



Test report No. : 4790067041-US-R1-V0
Page : 1 of 9
Issued date : 2021/11/9
FCC ID : 2APDTA02PRO

Maximum Permissible Exposure Report

Product : AQUARIUS-02PRO
Model Name : A02PRO
FCC ID : 2APDTA02PRO
Test Regulation : 47 CFR FCC Part 2.1093
Received Date : 2021/7/21
Test Date : 2021/7/21 ~ 2021/7/26
Issued Date : 2021/11/9
Applicant : IONE ELECTRONIC TECHNOLOGY CO.,LTD. TAIWAN
BRANCH
8F-2, #75, Sec 1, Hsin Tai Wu Rd., Hsi Chih District, New
Taipei City, Taiwan
Issued By : Underwriters Laboratories Taiwan Co., Ltd.
Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd.,
Zhudong Township, Hsinchu County, Taiwan



The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report are responsible of the test sample(s) provided by the client only and are not to be used to indicate applicability to other similar products.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone :+886-2-7737-3000
Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0864 / 5.0



Test report No. : 4790067041-US-R1-V0
Page : 2 of 9
Issued date : 2021/11/9
FCC ID : 2APDTA02PRO

REVISION HISTORY

Original Test Report No.: 4790067041-US-R1-V0

Rev.	Test report No.	Date	Page revised	Contents
Original	4790067041-US-R1-V0	2021/11/9	-	Initial issue



Table of Contents

1. Attestation of Test Results.....	4
2. Test Methodology and Reference Procedures	5
3. Facilities and Accreditation	5
4. Equipment Under Test	6
4.1. Description of EUT.....	6
4.2. Description of Available Antennas.....	7
5. Requirement	8
6. Radio Frequency SAR Test Exclusion Thresholds	9

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone :+886-2-7737-3000
Facsimile (FAX) :+886-3-583-7948



1. Attestation of Test Results

APPLICANT: IONE ELECTRONIC TECHNOLOGY CO.,LTD. TAIWAN
 BRANCH
 8F-2, #75, Sec 1, Hsin Tai Wu Rd., Hsi Chih District, New Taipei
 City, Taiwan

EUT DESCRIPTION: AQUARIUS-02PRO

BRAND: IONE

MODEL: A02PRO

SAMPLE STAGE: Engineering Verification Test sample

APPLICABLE STANDARDS	
STANDARD	Test Results
47 CFR FCC PART 2.1093	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:

Sally Lu
Project Handler

Date : 2021/11/9

Approved and Authorized By:

Waternil Guan
Engineer

Date : 2021/11/9

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
 Telephone : +886-2-7737-3000
 Facsimile (FAX) : +886-3-583-7948



2. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with KDB 447498 D01 General RF Exposure Guidance v06.

3. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398. The full scope of accreditation can be viewed at http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone :+886-2-7737-3000
Facsimile (FAX) :+886-3-583-7948



4. Equipment Under Test

4.1. Description of EUT

Product Name	AQUARIUS-02PRO
Brand Name	IONE
Model Name	A02PRO
Operating Frequency	2402MHz ~ 2480MHz
Modulation	GFSK
Number of Channel	40
Normal Voltage	5Vdc from Adapter 3.7Vdc from Battery
S/N	N/A
Sample ID	Conducted Test: 4090232 Radiated Test: 4090228
Software Version	N/A

Note:

1. The EUT could be supplied with rechargeable battery as the following table:

Brand Name	Model	Description
Future Power	FT603048P	900mAh

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone :+886-2-7737-3000
Facsimile (FAX) :+886-3-583-7948



4.2. Description of Available Antennas

Ant. No.	Transmitter Circuit	Brand Name	Model Name	Ant. Type	Maximum Gain (dBi)
1	Chain (0)	Unictron Technologies Corp.	CW505	Chip	2.2

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone :+886-2-7737-3000
Facsimile (FAX) :+886-3-583-7948



5. Requirement

Following FCC KDB 447498 D01 “General SAR test exclusion guidance”

The corresponding SAR Exclusion Threshold condition, listed below:

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] $\cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
 - f(GHz) is the RF channel transmit frequency in GHz.
 - Power and distance are rounded to the nearest mW and mm before calculation.
 - The result is rounded to one decimal place for comparison. The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

- 2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:
 - a) [Threshold at 50 mm in step 1) + (test separation distance - 50mm) \cdot (f(MHz)/150)] mW, at 100MHz to 1500 MHz
 - b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) \cdot 10] mW at > 1500 MHz and ≤ 6 GHz

- 3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.
 - a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by $[1 + \log(100/f(\text{MHz}))]$ for test separation distances > 50 mm and < 200 mm.
 - b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$ for test separation distances ≤ 50 mm.
 - c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Telephone : +886-2-7737-3000
Facsimile (FAX) : +886-3-583-7948



6. Radio Frequency SAR Test Exclusion Thresholds

Operating Mode	Evaluation Frequency	Max. Average power	Antenna Gain	Min. test separation distance	SAR test exclusion calculation value	1-g SAR test exclusion thresholds	Result
	(MHz)	(mW)	(dBi)	(mm)			
BT-LE-1M	2480	3.09	2.20	5	0.973	3	PASS
BT-LE-2M	2480	3.083	2.20	5	0.971	3	PASS

Note:

1. Calculate SAR test exclusion thresholds from section 5.1 formulas.

Conclusion:

Since Source-base time average power is below SAR test exclusion power thresholds, the SAR evaluation is not required.

END OF REPORT

Underwriters Laboratories Taiwan Co., Ltd.

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0864 / 5.0