



An IIA Company

Test Report - RF Exposure Evaluation Report for SAR Exclusion

Applicant: Thornwave Labs Inc.

Approved for Release By:

Signature: *Bruno Clavier*

Name & Title: Bruno Clavier, General Manager
Date of Signature
(YYYY-MM-DD): 4/8/2022

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1. Customer Information

Applicant: Thornwave Labs Inc.
Address: 75 Lockamy Ln
Youngsville, North Carolina, 27596, United States

2. Location of Testing

2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at Timco's permanent laboratory located at 849 NW State Road 45, Newberry, Florida 32669

FCC test firm # 578780
FCC Designation # US1070
FCC site registration is under A2LA certificate # 0955.01
ISED Canada test site registration # 2056A
EU Notified Body # 1177
For all designations see A2LA scope # 0955.01



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2.2 Testing was performed, reviewed by

Dates of Testing: 3/29/2022 – 3/30/2022

Signature:

A handwritten signature of Tim Royer.

Sr. EMC Engineer
EMC-003838-NE



Name & Title:

Tim Royer, EMC Engineer

Date of Signature

4/8/2022

Signature:

A handwritten signature of Kristoffer Costa.

Name & Title:

Kristoffer Costa, EMC Technician

Date of Signature

4/8/2022



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3. Test Sample(s) (EUT/DUT)

The test sample was received: 3/29/2022

3.1 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

Identification

Identification	
FCC ID	2AM22-PMON5S
Brief Description	Bluetooth Low Energy Battery Monitor/DC Power Meter
Model(s) #	PowerMon-5S
Firmware version	n/a
Software version	n/a
Serial Number	n/a

Technical Characteristics

Technical Characteristics	
Technology	BLE
Frequency Range	2400-2483.5 MHz
RF O/P Power (Max.)	0.00028 W
Duty Cycle	100%
Antenna Connector	N/A
Voltage Rating (AC or Batt.)	DC 8-72V

Antenna Characteristics

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	2400-2483.5 MHz	n/a	0 dBi

4. SAR EXCLUSION CALCULATION:

SAR EXCLUSION CALCULATION:

447498 D01 General RF Exposure Guidance v06
 Section 4.3.1 General SAR test exclusion guidance

Equation:

For 100 MHz to 6 GHz and *test separation distances* \leq 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR,}^{30} \text{ where}$

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation³¹
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

MPE							
Frequency Band	Separation Distance (mm)	Max Power + Tolerance (dBm)	Max Power + Tolerance (mW)	SAR Exclusion Value	Limit for 1-g SAR	Limit for 10-g SAR (Extremities)	SAR Exclusion
2402-2480 MHz	5	-5.53	0.28	0.09	3.0	7.5	SAR EXEMPT

Conclusion: SAR testing is not required.



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5. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_1558-22_RF Exp SAR Exclusion Rpt	1	Initial release	4/4/2022
	3	Updated Page 6	4/8/2022



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END OF TEST REPORT
