oscillation rate is two cycles of 120° in 4 seconds.The flow rate depends upon the sample size, which in turn is dependent upon the sample size. Each surface of the enclosure within the spray arch is to be tested for 1 min/m2 | | N/A |
| | For the second characteristic numeral 4: For IPX4, the sample is positioned under oscillating spray tubes rotating at nearly±180° from the vertical for 10 minutes. The oscillation rate is two cycles of about 360° in 12 seconds. Each surface of the enclosure within the spray arch is to be tested for 1 min/m2, with no less than 5 minutes of total test time The flow rate again depends upon the tube size, which is itself dependent upon the sample size. | IPX4 | P |
| | For the second characteristic numeral 5: To test for compliance with IPX5, the sample is subjected to water jetting from a nozzle with a 6.3-mm-diameter opening at a flow rate of 12.5L/min. Each surface of the enclosure is to be tested for 1 minute at a distance from the jet nozzle of 2.5–3.0 m. | | N/A |
| | For the second characteristic numeral 6: For IPX6 testing, the sample is subjected to water jetting from a nozzle with a12.5-mm-diameter opening at a flow rate of 100L/min. Again, each surface of the enclosure is to be tested for 1 minute at a distance from the nozzle of 2.5–3.0 m. | | N/A |
| | For the second characteristic numeral 7: For IPX7 testing, the sample is submerged for 30 minutes. The lowest point of the enclosure should be 1000 mm below the surface of the water, and the highest point at least 150mm below the surface. | | N/A |
| | For the second characteristic numeral 8: For IPX8, the test time and submersion depth are according to the manufacturer's specifications and must be marked on | | N/A |

| IEC 60529 | | | |
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| | the product (for example, "submersible for up to 1 hour at a depth up to 2 meters"). | | |
| 14.3 | Acceptance conditions<br>After testing in accordance with the appropriate requirements of 14.2.1 to 14.2.8 the enclosure shall be inspected for ingress of water.<br>It is the responsibility of the relevant Technical Committee to specify the amount of water which may be allowed to enter the enclosure and the details of a dielectric strength test, if any.<br>In general, if any water has entered, it shall not:<br>-be sufficient to interfere with the correct operation of the equipment or impair safety;<br>- deposit on insulation parts where it could lead to tracking along the creepage distances;<br>- reach live parts or windings not designed to operate when wet accumulate near the cable end or enter the cable if any.If the enclosure is provided with drain-holes, it should be proved by inspection that any water which enters does not accumulate and that it drains away without doing any harm to the equipment.For enclosures without drain-holes, the relevant product standard shall specify the acceptance conditions if water can accumulate to reach live parts. | No damage. | P |

# ANNEX A:

**Photo-documentation**

**Test photo IPX4**

**After Test**

**Photo 1 General appearance of the EUT**

**Photo 2 General appearance of the EUT**

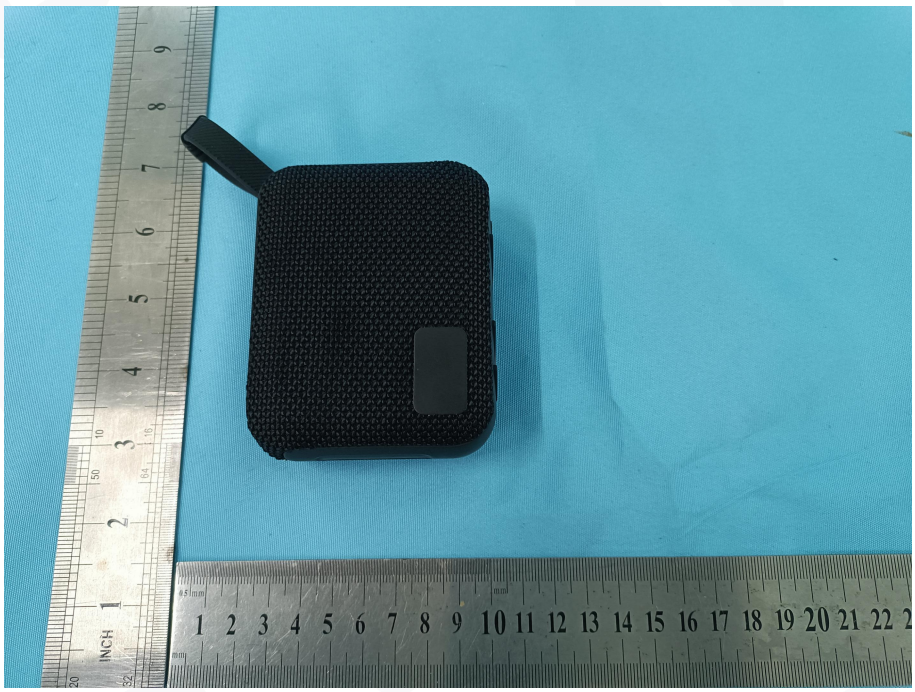

**Photo 3 General appearance of the EUT**

***** End of report *****