

EMC TEST REPORT

For

Mid Ocean Brands B.V.

Wireless charger

Test Model: MO9446

Additional model: MO9785, MO9996

Prepared for : Mid Ocean Brands B.V.
Address : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan,
Kowloon, Hong Kong

Prepared by : Shenzhen SIT Testing Technology Co., Ltd.
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Date of receipt of test sample : June 18, 2025
Number of tested samples : 1
Serial number : Prototype
Date of Test : June 18, 2025~ July 01, 2025
Date of Report : July 01, 2025



EMC TEST REPORT
ETSI EN 301 489-3 V2.3.2 (2023-01)

ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

Report Reference No. : SIT250617160402ER-1

Date Of Issue : July 01, 2025

Testing Laboratory Name : Shenzhen SIT Testing Technology Co., Ltd.Address : Room 401, Building A2, The 2nd Industrial Zone of Zhu'ao,
Gushu, Xixiang, Bao'an District, Shenzhen, Guangdong, ChinaTesting Location/ Procedure : Full application of Harmonised standards ☒
Partial application of Harmonised standards ☐
Other standard testing method ☐**Applicant's Name : Mid Ocean Brands B.V.**Address : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan,
Kowloon, Hong Kong**Test Specification**Standard : ETSI EN 301 489-1 V2.2.3 (2019-11)
ETSI EN 301 489-3 V2.3.2 (2023-01)

Test Report Form No. : EMC-1.0

TRF Originator : Shenzhen SIT Testing Technology Co., Ltd.

Master TRF : Dated 2017-02

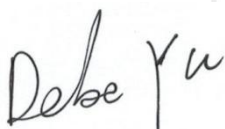
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Test Item Description. : Wireless charger

Trade Mark : N/A

Test Model : MO9446, MO9785, MO9996

Ratings : Input DC 5V/2A
Wireless Output: DC 5V/1A**Result : Positive****Compiled by:**

Project Engineer

Supervised by:

Project Supervisor

Approved by:
Technical Director

EMC -- TEST REPORT**Test Report No. : SIT250617160402ER-1**July 01, 2025

Date of issue

Test Model : MO9446

EUT..... : Wireless charger

Applicant..... : Mid Ocean Brands B.V.Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan,
Kowloon, Hong Kong

Telephone..... : /

Fax..... : /

Manufacturer..... : 114628

Address..... : /

Telephone..... : /

Fax..... : /

Test Result**Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
00	June 30, 2025	Initial Issue	Kevin Sun

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1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

EUT	: Wireless charger
Test Model	: MO9446
Power Supply	: Input DC 5V/2A Wireless Output: DC 5V/1A
Number of Channels	: 1
Modulation Type	: GSKF
Antenna Description	: Ferrite Antenna, 2 dBi(Max.)

1.2. Objective

ETSI EN 301 489-1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
ETSI EN 301 489-3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

The objective is to determine compliance with ETSI EN 301 489-1 V2.2.3 (2019-11) and ETSI EN 301 489-3 V2.3.2 (2023-01).

1.3. Related Submittal(s)/Grant(s)

No Related Submittals.

1.4. Test Methodology

All measurements contained in this report were conducted with ETSI EN 301 489-1 V2.2.3 (2019-11) and ETSI EN 301 489-3 V2.3.2 (2023-01).

1.5. Description of Test Facility

Not mentioned for the time being

1.6. Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
--	--	--	--	--

1.7. External I/O

I/O Port Description	Quantity	Cable
USB port	1	--

1.8. Measurement Uncertainty

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	0.01ppm	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2℃	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

1.9. Description Of Test Modes

TM1: Normal operation

TM2: Idle

***Note:

All test modes were tested, but we only recorded the worst case in this report.

2. SUMMARY OF TEST RESULTS

Rule	Description of Test Items	Result
§7.1	Reference to clauses EN 301 489-1 §8.4 AC mains power input/output ports	N/A
§7.1	Reference to clauses EN 301 489-1§8.3 DC power input/output ports	Compliant
§7.1	Reference to clauses EN 301 489-1 §8.2 Enclosure of ancillary equipment measured on a stand alone basis	Compliant
§7.1	Reference to clauses EN 301 489-1 §8.5 Harmonic current emissions (AC mains input port)	N/A
§7.1	Reference to clauses EN 301 489-1 §8.6 Voltage fluctuations and flicker (AC mains input port)	N/A
§7.1	Reference to clauses EN 301 489-1§8.7 Telecommunication ports	N/A
§7.2	Reference to clauses EN 301 489-1 §9.3 Electrostatic discharge (EN 61000-4-2)	Compliant
§7.2	Reference to clauses EN 301 489-1 §9.2 Radio frequency electromagnetic field (80 MHz to 6 000 MHz)(EN 61000-4-3)	Compliant
§7.2	Reference to clauses EN 301 489-1§9.4 Fast transients, common mode (EN 61000-4-4)	N/A
§7.2	Reference to clauses EN 301 489-1§9.8 Surges (EN 61000-4-5)	N/A
§7.2	Reference to clauses EN 301 489-1§9.5 Radio frequency, common mode (EN 61000-4-6)	N/A
§7.2	Reference to clauses EN 301 489-1 §9.6 Transients and surges in the vehicular environment (ISO 7637-2)	N/A
§7.2	Reference to clauses EN 301 489-1§9.7 Voltage dips and interruptions (EN 61000-4-11)	N/A

3. LINE CONDUCTED EMISSION

3.1. Conducted Emission Limit

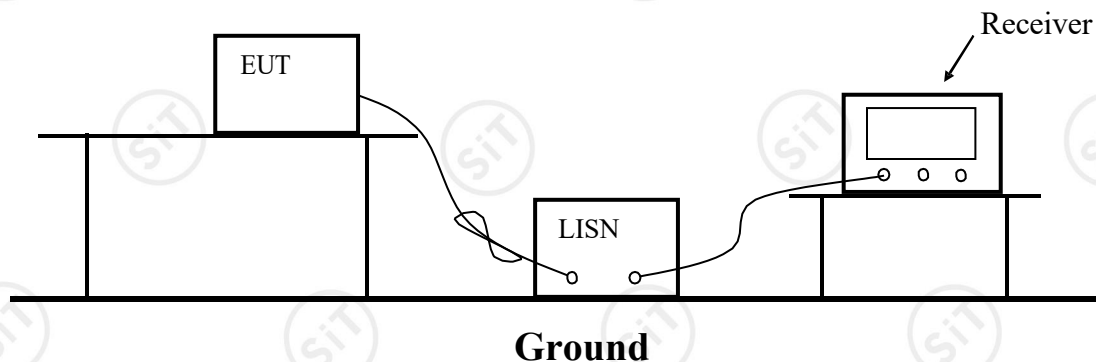
ETSI EN 301 489-1 V2.2.3 (2019-11)/EN 55032 Class B

Limits for Power Line Conducted Emission

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.
NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.2. Test Configuration



The setup of EUT is according with per ETSI EN 301 489-1 measurement procedure. The specification used was with the ETSI EN 301 489-1 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The EUT received DC 5V Charging power from adapter which received power through a LISN supplying power of DC 5V/50Hz.

3.3. EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range
150 kHz – 30 MHz

IFBW
9 kHz

3.4. Test Procedure

Power on the EUT, the EUT begins to work. Make sure the EUT operates normally during the test.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

3.5. Test result

N/A

4. RADIATED DISTURBANCE

4.1. Radiated Emission Limit

ETSI EN 301 489-1 V2.2.3 (2019-11)/EN 55032 Class B

Limits for radiated disturbance Blow 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47

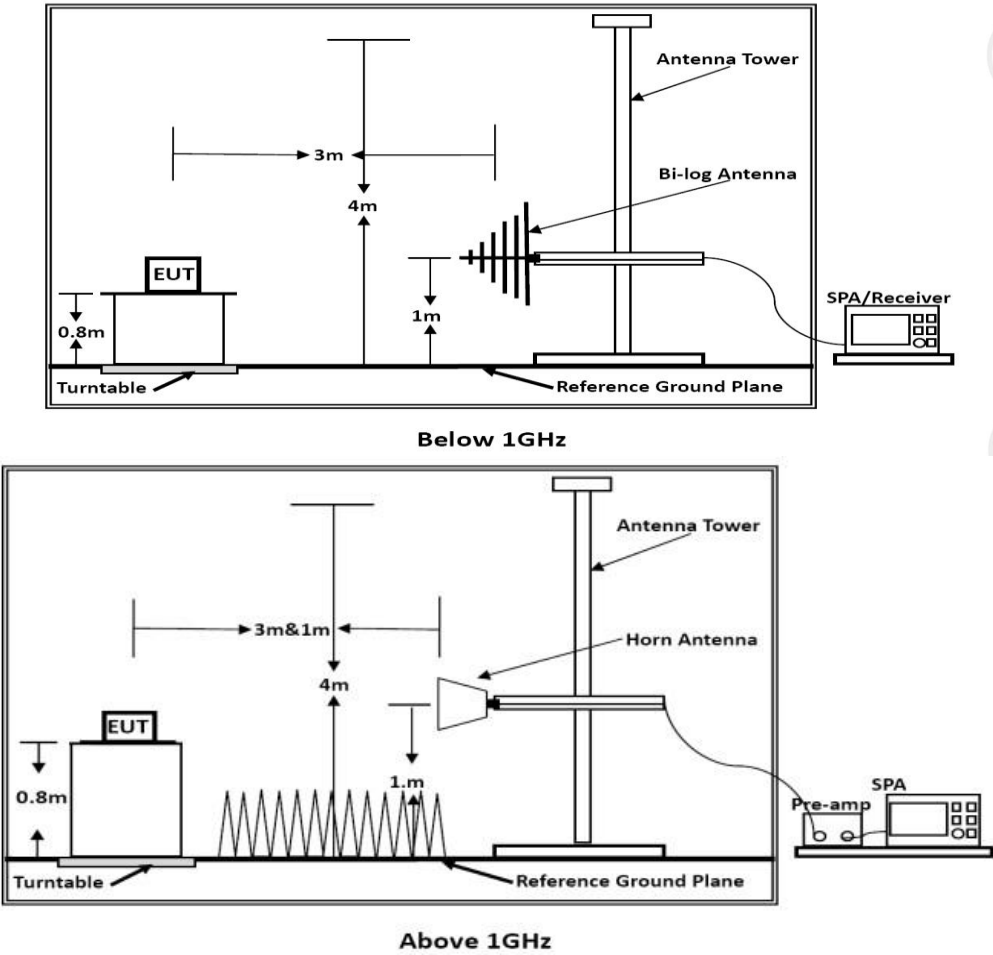
Note: (1) The smaller limit shall apply at the combination point between two frequency bands. (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

Limits for radiated disturbance Above 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)
1000-3000	3	50	70
3000-6000	3	54	74

Note: The lower limit applies at the transition frequency.

4.2. Test Configuration



4.3. Test Procedure

Please refer to ETSI EN 301 489-1 Clause 8.2.3 and EN 55032 Annex A.2 for the measurement methods.

4.4. Test Data

The worst test mode of the EUT was TM1, and its test data was showed as the follow:

Model No.	MO9446	Test Mode	DC 5V
Environmental Conditions	24°C,44.2% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	DebeYu	Test date:	June 23, 2025

Radiated Emission Measurement



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree	Comment
1		37.2854	39.34	-11.38	27.96	40.00	-12.04	peak		
2	*	47.1600	47.88	-11.61	36.27	40.00	-3.73	peak		
3		63.3132	42.44	-12.84	29.60	40.00	-10.40	peak		
4		88.0328	44.86	-15.45	29.41	40.00	-10.59	peak		
5		166.0680	44.78	-10.89	33.89	40.00	-6.11	peak		
6		187.7529	45.39	-13.38	32.01	40.00	-7.99	peak		

Model No.	MO9446	Test Mode	DC 5V
Environmental Conditions	24°C,44.2% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	DebeYu	Test date:	June 23, 2025

Radiated Emission Measurement



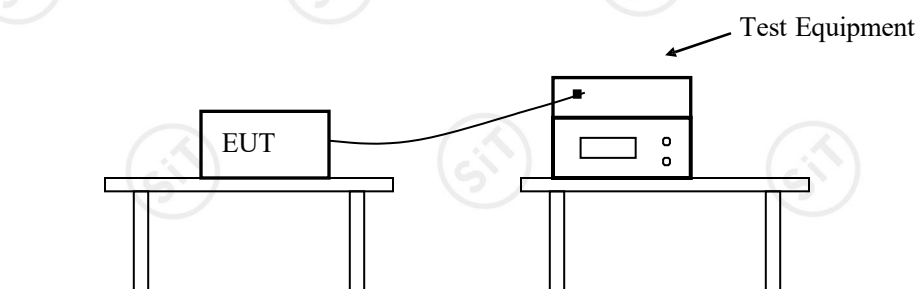
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree	Comment
1		37.5479	32.73	-11.39	21.34	40.00	-18.66	peak		
2		60.4919	33.66	-12.53	21.13	40.00	-18.87	peak		
3		87.4177	32.50	-15.52	16.98	40.00	-23.02	peak		
4	*	158.1123	44.92	-10.64	34.28	40.00	-5.72	peak		
5		173.2051	42.99	-11.22	31.77	40.00	-8.23	peak		
6		893.8567	29.82	1.26	31.08	47.00	-15.92	peak		

Test Mode: TM1(above 1GHz)	Tested by: DebeYu
Test voltage: DC 5V	Test Distance: 3m
Detector Function: Peak+AV	Test Results: Passed

Frequency MHz	Emission Level dB μ V/m		Limits dB μ V/m		Margin dB μ V/m		Polarization
	Peak	AV	Peak	AV	Peak	AV	
1352.37	49.64	38.16	70	50	-20.36	-11.84	H
1879.53	47.15	37.62	70	50	-22.85	-12.38	H
2191.53	46.59	35.26	70	50	-23.41	-14.74	H
3291.78	48.36	35.64	70	54	-21.64	-18.36	H
4330.17	57.42	38.23	70	54	-12.58	-15.77	H
5888.35	54.69	38.67	70	54	-15.31	-15.33	H
1351.38	52.17	38.42	70	50	-17.83	-11.58	V
1878.53	54.69	37.19	70	50	-15.31	-12.81	V
2190.06	58.32	36.22	70	50	-11.68	-13.78	V
3295.04	55.67	36.98	70	54	-14.33	-17.02	V
4332.73	56.29	38.67	70	54	-13.71	-15.33	V
5882.40	57.18	35.12	70	54	-12.82	-18.88	V

5. HARMONIC CURRENT EMISSIONS

5.1. Test Configuration



5.2. Test Standard

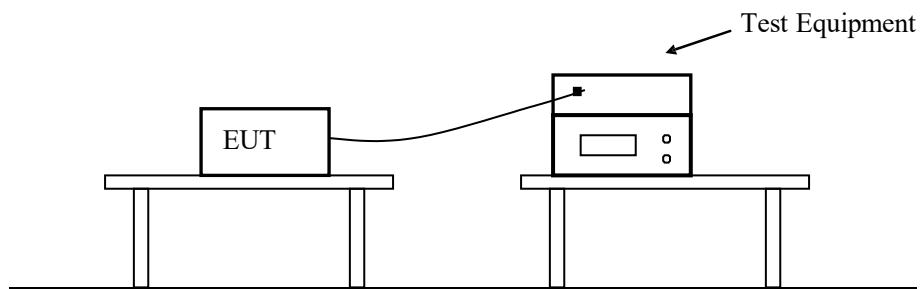
According to ETSI EN 301 489-1 V2.2.3 (2019-11)& EN IEC 61000-3-2: 2019+A1:2021

5.3. Test Data

Because power of EUT less than 75W, According standard EN 61000-3-2, Harmonic current unnecessary to test.

6. VOLTAGE FLUCTUATION AND FLICKER

6.1. Test Configuration



6.2. Test Standard

According to ETSI EN 301 489-1 V2.2.3 (2019-11)& EN 61000-3-3: 2013+A1:2019

7. GENERAL PERFORMANCE CRITERIA FOR IMMUNITY TEST

7.1. Performance criteria for Continuous phenomena applied to Transmitter (CT)

For equipment of type II or type III that requires a communication link that is maintained during the test, it shall be verified by appropriate means supplied by the manufacturer that the communication link is maintained during each individual exposure in the test sequence.

Where the EUT is a transmitter, tests shall be repeated with the EUT in standby mode to ensure that any unintentional transmission does not occur.

7.2. Performance criteria for Transient phenomena applied to Transmitter (TT)

For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence. Where the EUT is a transmitter, tests shall be repeated with the EUT in standby mode to ensure that any unintentional transmission does not occur.

7.3. Performance criteria for Continuous phenomena applied to Receiver (CR)

For equipment of type II or III that requires a communication link that is maintained during the test, it shall be verified by appropriate means supplied by the manufacturer that the communication link is maintained during each individual exposure in the test sequence. Where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

7.4. Performance criteria for Transient phenomena applied to Receiver (TR)

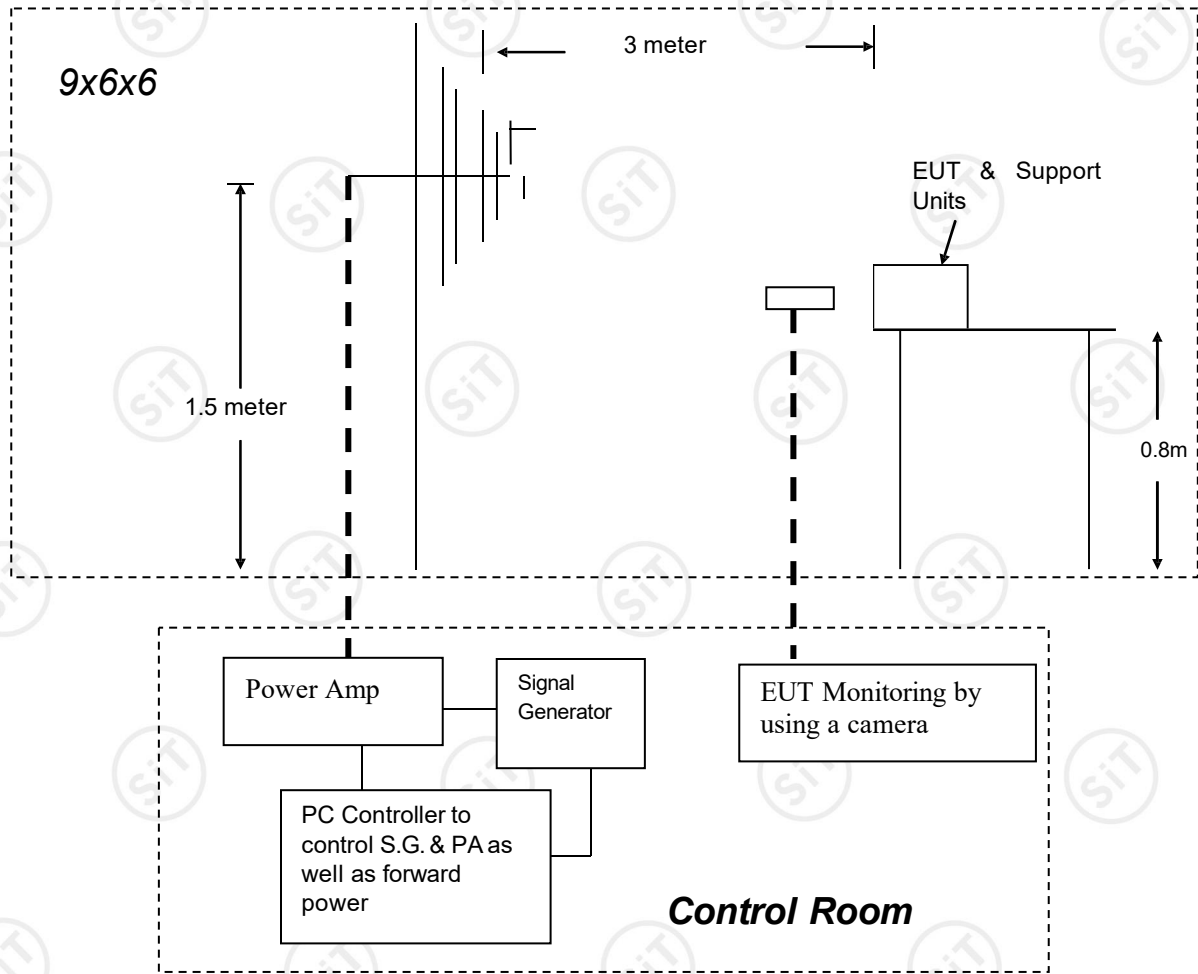
For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence. Where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

Performance criteria for ETSI EN 301 489-3 V2.3.2 (2023-01)

Criterion	During test	After test
A	Operate as intended No loss of function No unintentional responses	Operate as intended No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May show loss of function No unintentional responses	Operate as intended Lost function(s) shall be self-recoverable No degradation of performance No loss of stored data or user programmable functions

8. RF ELECTROMAGNETIC FIELD (80 MHZ -6000 MHZ)

8.1. Test Configuration



8.2. Test Standard

ETSI EN 301 489-1, ETSI EN 301 489-3(EN 61000-4-3: 2020)

Test level 2 at 3V / m.

8.3. Severity Level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

Performance criterion: A

8.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remarks
1. Fielded Strength	3 V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80 - 6000 MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	3 Sec.

8.5. Test Result

RF ELECTROMAGNETIC FIELD			
Standard	☐ IEC 61000-4-3 ☒ EN 61000-4-3		
Applicant	Mid Ocean Brands B.V.		
EUT	Wireless charger	Temperature	24℃
M/N	MO9446	Humidity	44.2%
Test Mode	TM1-TM2	Criterion	B
Test Engineer	DebeYu	Test Date	June 23, 2025

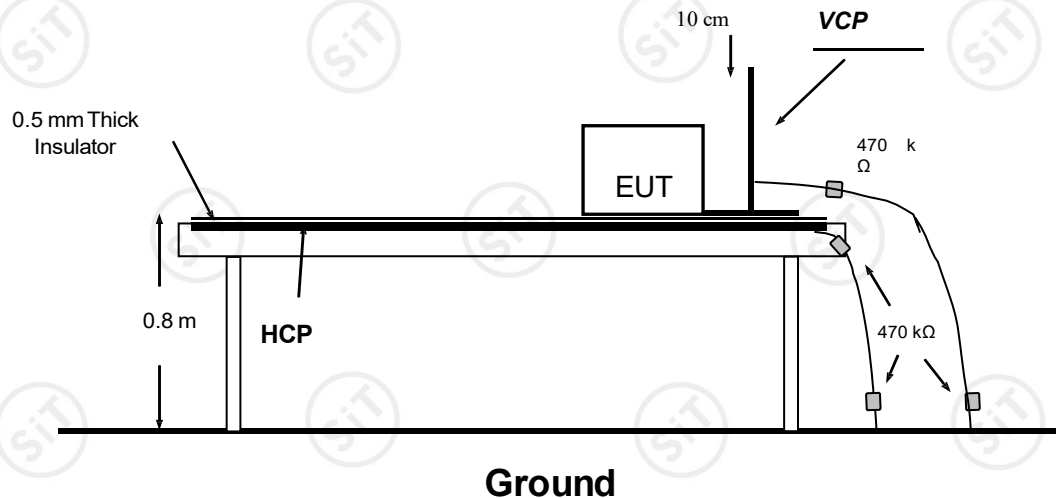
EUT Working Mode	Antenna Polarity	Frequency (MHz)	Field Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass
Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass

***Note: Unintentional transmission is not founded from the EUT.

9. ELECTROSTATIC DISCHARGE

Please refer to ETSI EN 301 489-1 and EN 61000-4-2.

9.1. Test Configuration



EN 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.5 by 1.0-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by 0.5-millimeter thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

9.2. Test Procedure

ETSI EN 301 489-1 V2.2.3 (2019-11)/ EN 61000-4-2: 2009

Test level 3 for Air Discharge at ± 8 kV

Test level 2 for Contact Discharge at ± 4 kV

9.2.1. Air Discharge

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

9.2.2. Contact Discharge

All the procedure shall be same as Section 9.2.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

9.2.3. Indirect Discharge For Horizontal Coupling Plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

9.2.4. Indirect Discharge For Vertical Coupling Plane

At least 10 single discharges (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

9.3. Test Data

PASS.

Electrostatic Discharge Test Results

Standard	☐ IEC 61000-4-2 ☒ EN 61000-4-2		
Applicant	Mid Ocean Brands B.V.		
EUT	Wireless charger	Temperature	23℃
M/N	MO9446	Humidity	44%
Criterion	B	Pressure	1021mbar
Test Mode	TM1-TM2	Test Date	June 23, 2025
Test Engineer	DebeYu		

TEST RESULT OF TM1-TM2

Test Voltage	Coupling	Observation	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	TT, TR	Pass
±2KV, ±4kV, ±8kV	Air Discharge	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge HCP	TT, TR	Pass
±2KV, ±4kV	Indirect Discharge VCP	TT, TR	Pass

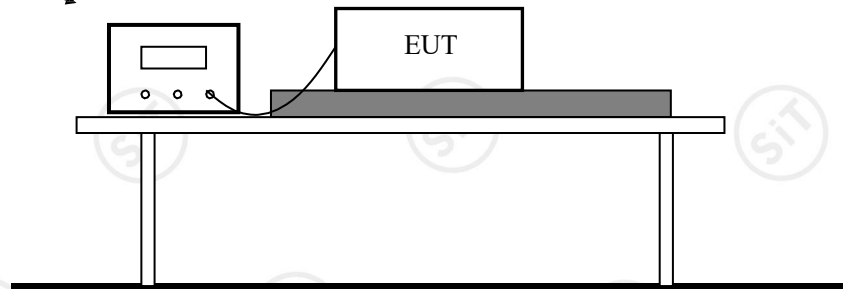
Note:

The EUT performance complied with performance criteria for CT&CR to MS Function and there is no any degradation of performance and function.

10. ELECTRICAL FAST TRANSIENT IMMUNITY

10.1. Test Configuration

EFT/Generator



10.2. Test Standard

ETSI EN 301 489-1 V2.2.3/ EN61000-4-4: 2012

Test level 2 at 1 kV

Test level

Level	Open Circuit Output Test Voltage $\pm 10\%$	
	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

Performance criterion: B

10.3. Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

10.4.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.

10.4.2. For signal lines and control lines ports: No I/O ports. It's unnecessary to test.

10.4.3. For DC output line ports: It's unnecessary to test.

10.4. Test Data

N/A.

Electrical Fast Transient/Burst Test Results

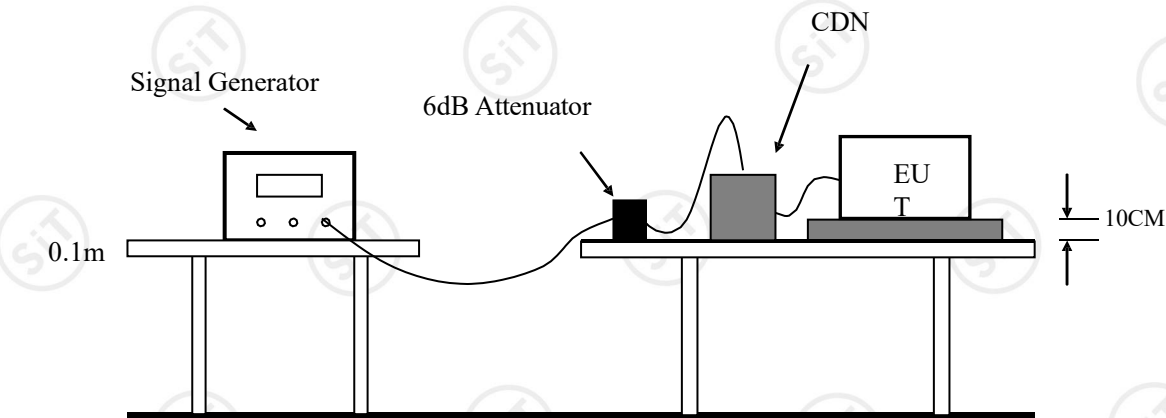
Standard	☐ IEC 61000-4-4 ☒ EN 61000-4-4		
Applicant	Mid Ocean Brands B.V.		
EUT	Wireless charger	Temperature	25℃
M/N	MO9446	Humidity	45%
Test Mode	/	Criterion	/
Test Engineer	/	Test Date	/

TEST RESULT OF TM1-TM2

Line	Test Voltage	Polarity	Result (Pass/Fail)
L	1KV	+/-	/
N	1KV	+/-	/
L-N	1KV	+/-	/

11. RF COMMON MODE

11.1. Test Configuration



11.2. Test Standard

ETSI EN 301 489-1 V2.2.3/ EN 61000-4-6: 2014+AC:2015
Test level 2 at 3 V (r.m.s.), 0.15 MHz ~ 80 MHz,
Modulation type: AM
Modulation depth: 80%
Modulation signal: 1 kHz

Test level

Level	Voltage Level (r.m.s.) (V)
1	1
2	3
3	10
X	Special

Performance criterion: A

11.3. Test Procedure

11.3.1. Let the EUT work in test mode and test it.

11.3.2. The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3 m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

11.3.3. The disturbance signal described below is injected to EUT through CDN.

11.3.4. The EUT operates within its operational mode(s) under intended climatic conditions after power on.

11.3.5. The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

11.3.6. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

11.3.7. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

11.4. Test Data

PASS.

Injected Currents Susceptibility Test Results

Standard	☐ IEC 61000-4-6 ☒ EN 61000-4-6		
Applicant	Mid Ocean Brands B.V.		
EUT	Wireless charger	Temperature	24.2℃
M/N	MO9446	Humidity	44.7%
Test Mode	/	Criterion	/
Test Engineer	/	Test Date	/

TEST RESULT OF TM1-TM2

Frequency Range (MHz)	Injected Position	Strength (Unmodulated)	Result (Pass/Fail)
0.15 ~ 80	AC Mains	3V	/

Remark:

1. Modulation Signal:1kHz 80% AM

2. Measurement Equipment :

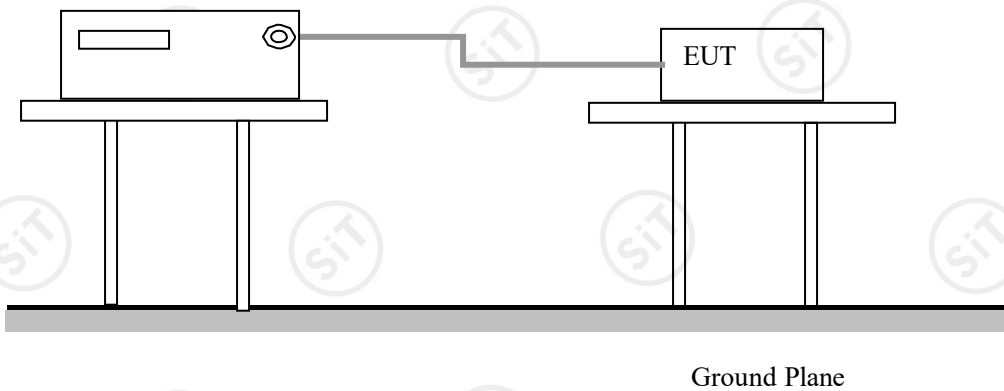
Simulator: CIT-10 (FRANKONIA)

CDN : ☒CDN-M2 (FRANKONIA)

☐CDN-M3 (FRANKONIA)

12. SURGES, LINE TO LINE AND LINE TO GROUND

12.1. Test Configuration



Ground Plane

12.2. Test Standard

ETSI EN 301 489-1 V2.2.3 / EN 61000-4-5: 2014

L-N: Test level 2 at 1 kV

L-PE, N-PE Test Level 3 at 2kV

Test Level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special

Performance criterion: B

12.3. Test Procedure

- 12.3.1. For line to line coupling mode, provide a 0.5 kV 1.2/50us voltage surge (at open-circuit condition).
- 12.3.2. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 12.3.3. Different phase angles are done individually.
- 12.3.4. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

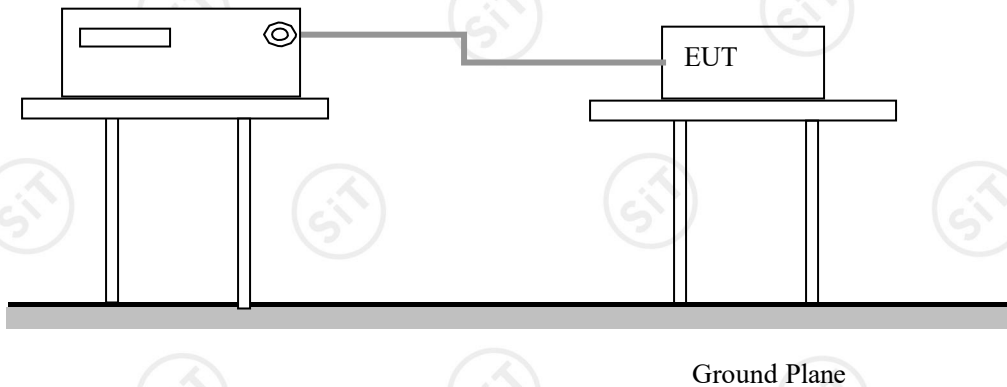
12.4. Test Data

Surge Immunity Test Result			
Standard	☐ IEC 61000-4-5 ☒ EN 61000-4-5		
Applicant	Mid Ocean Brands B.V.		
EUT	Wireless charger	Temperature	25℃
M/N	MO9446	Humidity	45 %
Test Mode	/	Criterion	/
Test Engineer	/	Test Date	/

TEST RESULT OF TM1-TM2					
Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Result (Pass/Fail)
L-N	+	0°, 90°, 180°, 270°	5	1.0	/
	-	0°, 90°, 180°, 270°	5	1.0	/

13. VOLTAGE DIPS/INTERRUPTIONS IMMUNITY TEST

13.1. Test Configuration



13.2. Test Standard

ETSI EN 301 489-1 V2.2.3/ EN 61000-4-11: 2020

Test levels and Performance Criterion

Test Level

Voltage Reduction %UT	Voltage dips %UT	Duration (in period)
100	0	0.5
100	0	1
30	70	5
Voltage Reduction %UT	Voltage Interruptions %UT	Duration (in period)
100	0	250

Performance criterion: B&C

13.3. Test Procedure

13.3.1. The interruption is introduced at selected phase angles with specified duration.

13.3.2. Record any degradation of performance.

13.4. Test Data

Voltage Dips And Interruptions Test Results			
Standard	☐ IEC 61000-4-11 ☒ EN 61000-4-11		
Applicant	Mid Ocean Brands B.V.		
EUT	Wireless charger	Temperature	25°C
M/N	MO9446	Humidity	45%
Test Mode	/	Criterion	/
Test Engineer	/	Test Date	/

TEST RESULT OF TM1-TM2			
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Result (Pass/Fail)
0	100	0.5P	/
0	100	1P	/
70	30	25P	/
0	100	250P	/

14. LIST OF MEASURING EQUIPMENT

Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2024-12-18	2025-12-17
10dB Attenuator	SCHWARZBECK	OSPAM236	9729	2024-12-18	2025-12-17
Artificial Mains	ROHDE & SCHWARZ	ENV216	101288	2024-12-18	2025-12-17
EMI Test Software	AUDIX	E3	N/A	2024-12-18	2025-12-17
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2024-12-18	2025-12-17
Absorbing clamp	ROHDE & SCHWARZ	MDS 21	4033	2024-12-18	2025-12-17
EMI Test Software	AUDIX	E3	N/A	2024-12-18	2025-12-17
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2024-12-18	2025-12-17
Triple-loop Antenna	EVERFINE	LLA-2	11050003	2024-12-18	2025-12-17
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	101840	2024-12-18	2025-12-17
EMI Test Software	AUDIX	E3	N/A	2024-12-18	2025-12-17
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2024-12-18	2025-12-17
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101142	2024-12-18	2025-12-17
Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2024-12-18	2025-12-17
EMI Test Software	AUDIX	E3	N/A	2024-12-18	2025-12-17
Positioning Controller	MF	MF-7082	/	2024-12-18	2025-12-17
Power Analyzer Test System	Voltech	PM6000	20000670053	2024-12-18	2025-12-17
ESD Simulator	KIKUSUI	KC001311	KES4021	2024-12-03	2025-12-02
SIGNAL GENERATOR	R&S	SMB100A	105942	2024-12-14	2025-12-13
RF Power Amplifier	BONN Elektronik	BLWA0830-160/100/40D	128740	2024-12-14	2025-12-13
Log-periodic Antenna	SCHWARZBECK	STLP9128D	043	2024-12-14	2025-12-13
Power Meter	R&S	102031	16829	2024-12-14	2025-12-13
Electrical fast transient(EFT)generator	3CTEST	EFT-4021	EC0461044	2024-12-18	2025-12-17
Coupling Clamp	3CTEST	EFTC	EC0442098	2024-12-18	2025-12-17
Surge test system	3CTEST	SG5006G	EC5581070	2024-12-18	2025-12-17
Coupling/decoupling network	3CTEST	SGN-5010G	CS5591033	2024-12-18	2025-12-17
Simu lator	FRA NKONIA	CIT-10	A126A1195	2024-12-18	2025-12-17
CDN	FRA NKONIA	CDN-M2	5100100100	2024-12-18	2025-12-17
CDN	FRA NKONIA	CDN-M3	0900-11	2024-12-18	2025-12-17
Attenuator	FRA NKONIA	ATT6	0010222A	2024-12-18	2025-12-17
Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2024-12-18	2025-12-17

15. PHOTOGRAPHS OF TEST SETUP

Photo of Radiated Emissions Measurement

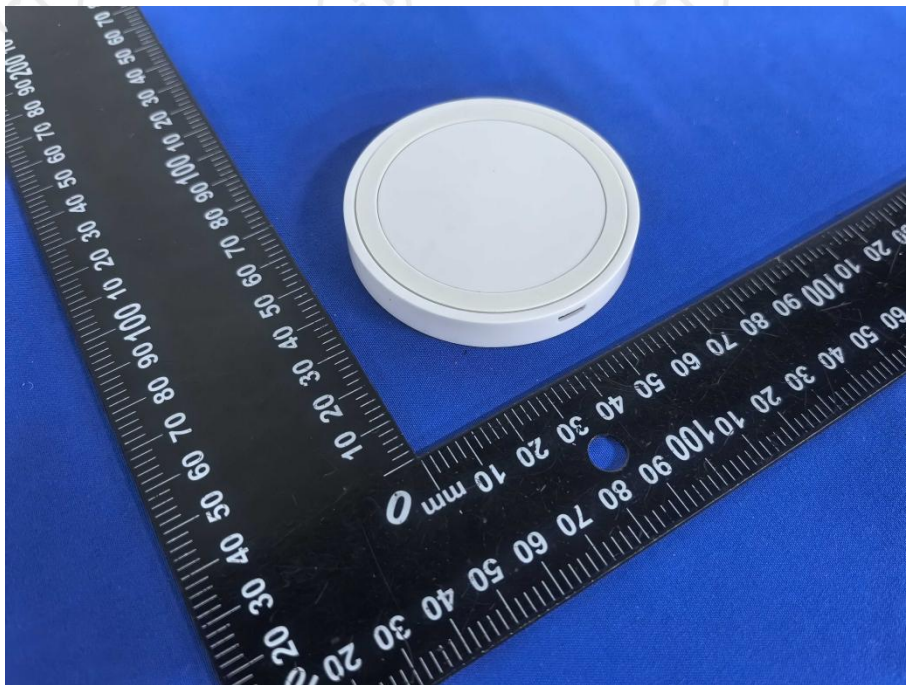


16. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

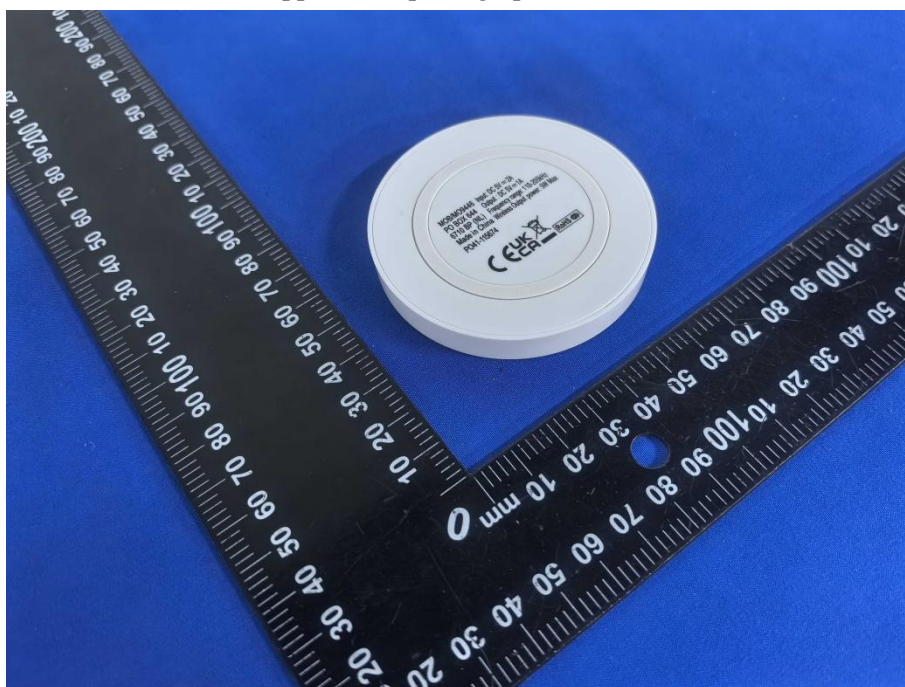
Appearance photograph of EUT



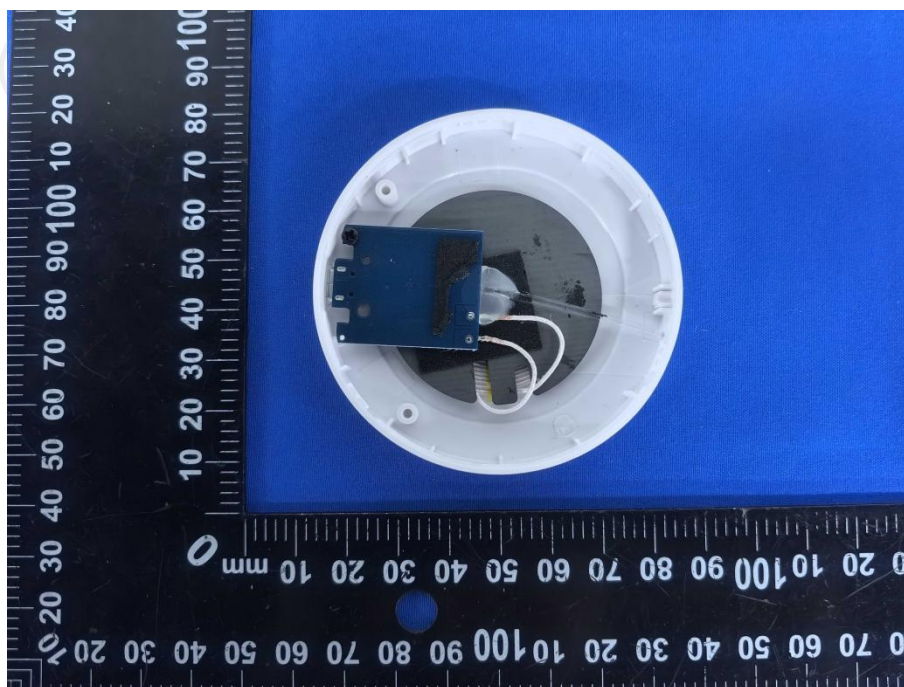
Appearance photograph of EUT



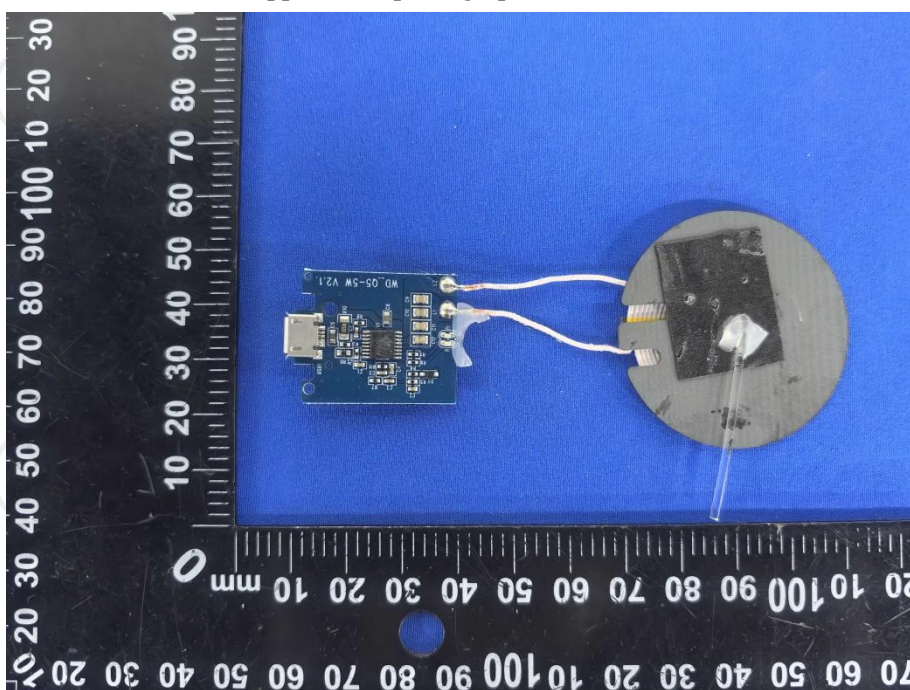
Appearance photograph of EUT



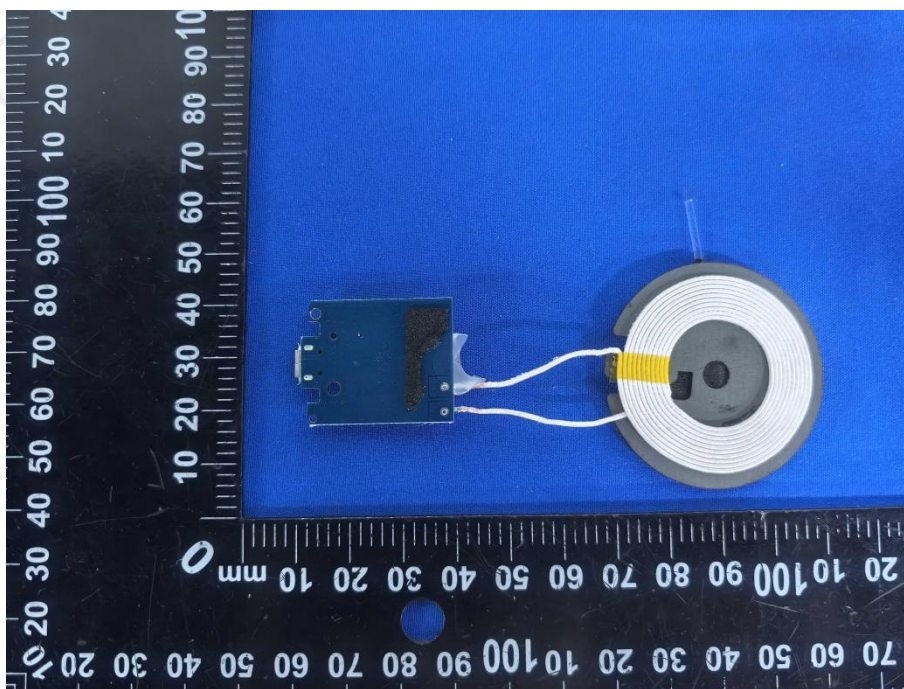
Appearance photograph of EUT



Appearance photograph of EUT



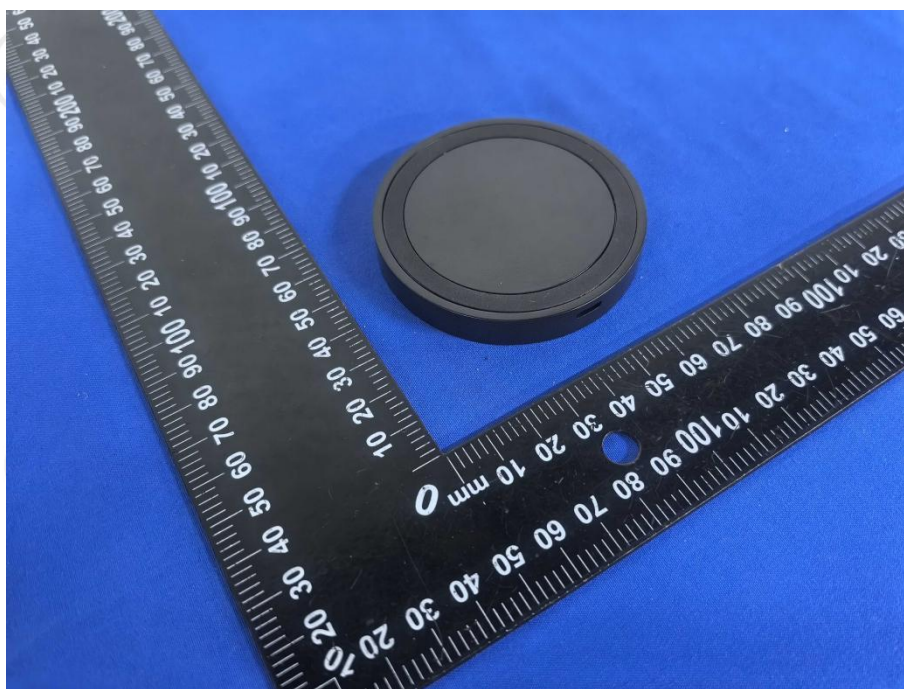
Appearance photograph of EUT



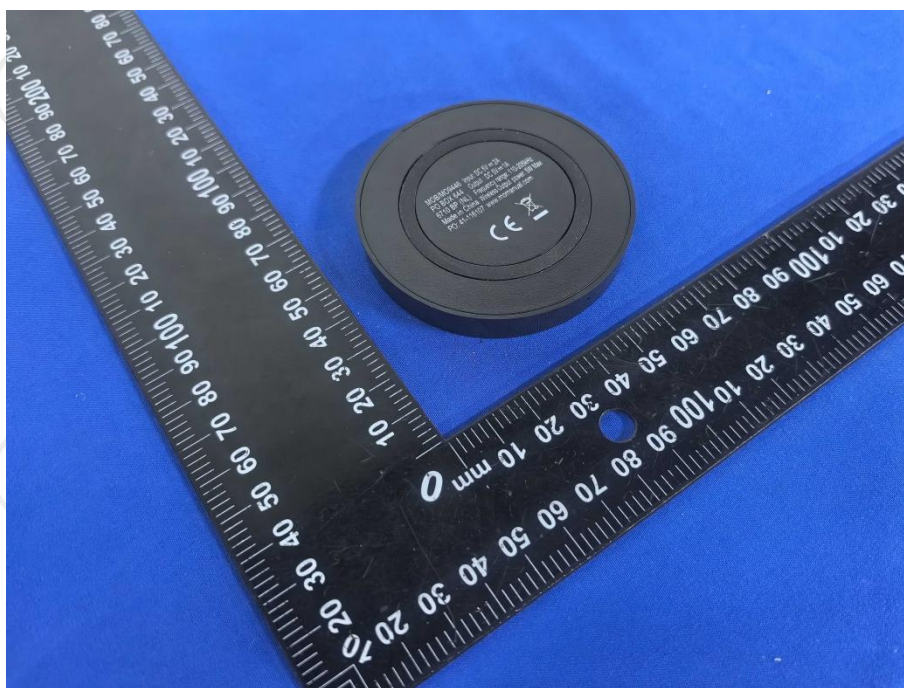
Appearance photograph of EUT



Appearance photograph of EUT



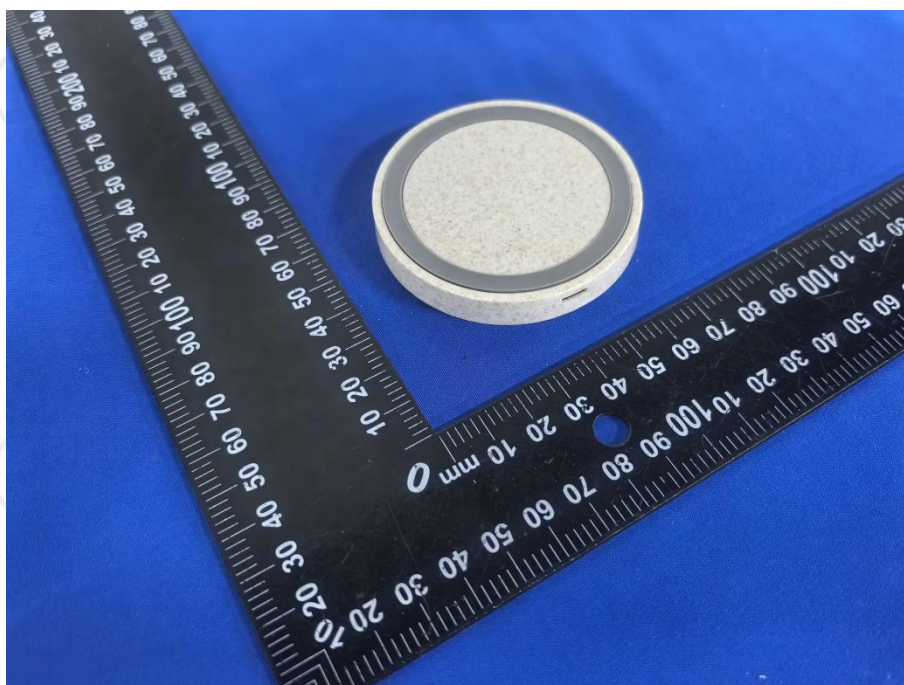
Appearance photograph of EUT



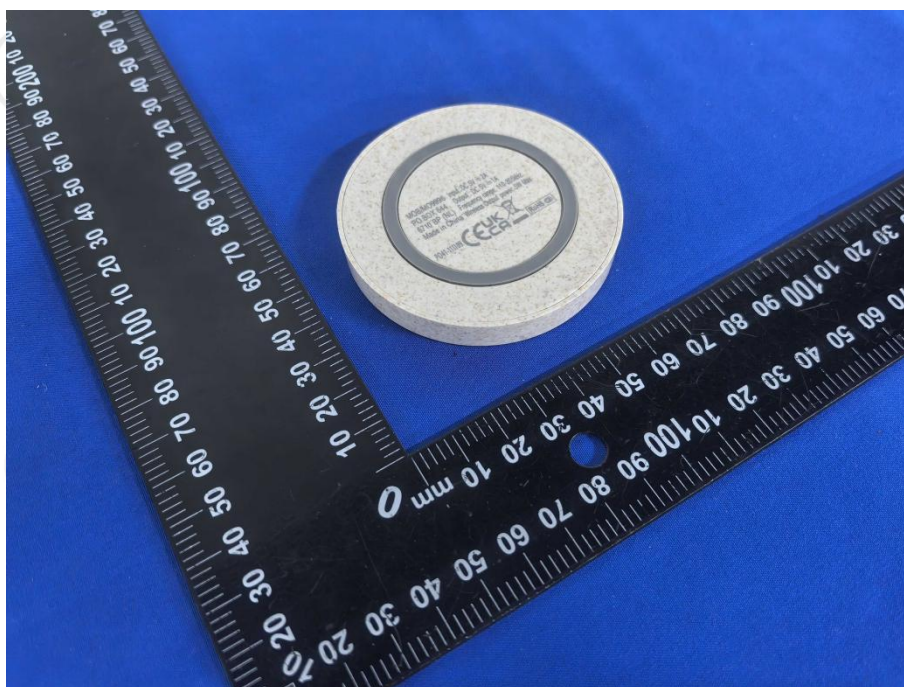
Appearance photograph of model: MO9996



Appearance photograph of model: MO9996



Appearance photograph of model: MO9996



-----THE END OF REPORT-----

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