



A Test Lab Techno Corp.

Changan Lab : N o. 140-1, Changan Street, Bade District, Taoyuan City 33465, Taiwan (R.O.C)
Tel : 886-3-271-0188 / Fax : 886-3-271-0190



MPE Report

Test Report No.	: 1609FS17-01
Applicant	: Wuunet Technology Co ., Ltd
Product Type	: Wara Home
Trade Name	: wuunet
Model Number	: WB101U
Date of Received	: Jul. 28, 2016
Test Period	: Aug. 12, 2016
Date of Issued	: Oct. 27, 2016
Test Specification	: ANSI / IEEE Std.C95.1-1992 / IEEE Std. 1528-2013 47 CFR § 2.1091 47 CFR § 1.1310
Location of Test Lab.	: Chang-an Lab.

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
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Approved By

: Bill Hu
(Bill Hu)

Tested By

: Mark Duan
(Mark Duan)



Contents

1. Description of Equipment under Test (EUT).....	3
2. Human Exposure Assessment.....	4
3. RF Output Power	5
4. Test Result	6



1. Description of Equipment under Test (EUT)

Applicant	Wuunet Technology Co., Ltd 7F, No. 209, Bldg. B, Sec. 1, Nangang Rd., Nangang Dist., Taipei City, Taiwan	
Manufacturer	Wuunet Technology Co., Ltd 7F, No. 209, Bldg. B, Sec. 1, Nangang Rd., Nangang Dist., Taipei City, Taiwan	
Product Type	Wara Home	
Trade Name	wuunet	
Model Number	WB101U	
FCC ID	2AF8P-WB101U	
Frequency Range	IEEE 802.11b / 802.11g / 802.11n 2.4GHz 20MHz : 2412 - 2462 MHz IEEE 802.11n 2.4GHz 40MHz : 2422 - 2452 MHz	
Antenna information	Type	Max. Gain (dBi)
	monopole Antenna	2.546
Antenna Delivery	1TX + 1RX	
RF Evaluation	0.004 mW/cm ²	

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1091 / 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties



2. Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons." This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: "IMPORTANT: To meet the FCC's RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna". Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a "mobile device" as defined in section § 2.1091 paragraph (b).

Exposure evaluation

$$S = \frac{PG}{4\pi R^2}$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna.



3. RF Output Power

The conducted power turn-up tolerance reference manufacturer specification.

Band	Date Rate	CH	Frequency (MHz)	Average Conducted power (dBm)
IEEE 802.11b	1M	1	2412.0	10.18
		6	2437.0	9.13
		11	2462.0	9.02
IEEE 802.11g	6M	1	2412.0	5.05
		6	2437.0	4.52
		11	2462.0	4.47
IEEE 802.11n 2.4GHz 20MHz	6.5M	1	2412.0	4.38
		6	2437.0	4.69
		11	2462.0	4.55
IEEE 802.11n 2.4GHz 40MHz	13.5M	3	2422.0	4.13
		6	2437.0	3.78
		9	2452.0	3.85



4. Test Result

Band	Data Rate	Frequency (MHz)	Limit (mw)	Distance [R] (cm)	Max tune-up Power (upper limit) [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	[P] x [G] with Duty cycle [TP] (mW)	Power Density [S] (mw/cm ²)
IEEE 802.11b	1M	2412	1	20	10.50	2.546	1.8	1	20.200	0.004
		2437	1	20	10.50	2.546	1.8	1	20.200	0.004
		2462	1	20	10.50	2.546	1.8	1	20.200	0.004
IEEE 802.11g	6M	2412	1	20	5.50	2.546	1.8	1	6.390	0.001
		2437	1	20	5.50	2.546	1.8	1	6.390	0.001
		2462	1	20	5.50	2.546	1.8	1	6.390	0.001
IEEE 802.11n 2.4GHz 20MHz	6.5M	2412	1	20	5.50	2.546	1.8	1	6.390	0.001
		2437	1	20	5.50	2.546	1.8	1	6.390	0.001
		2462	1	20	5.50	2.546	1.8	1	6.390	0.001
IEEE 802.11n 2.4GHz 40MHz	13.5M	2422	1	20	5.00	2.546	1.8	1	5.690	0.001
		2437	1	20	5.00	2.546	1.8	1	5.690	0.001
		2452	1	20	5.00	2.546	1.8	1	5.690	0.001

Note:

1. The Numeric Gain calculated by $10^{(\text{ant. Gain(dBi)} / 10)}$.
2. Each band max power which perform MPE of any configurations.