

Radio Exposure Evaluation Report

FCC ID : TLZ-HM482

Equipment : IEEE 802.11ah Wireless LAN Module

Brand Name : AzureWave

Model Name : AW-HM482

Applicant : AzureWave Technologies, Inc.
8F., No.94, Baozhong Rd. , Xindian Dist., New Taipei City , Taiwan 231

Manufacturer : AzureWave Technologies, Inc.
8F., No.94, Baozhong Rd. , Xindian Dist., New Taipei City , Taiwan 231

Standard : 47 CFR FCC Part 2 Subpart J, section 2.1091

The product was received on Mar. 22, 2021, and testing was started from Jun. 10, 2021 and completed on Aug. 04, 2021. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR FCC Part 2 Subpart J, section 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. Hsinhua Laboratory
No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)



Table of Contents

HISTORY OF THIS TEST REPORT3

1 GENERAL DESCRIPTION5

1.1 Information.....5

1.2 Testing Location5

2 MAXIMUM PERMISSIBLE EXPOSURE6

2.1 Limit of Maximum Permissible Exposure6

2.2 MPE Calculation Method6

2.3 Calculated Result and Limit.....7

Photographs of EUT V01



Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items | Result (PASS/FAIL) | Remark |
|---------------|-----------------|---------------------|--------------------|--------|
| 2 | - | Exposure evaluation | PASS | - |

| |
|--|
| Declaration of Conformity: |
| The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. |
| Comments and Explanations: |
| None |

Reviewed by: Sam Tsai
Report Producer: Debby Hung

1 General Description

1.1 Information

1.1.1 EUT General Information

| RF General Information | | | |
|------------------------|-----------------------|---------------------------|-----------------|
| Evaluation Mode | Frequency Range (MHz) | Operating Frequency (MHz) | Modulation Type |
| SRD | 902-928 | 903.5-926.5 | OFDM |

1.1.2 Antenna Information

| Ant. | Brand | Model Name | Antenna Type | Connector | Gain (dBi) |
|------|--------|----------------|----------------|-----------|------------|
| 1 | Cortec | AN0915-5001BSM | Diople antenna | I-PEX | 2.0 |

1.1.3 Table for Multiple Listing

The SKU in the following table are all refer to the identical product.

| SKU | Item | Y1 | Y2 | U5 | PCB |
|-----|-------|--------------------|-----------------|---------------|-------------|
| A | Brand | TXC | SIWARD | Winbond | APCB |
| | Model | 8Z32000014 | XTL721-S999-311 | W25Q16JWXHIQ | 2482 Ver:02 |
| B | Brand | SIWARD | TXC | GigaDevice | Weiershun |
| | Model | XTL581100-A269-010 | 9H03270011 | GD25LQ16EEIGR | 2482 Ver:02 |

SKU A configuration was pretested and found to be the worst case and measured during the test.

1.1.4 Accessories

| Accessories | | | | | |
|-------------|------------|--------|------------|----------------|--|
| Antenna | Brand Name | Cortec | Model Name | AN0915-5001BSM | |

Reminder: Regarding to more detail and other information, please refer to user manual.

1.2 Testing Location

| Test Lab. : Sporton International Inc. Hsinhua Laboratory | | | | | |
|---|-----------------------------|---|--|--|--|
| <input checked="" type="checkbox"/> | Hsinhua (TAF: 3785) | ADD: No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.) TEL: 886-3-327-3456 FAX: 886-3-327-0973 | | | |
| Test site Designation No. TW3785 with FCC. | | | | | |
| <input type="checkbox"/> | Wen 33rd.St. (TAF: 3785) | ADD: No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: 886-3-318-0787 FAX: 886-3-318-0287 | | | |
| Test site Designation No. TW0008 with FCC. | | | | | |

2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|--|--|
| 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 |
| 1500-100,000 | - | - | 5 | 6 |

(B) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|--|--|
| 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 |
| 1500-100,000 | - | - | 1.0 | 30 |

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit. The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

| Mode | DG (dBi) | Power (dBm) | EIRP (dBm) | Tolerance (dB) | Tune-up EIRP (dBm) | Tune-up EIRP (W) | Distance (cm) | S (mW/cm ²) | S Limit (mW/cm ²) |
|-------|----------|-------------|------------|----------------|--------------------|------------------|---------------|-------------------------|-------------------------------|
| 0.9G; | 2.00 | 25.51 | 27.51 | 0.50 | 28.01 | 0.63241 | 20 | 0.12581 | 0.60400 |

—————THE END—————