

Human Exposure Report

FCC ID: RWO-459C


Report No. : BTL-FCCP-1-2205E021
Equipment : Charging Case
Model Name : 459C, RC30-459CXXXX-XXXX (X can be 0-9 or A-Z)
Brand Name : RAZER
Applicant : Razer Inc.
Address : 9 Pasteur, Suite 100, Irvine, CA92618, USA

Standard(s) : 47 CFR § 1.1310


Date of Receipt : 2023/3/31
Date of Test : 2023/4/6
Issued Date : 2023/5/18

The above equipment has been tested and found in compliance with the requirement of the above standards by BTL Inc.

Prepared by

: 
Jay Kao, Engineer

Approved by

: 
Jerry Chuang, Supervisor

**BTL Inc.**

No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan

Tel: +886-2-2657-3299 Fax: +886-2-2657-3331 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

CONTENTS

| | |
|--------------------------------|----|
| REVISION HISTORY | 4 |
| 1 GENERAL INFORMATION | 5 |
| 1.1 TEST FACILITY | 5 |
| 1.2 REFERENCE TEST GUIDANCE | 5 |
| 2 TEST RESULTS | 5 |
| 2.1 LIMITS | 5 |
| 2.2 MEASUREMENT DATA | 6 |
| 3 LIST OF MEASURING EQUIPMENTS | 10 |
| 4 EUT TEST PHOTO | 11 |

REVISION HISTORY

| Report No. | Version | Description | Issued Date | Note |
|---------------------|---------|------------------|-------------|-------|
| BTL-FCCP-2-2205E021 | R00 | Original Report. | 2023/5/18 | Valid |

1 GENERAL INFORMATION

1.1 TEST FACILITY

The test locations stated below are under the TAF Accreditation Number 0659.

The test location(s) used to collect the test data in this report are:

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan
(FCC DN: TW0659)

☐ SAR01 ☒ SAR02

1.2 REFERENCE TEST GUIDANCE

KDB680106 D01 RF Exposure Wireless Charging Apps v03

2 TEST RESULTS

2.1 LIMITS

For 47 CFR PART 1, Subpart I, Section 1.1310:

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm ²) | Averaging time (minutes) |
|--|----------------------------------|----------------------------------|--|-----------------------------|
| (A) Limits for Occupational / Controlled Exposures | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f ²) | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | / | / | f/300 | 6 |
| 1500-100000 | / | / | 5 | 6 |
| (B) Limits for General Population / Uncontrolled Exposures | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | / | / | f/1500 | 30 |
| 1500-100000 | / | / | 1.0 | 30 |

F=frequency in MHz

*=Plane-wave equivalent power density

RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules.

The emissions should be within the limits at 300kHz in Table 1 of 1.1310 (use the 300kHz limits for 150kHz: 614V/m, 1.63A/m).

For KDB680106 D01:

For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. A KDB inquiry is required to determine the applicable exposure limits below 100 kHz.

2.2 MEASUREMENT DATA

Electric Field Emissions:

| Test Position(0 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|---------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 7.49 | 614 |
| Back | 6.03 | 614 |
| Left | 3.62 | 614 |
| Right | 1.04 | 614 |
| Top | 2.70 | 614 |
| Bottom | 1.71 | 614 |

| Test Position(2 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|---------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 6.98 | 614 |
| Back | 3.25 | 614 |
| Left | 2.15 | 614 |
| Right | 0.65 | 614 |
| Top | 1.25 | 614 |
| Bottom | 0.79 | 614 |

| Test Position(4 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|---------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 3.25 | 614 |
| Back | 1.86 | 614 |
| Left | 1.46 | 614 |
| Right | 0.54 | 614 |
| Top | 0.67 | 614 |
| Bottom | 0.61 | 614 |

| Test Position(6 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|---------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 1.85 | 614 |
| Back | 0.85 | 614 |
| Left | 0.92 | 614 |
| Right | 0.43 | 614 |
| Top | 0.52 | 614 |
| Bottom | 0.55 | 614 |

| Test Position (8 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 1.02 | 614 |
| Back | 0.62 | 614 |
| Left | 0.65 | 614 |
| Right | 0.40 | 614 |
| Top | 0.46 | 614 |
| Bottom | 0.53 | 614 |

| Test Position (10 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|-----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.69 | 614 |
| Back | 0.58 | 614 |
| Left | 0.52 | 614 |
| Right | 0.38 | 614 |
| Top | 0.44 | 614 |
| Bottom | 0.46 | 614 |

| Test Position (12 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|-----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.54 | 614 |
| Back | 0.53 | 614 |
| Left | 0.49 | 614 |
| Right | 0.35 | 614 |
| Top | 0.43 | 614 |
| Bottom | 0.45 | 614 |

| Test Position (14 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|-----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.48 | 614 |
| Back | 0.51 | 614 |
| Left | 0.44 | 614 |
| Right | 0.32 | 614 |
| Top | 0.43 | 614 |
| Bottom | 0.38 | 614 |

| Test Position (15 cm) | Probe Measure Results (V/m) | Limit (V/m) |
|-----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.46 | 614 |
| Back | 0.50 | 614 |
| Left | 0.43 | 614 |
| Right | 0.32 | 614 |
| Top | 0.43 | 614 |
| Bottom | 0.37 | 614 |

Note: The maximum Probe Measure Results of this EUT is 7.49 V/m, less than 307 V/m ($614 \times 50\%$).

Magnetic Field Emissions:

| Test Position (0 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.020 | 1.63 |
| Back | 0.017 | 1.63 |
| Left | 0.008 | 1.63 |
| Right | 0.005 | 1.63 |
| Top | 0.009 | 1.63 |
| Bottom | 0.006 | 1.63 |

| Test Position (2 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.015 | 1.63 |
| Back | 0.011 | 1.63 |
| Left | 0.007 | 1.63 |
| Right | 0.005 | 1.63 |
| Top | 0.004 | 1.63 |
| Bottom | 0.003 | 1.63 |

| Test Position (4 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.013 | 1.63 |
| Back | 0.005 | 1.63 |
| Left | 0.005 | 1.63 |
| Right | 0.003 | 1.63 |
| Top | 0.004 | 1.63 |
| Bottom | 0.001 | 1.63 |

| Test Position (6 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.008 | 1.63 |
| Back | 0.002 | 1.63 |
| Left | 0.004 | 1.63 |
| Right | 0.003 | 1.63 |
| Top | 0.003 | 1.63 |
| Bottom | 0.001 | 1.63 |

| Test Position (8 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.006 | 1.63 |
| Back | 0.002 | 1.63 |
| Left | 0.001 | 1.63 |
| Right | 0.002 | 1.63 |
| Top | 0.001 | 1.63 |
| Bottom | 0.001 | 1.63 |

| Test Position (10 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|-----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.004 | 1.63 |
| Back | 0.002 | 1.63 |
| Left | 0.001 | 1.63 |
| Right | 0.002 | 1.63 |
| Top | 0.001 | 1.63 |
| Bottom | 0.001 | 1.63 |

| Test Position (12 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|-----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.002 | 1.63 |
| Back | 0.001 | 1.63 |
| Left | 0.001 | 1.63 |
| Right | 0.001 | 1.63 |
| Top | 0.001 | 1.63 |
| Bottom | 0.001 | 1.63 |

| Test Position (14 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|-----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.001 | 1.63 |
| Back | 0.001 | 1.63 |
| Left | 0.001 | 1.63 |
| Right | 0.001 | 1.63 |
| Top | 0.001 | 1.63 |
| Bottom | 0.000 | 1.63 |

| Test Position (15 cm) | Probe Measure Results (A/m) | Limit (A/m) |
|-----------------------|-----------------------------|-------------|
| | intermediate charge | |
| Front | 0.001 | 1.63 |
| Back | 0.001 | 1.63 |
| Left | 0.001 | 1.63 |
| Right | 0.000 | 1.63 |
| Top | 0.001 | 1.63 |
| Bottom | 0.000 | 1.63 |

Note: The maximum Probe Measure Results of this EUT is 0.020 A/m, less than 0.815 V/m($1.63 \times 50\%$).

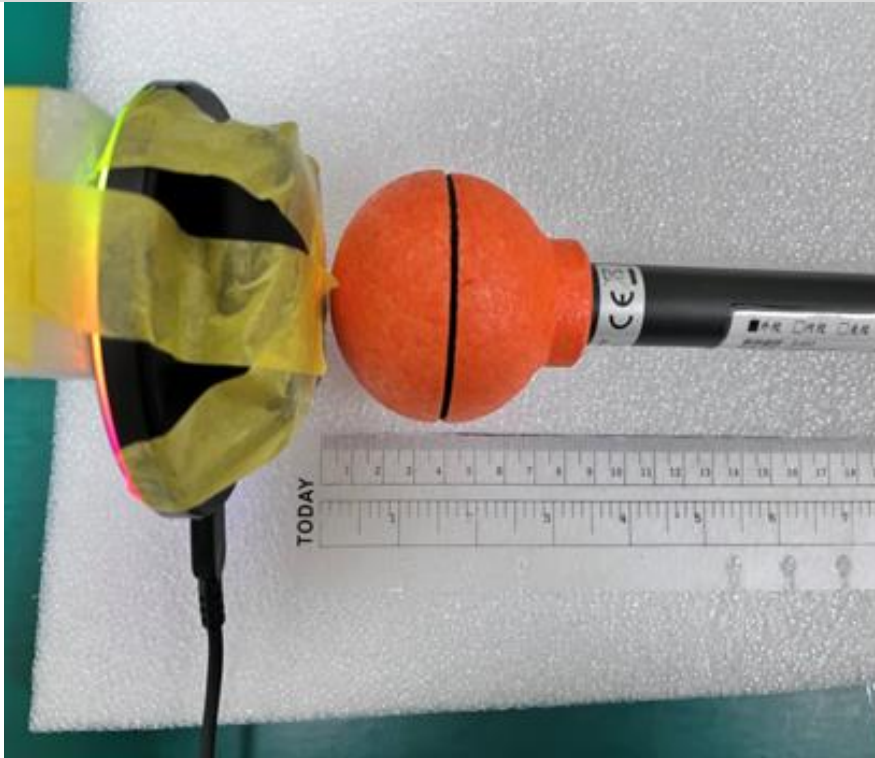
3 LIST OF MEASURING EQUIPMENTS

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated Date | Calibrated Until |
|------|----------------------|--------------|----------|------------|-----------------|------------------|
| 1 | Field strength meter | N/A | SMP2 | 20SN1431 | 2023/1/11 | 2024/1/10 |
| 2 | Probe | N/A | WPF8 | 20WP401180 | 2023/1/11 | 2026/1/10 |

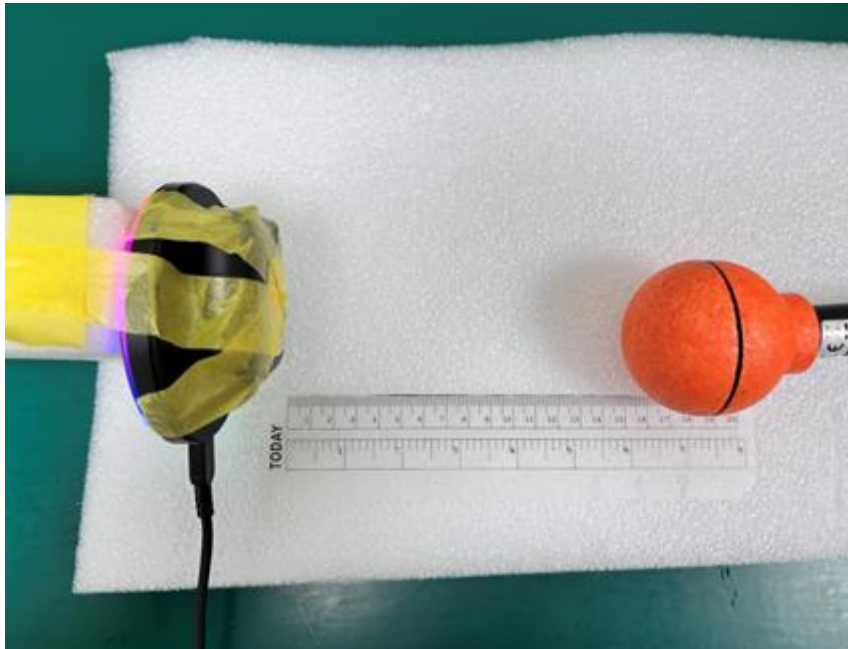
Remark: "N/A" denotes no model name, no serial no. or no calibration specified.
All calibration period of equipment list is one year.

4 EUT TEST PHOTO

Front Side (0 cm)



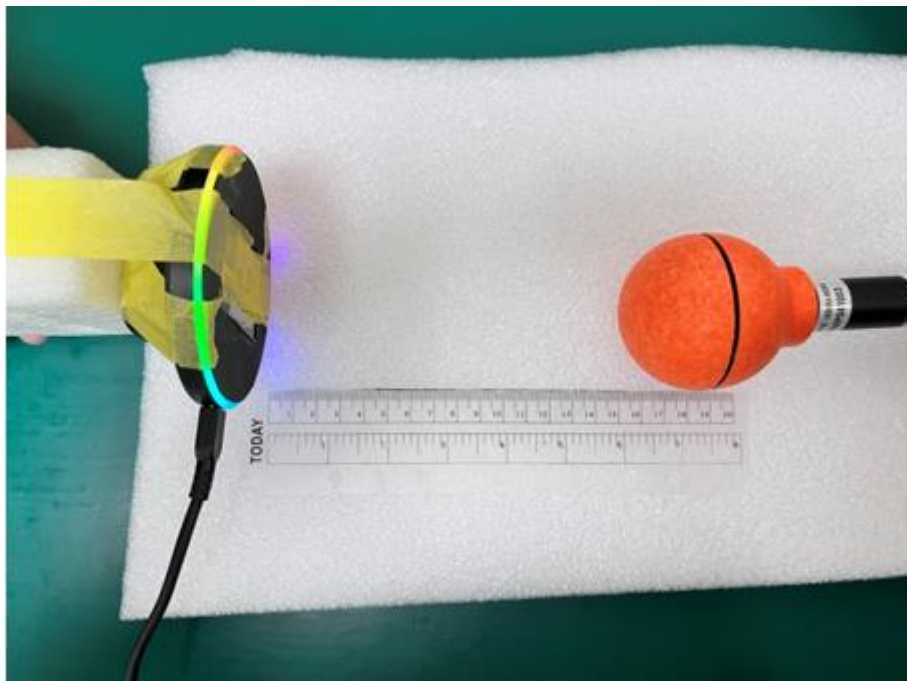
Front Side (15 cm)



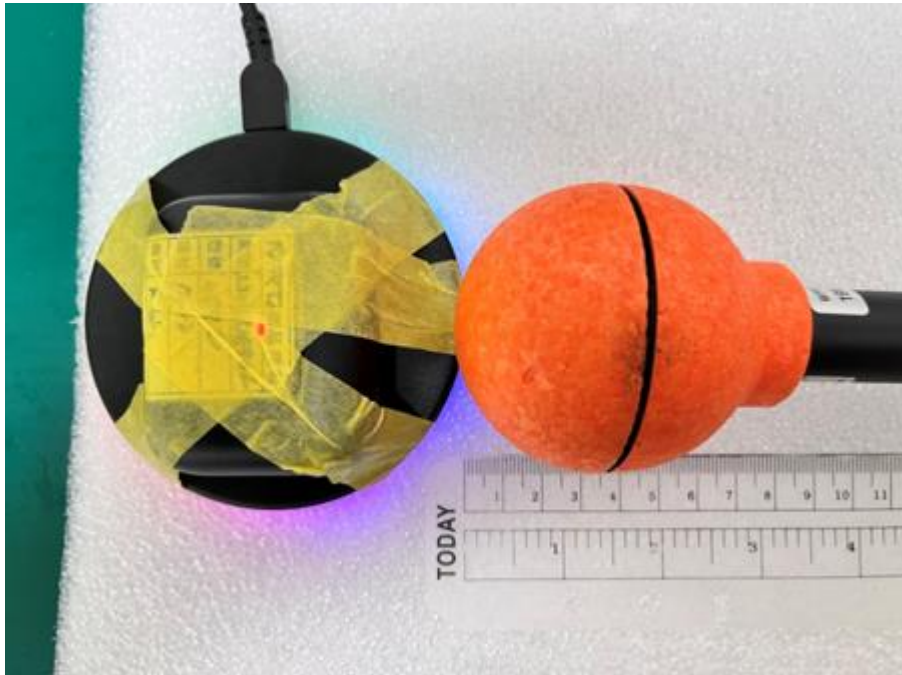
Back Side (0 cm)



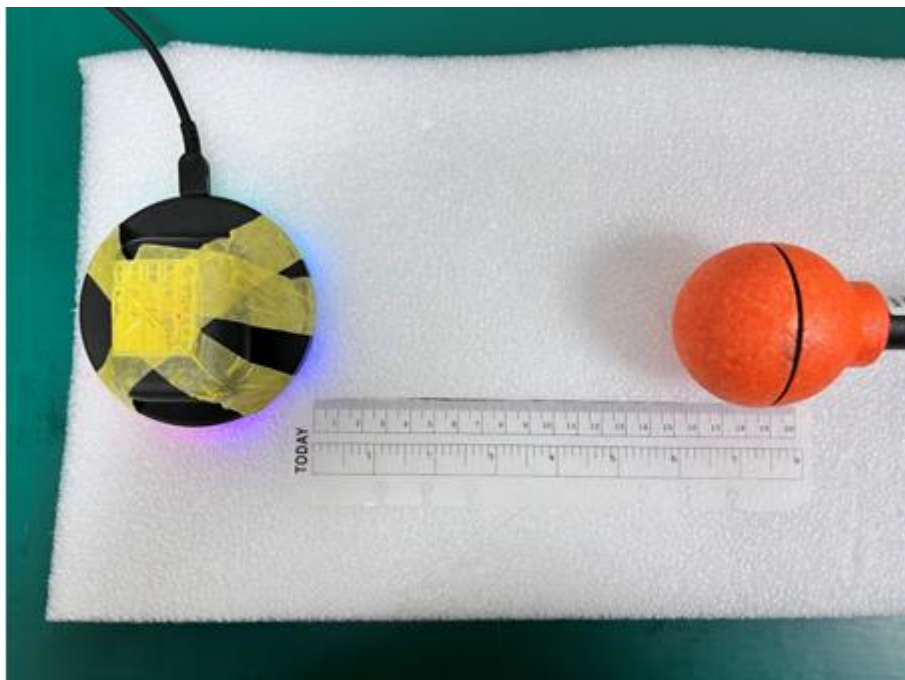
Back Side (15 cm)



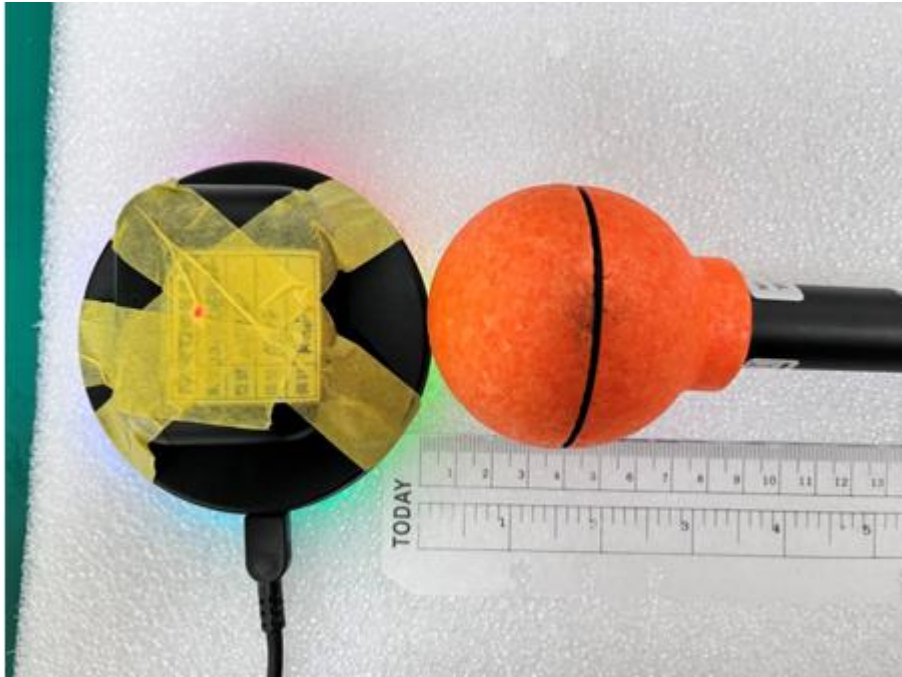
Left Side (0 cm)



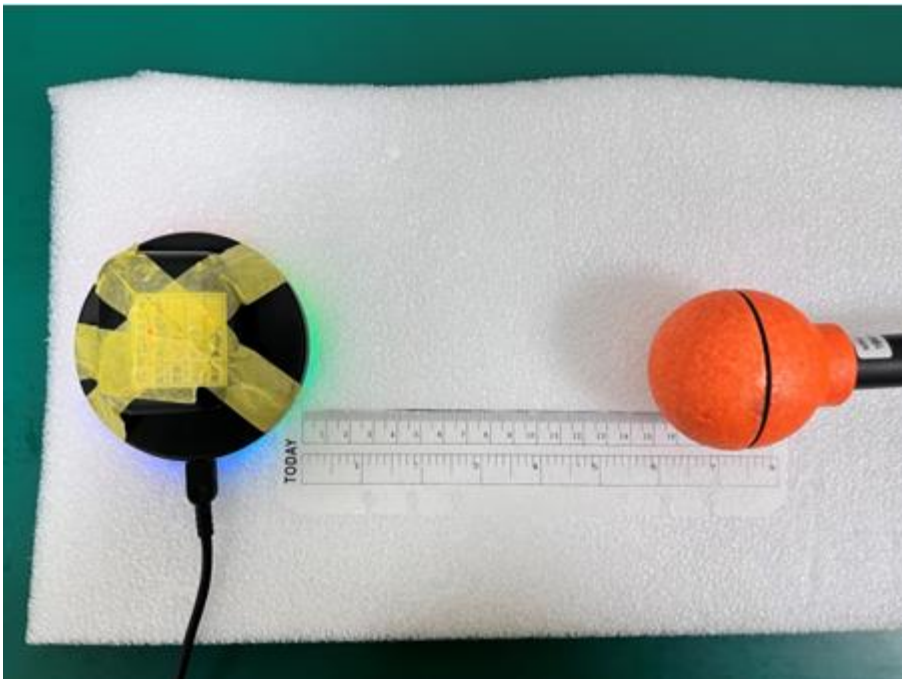
Left Side (15 cm)



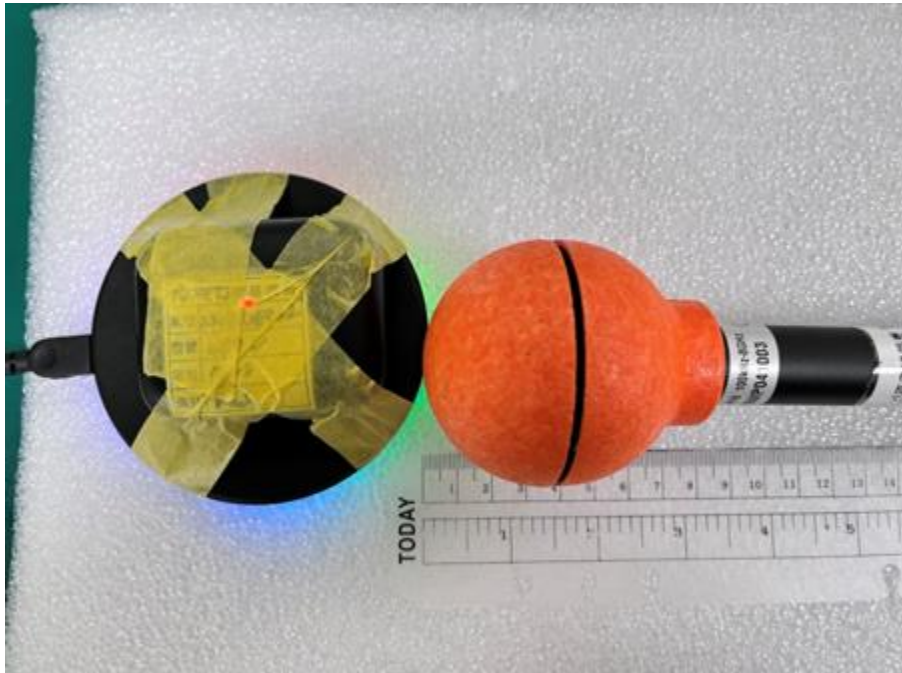
Right Side (0 cm)



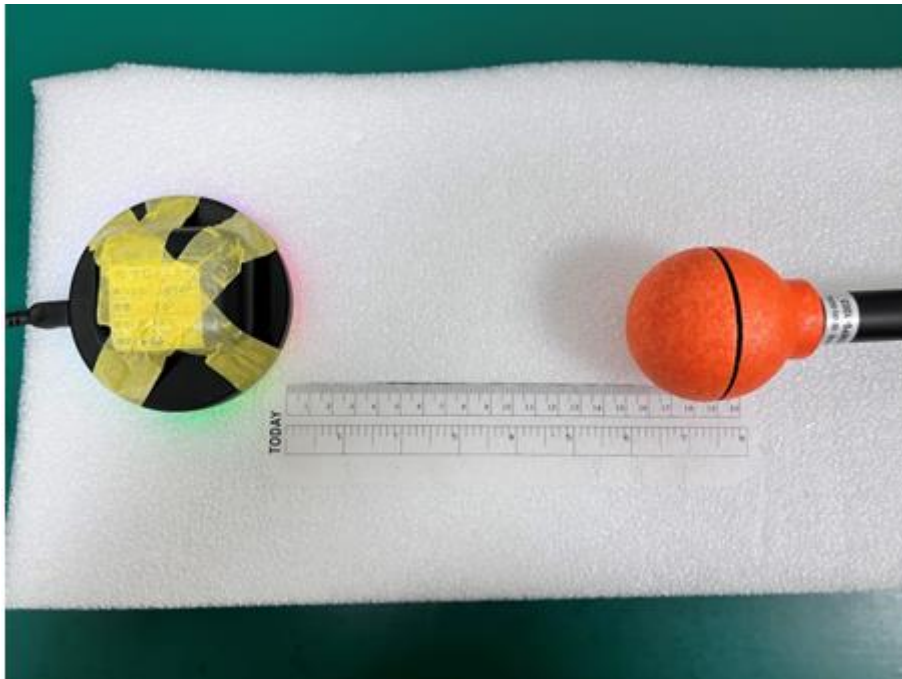
Right Side (15 cm)



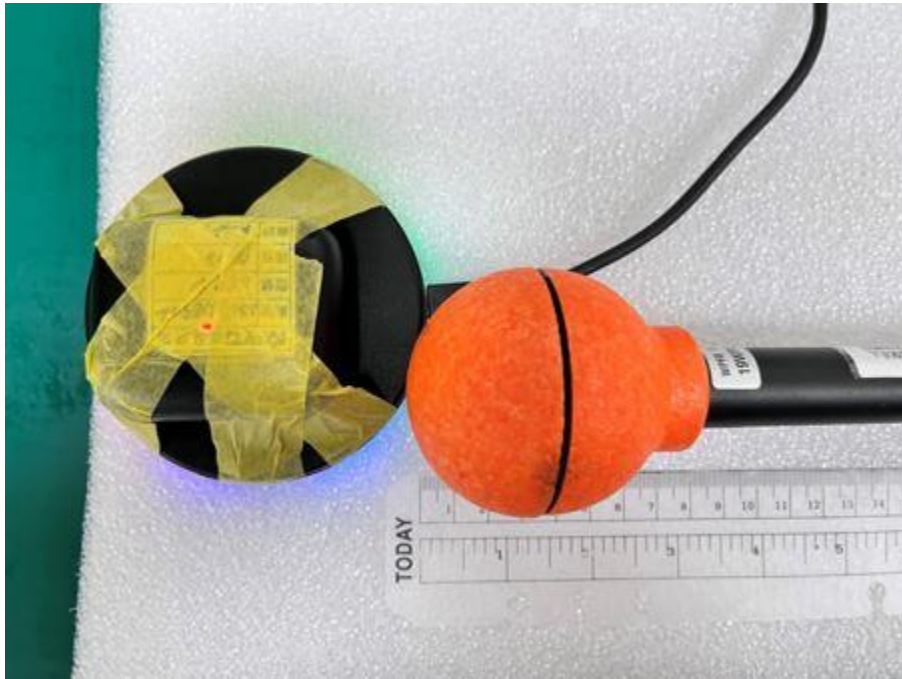
Top Side (0 cm)



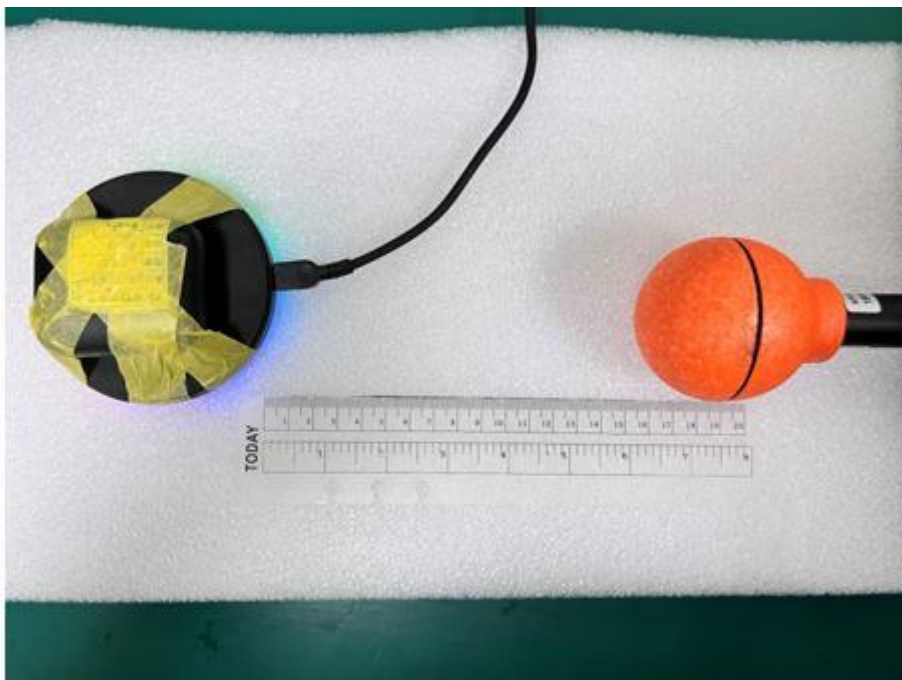
Top Side (15 cm)



Bottom Side (0 cm)



Bottom Side (15 cm)



End of Test Report