
Antenna Test Report

Report No.: AGC13300221202PA01

PRODUCT DESIGNATION : Actto Wireless/Bluetooth type Number-Keypad

BRAND NAME : ACTTO

MODEL NAME : ANBK-01

APPLICANT : Shanghai Actto Plastics Co., Ltd

DATE OF ISSUE : Jan. 06, 2023

REPORT VERSION : V1.0

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 06, 2023	Valid	Initial release

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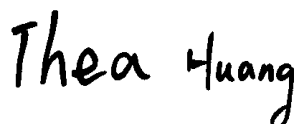
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1. PRODUCT INFORMATION

General information	
Applicant	Shanghai Actto Plastics Co., Ltd.
Address	1F 18B/L, Fashion Valley Creative Park, 618-1, Dingyuan Rd., Songjiang, Shanghai City, China
Manufacturer	Shanghai Actto Plastics Co., Ltd.
Address	1F 18B/L, Fashion Valley Creative Park, 618-1, Dingyuan Rd., Songjiang, Shanghai City, China
Factory	DONGGUAN ACTTO ELECTRONIC TECHNOLOGY CO., LTD
Address	Room201,1st Building of No. 18, Hengli Shikeng Road,Hengli Shikeng Road,Hengli Town, Dongguan City.Guangdong Province of China
Product Designation	Actto Wireless/Bluetooth type Number-Keypad
Brand Name	ACTTO
Test Model	ANBK-01
Date of receipt of test item	Dec. 08, 2022
Date of test	Dec. 08, 2022 to Jan. 06, 2023
Report Template	AGCRT-ER-PA/V1.0
Technical information	
Frequency Range	2400MHz-2500MHz
Test Frequencies	2400MHz, 2410MHz, 2420MHz, 2430MHz, 2440MHz, 2450MHz, 2460MHz, 2470MHz, 2480MHz, 2490MHz, 2500MHz
Antenna Type	PCB Antenna
Dimensions	11mm*5mm
Impedance	50 Ω
Maximum test values	Gain: -2.024dBi; Efficiency: 4.470%; VSWR: 1.162:1

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test results of this report relate only to the tested sample identified in this report.

Prepared By



Thea Huang
(Project Engineer)

Jan. 06, 2023

Reviewed By



Calvin Liu
(Reviewer)

Jan. 06, 2023

Approved By



Max Zhang
(Authorized Officer)

Jan. 06, 2023

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2. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3. TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Cal. Date	Cal. Due
Antenna Measurement System	ETS-Lindgren	AMS-8600	Nov. 25, 2022	Nov. 28, 2023
Network Analyzer	R&S	101443	Oct. 15, 2022	Oct. 14, 2023
Test Software	ETS-Lindgren	EMQuest	Ver V1.12	N/A

4. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in measurement" (GUM) published by CISPR and ANSI.

- Uncertainty of VSWR, $U_c = \pm 1.5\text{dB}$
- Uncertainty of Gain, $U_c = \pm 0.8\text{dB}$

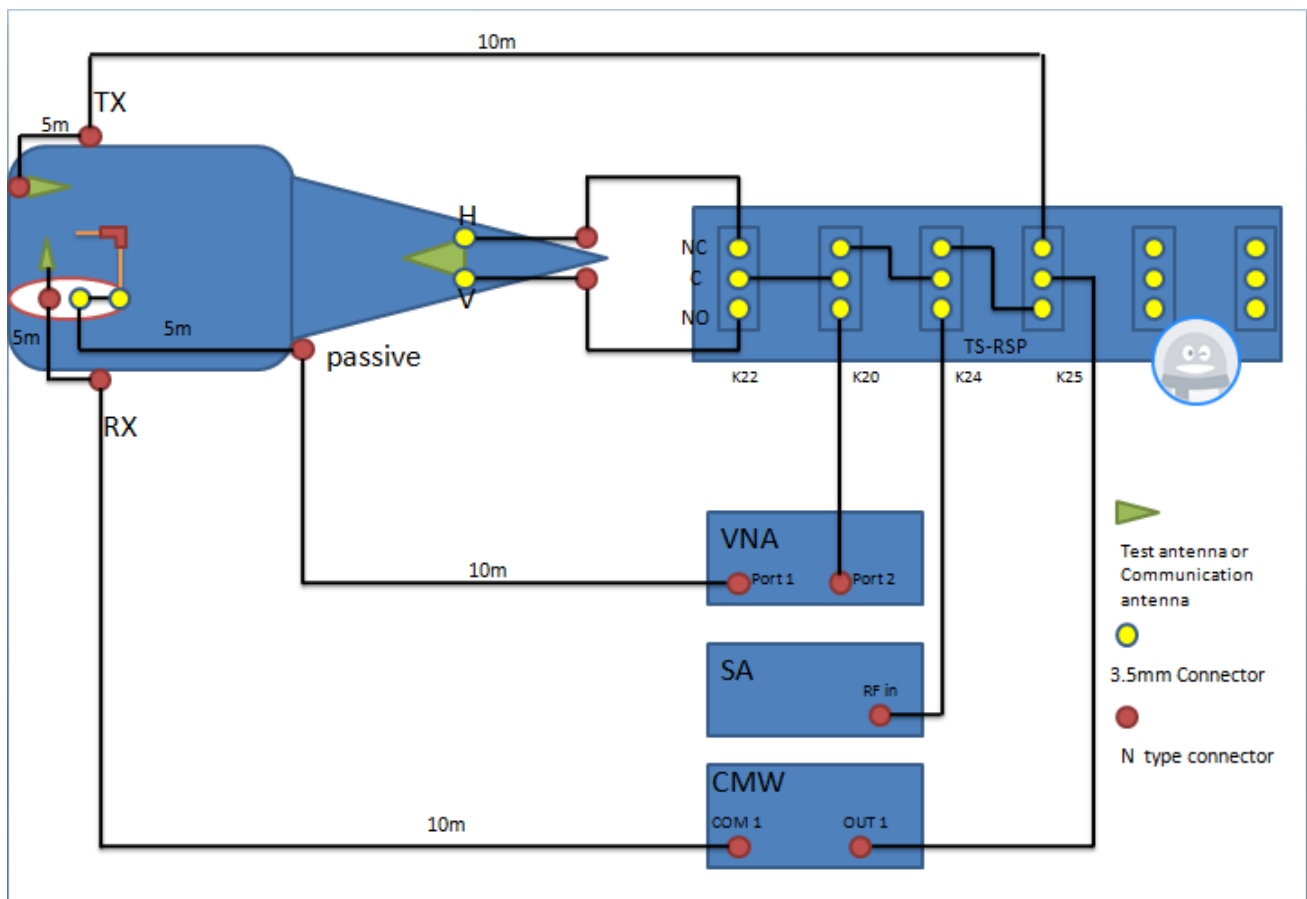
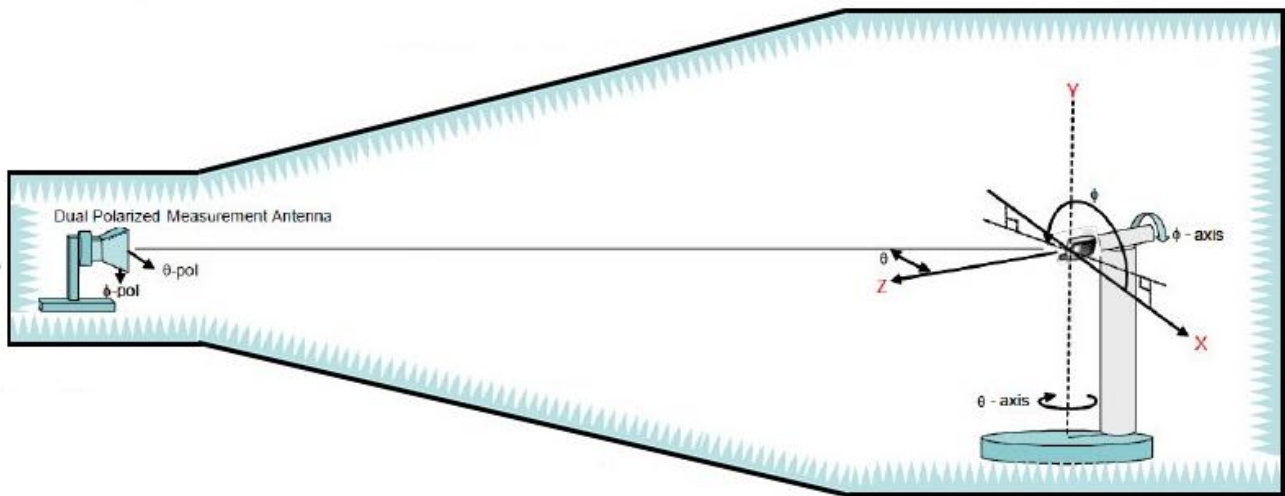
5. TEST SUMMARY LIST

NO.	Test item	Remark
1	VSWR	--
2	Gain and efficiency	--
3	Radiation pattern	--

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6. TEST SETUP



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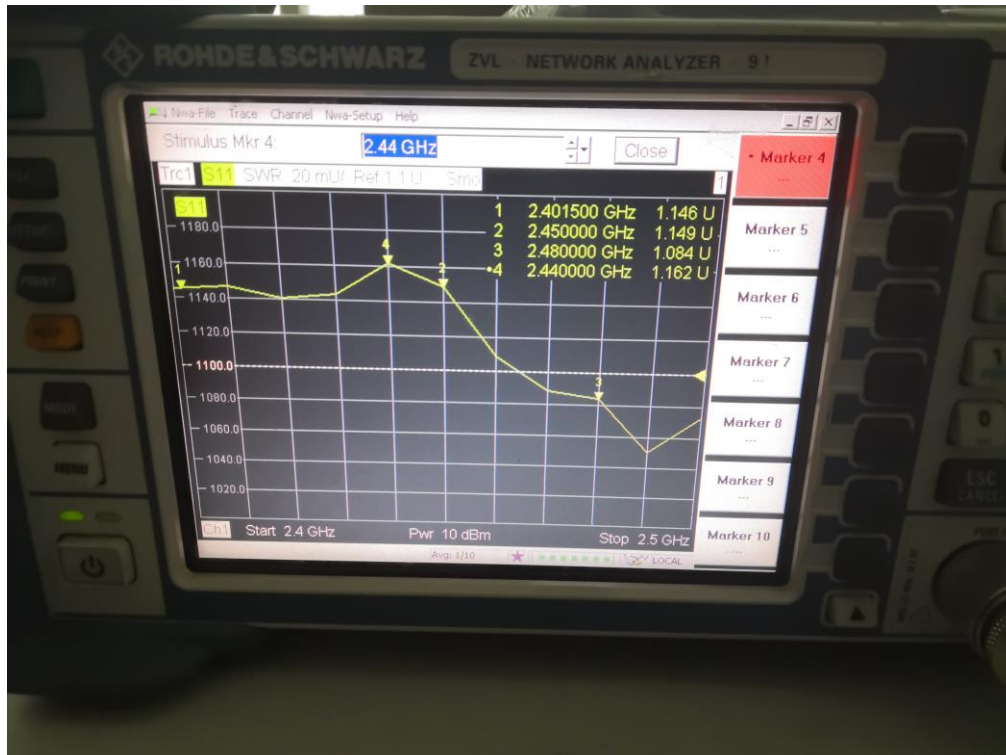
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7. TEST RESULTS

7.1. VSWR

Frequency(MHz)	VSWR
2402	1.146:1
2440	1.162:1
2450	1.149:1
2480	1.084:1



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7.2. GAIN AND EFFICIENCY

Frequency(MHz)	Efficiency(dB)	Efficiency(%)	Gain(dBi)
2400	-15.485	2.827	-2.024
2410	-15.291	2.957	-2.264
2420	-15.161	3.047	-2.800
2430	-14.704	3.384	-3.153
2440	-14.429	3.606	-3.238
2450	-14.284	3.728	-3.154
2460	-14.231	3.774	-3.745
2470	-14.145	3.849	-4.516
2480	-13.836	4.133	-5.417
2490	-13.625	4.339	-6.355
2500	-13.496	4.470	-5.888

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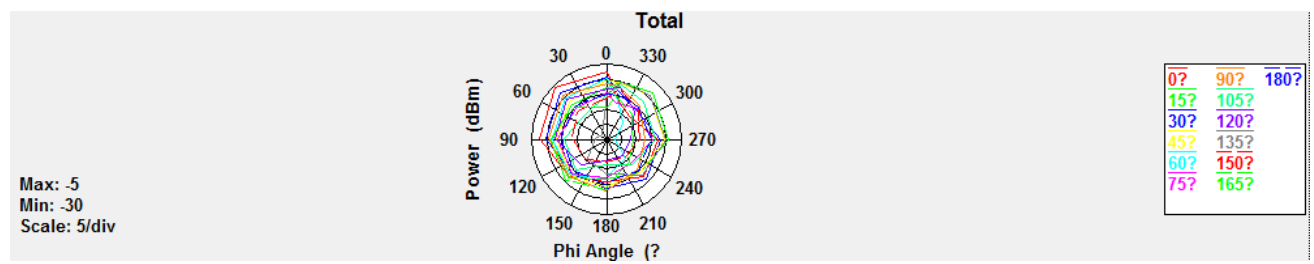
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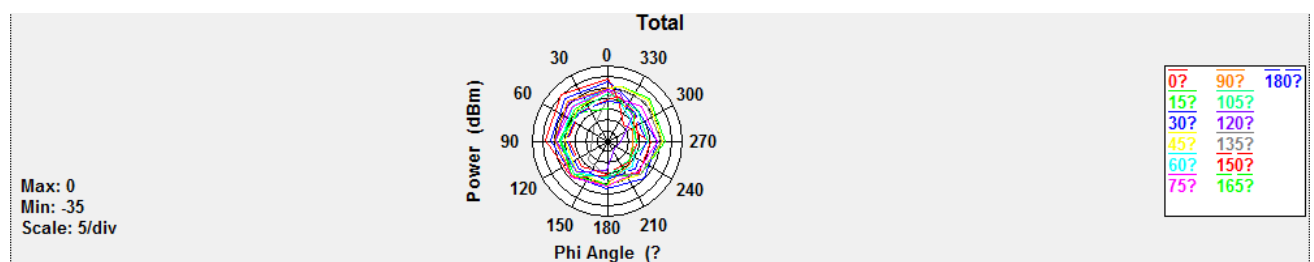
7.3. RADIATION PATTERN

2D POLAR RADIATION PATTERN

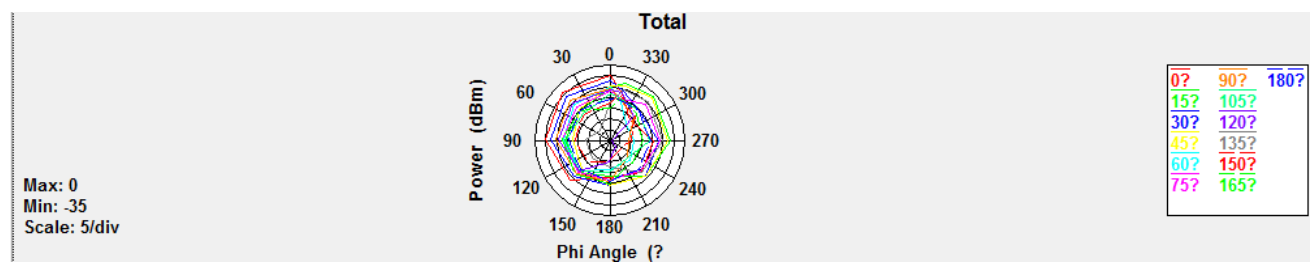
FREQUENCY=2400MHZ



FREQUENCY=2450MHZ



FREQUENCY=2500MHZ

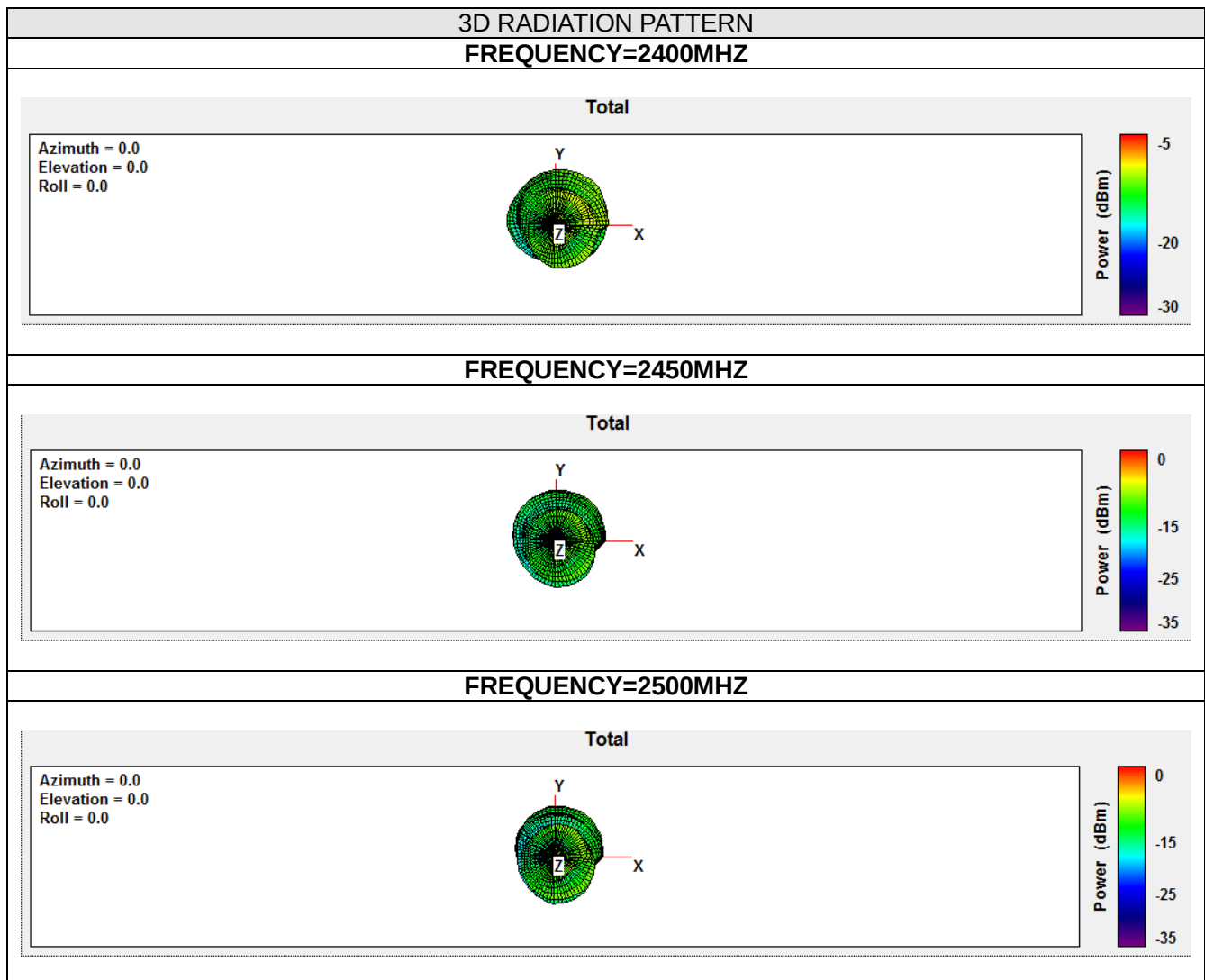


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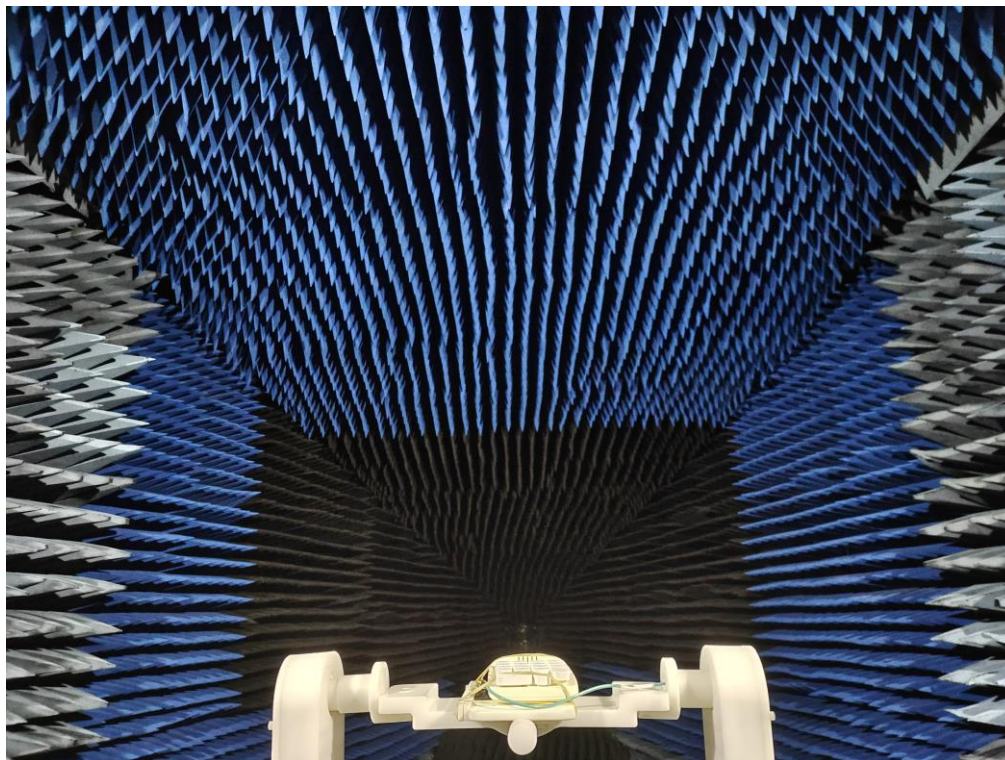


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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

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APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT



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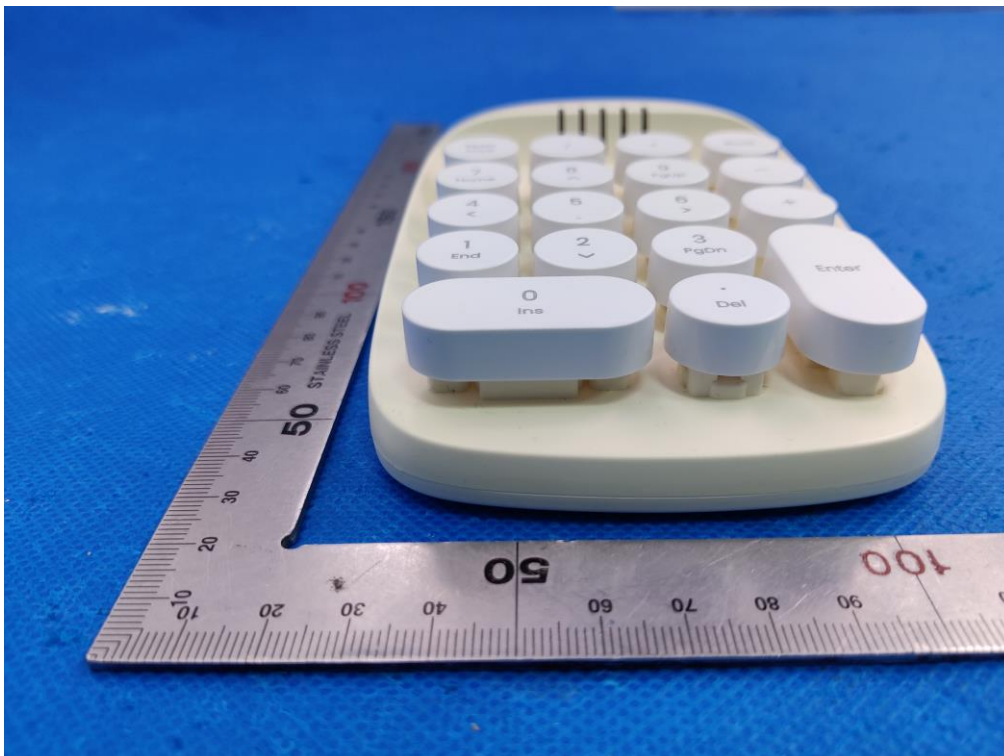
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FRONT VIEW OF EUT



BACK VIEW OF EUT



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LEFT VIEW OF EUT



RIGHT VIEW OF EUT



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OPEN VIEW OF EUT-1



OPEN VIEW OF EUT-2



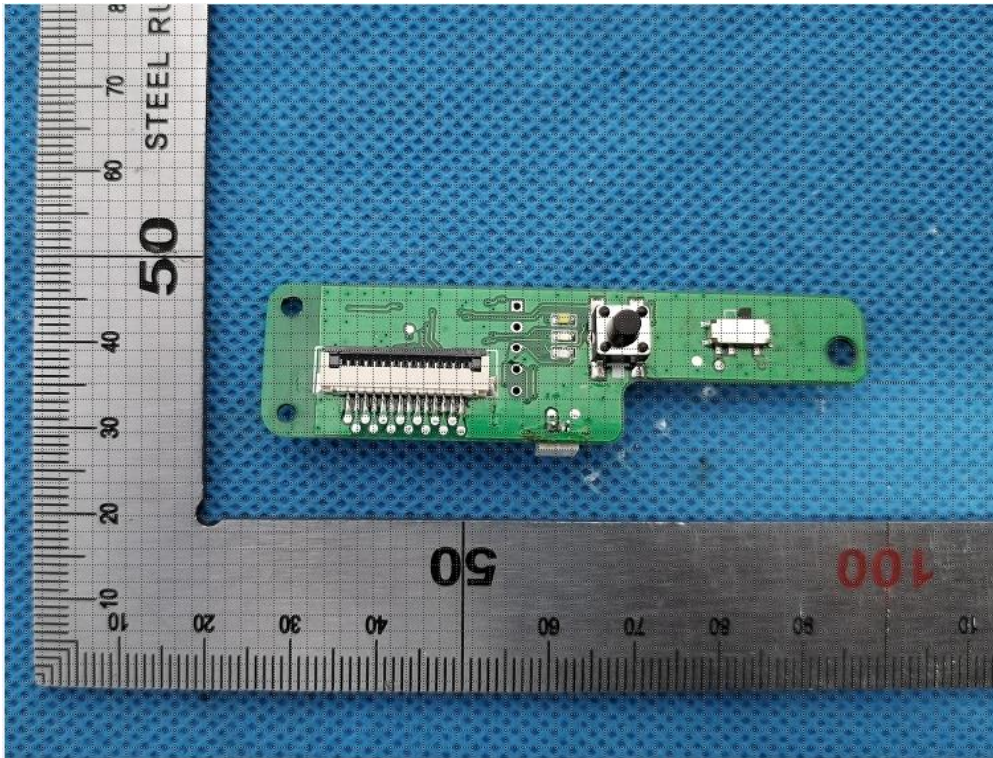
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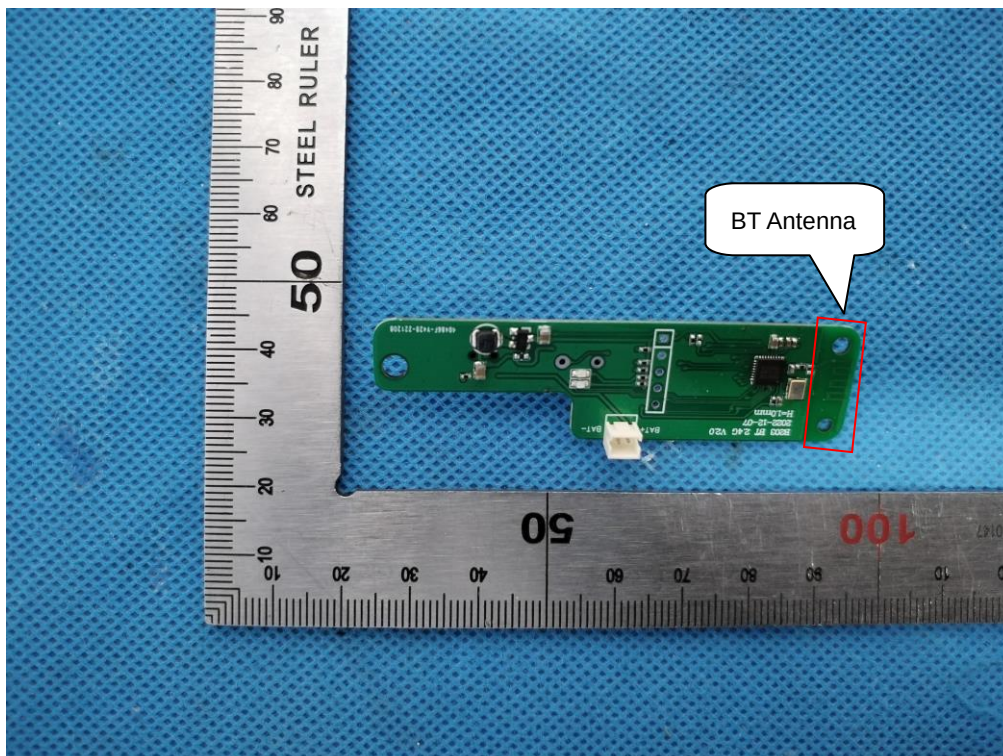
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INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



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1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the “Company”) solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the “Clients”).
2. Any report issued by Company as a result of this application for testing services (the “Report”) shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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