

FCC RADIO EXPOSURE TEST REPORT

FCC ID : HEDML16035
Equipment : MetroLin Outdoor 60GHz PTP + 5GHz + 2.4GHz
Brand Name : Ignitenet
Model Name : ML1-60-35/ML1-60-19
Applicant : Accton Technology Corp
No. 1, Creation Rd. III, Science-based Industrial
Park Hsin Chu 30077, Taiwan
Manufacturer (1) : Joy Technology (Shen Zhen) Co. Ltd
HengKeng Ind., Shangpai, Shangwu, Aiqun Rd.,
Shiyan Town, Shenzhen 518108 China
Manufacturer (2) : Accton Technology Corp
No. 1, Creation Rd. III, Science-based Industrial
Park Hsin Chu 30077, Taiwan
Standard : 47 CFR Part 2.1091

The product was received on Aug. 19, 2019, and testing was started from Aug. 24, 2019 and completed on Aug. 27, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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


Approved by: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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Report Template No.: CB-A1_1 Ver1.0



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:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Wendy Pan



1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 5500-5700 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

Note 1: This device contains transmitter 60GHz module FCC ID: HED-ML60MDSB

Note 2: WLAN and 60G work at the same time.

1.1.1 Table for Multiple Listing

The EUT has two model names which are identical to each other in all aspects except for the following table:

Brand Name	Model Name	EUT No.	WLAN 2.4GHz	WLAN 5GHz	60GHz
			Ant. Model Name	Ant. Model Name	Ant. Model Name
Ignitenet	ML1-60-35	EUT 1	OS-242509-NM	120G00000174X	123400001485A
	ML1-60-19	EUT 2	OS-242509-NM	120G00000175X	123400001486A

From the above models, model: ML1-60-35 was selected as representative model for the test and its data was recorded in this report.

1.2 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FA7D2234-05

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Adding 5GHz band 2 and band 3 (5250~5350 MHz, 5470~5725 MHz) for this device.	MPE
2. Modifying the 5.8G Tolerance.	

Note: Maximum Permissible Exposure of 2.4GHz and 5GHz band 1, 4 are based on original test report.



1.3 Testing Location

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

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)*	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)*	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 65 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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)
2.4G;D1D	7.82	26.87	34.69	0.50	35.19	3.30370	65	0.06222	1.00000
5.2G;D1D	20.00	13.53	33.53	0.50	34.03	2.52930	65	0.07550	1.00000
5.3G;D1D	16.10	13.70	29.80	0.19	29.99	0.99770	65	0.01879	1.00000
5.6G;D1D	16.00	13.78	29.78	0.21	29.99	0.99770	65	0.01879	1.00000
5.8G;D1D	20.00	16.89	36.89	0.01	36.90	4.89779	65	0.09225	1.00000

Simultaneous Transmission Analysis EUT 1 Mode: WLAN 2.4GHz+WLAN 5GHz+60GHz

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)	Ratio (S/Limit)
2.4G;G1D	7.82	26.87	34.69	0.50	35.19	3.30370	65	0.06222	1	0.06222
5.8G;D1D	20.00	16.89	36.89	0.01	36.90	4.89779	65	0.09225	1	0.09225
60G	42.00	3.81	45.81	0.50	46.31	42.75629	65	0.80529	1	0.80529
									Sum Ratio	0.95976
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————