



A Test Lab Techno Corp.

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MPE Report

Test Report No.	: 1502FS12-02
Applicant	: Ubiquiti Networks,Inc
Manufacturer	: Ubiquiti Networks,Inc
Product Type	: airGateway PRO
Trade Name	: UBIQUITI
Model Number	: AMG-PRO, AMG-PRO-INS
Date of Received	: Jan. 28, 2015
Test Period	: Feb. 06, 2015
Date of Issued	: Apr. 13, 2015
Test Specification	: 47 CFR § 2.1091 47 CFR §1.1310 ANSI / IEEE Std.C95.1-1992
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
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1. Description of Equipment under Test (EUT)

Applicant	Ubiquiti Networks, Inc
Applicant Address	2580 Orchard Parkway, San Jose CA95131, USA
Manufacturer	Ubiquiti Networks, Inc
Manufacturer Address	2580 Orchard Parkway, San Jose CA95131, USA
Product Type	airGateway PRO
Trade Name	UBIQUITI
Model Number	AMG-PRO, AMG-PRO-INS
Different Description	These model numbers differ from each other in selling region.
Hardware Version	02024
Software Version	V1.1
Radio Hardware Version	DC3A
Radio Software Version	V1.1
FCC ID	SWX-AMGPRO
Frequency Range	2412 - 2462 MHz IEEE 802.11b / IEEE 802.11g 2412 - 2462 MHz IEEE 802.11n (2.4GHz) 20MHz 2422 - 2452 MHz IEEE 802.11n (2.4GHz) 40MHz 5180 - 5825 MHz IEEE 802.11a 5180 - 5825 MHz IEEE 802.11n (5GHz) 20MHz 5190 - 5795 MHz IEEE 802.11n (5GHz) 40MHz
Transmit Power (conducted power)	IEEE 802.11b: 0.142 W / 21.53 dBm IEEE 802.11g: 0.070 W / 18.44 dBm IEEE 802.11n (2.4GHz) 20MHz: 0.053 W / 17.22 dBm IEEE 802.11n (2.4GHz) 40MHz: 0.032 W / 15.04 dBm IEEE 802.11a: 0.078 W / 18.92 dBm IEEE 802.11n (5GHz) 20MHz: 0.072 W / 18.60 dBm IEEE 802.11n (5GHz) 40MHz: 0.046 W / 16.66 dBm
Antenna Specification	IEEE 802.11b, IEEE 802.11g: 1 dBi IEEE 802.11n (2.4GHz) 20MHz / 40MHz: 1 dBi IEEE 802.11a, IEEE 802.11n (5GHz) 20MHz / 40MHz: 2 dBi
Antenna Designation	PIFA Antenna
RF Evaluation	0.40 W/m 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

Band	Data Rate	CH	Frequency (MHz)	RF Power setting in Test Software	Test Software Version
IEEE 802.11b	1M	1	2412.0	17.00	Atheros Radio Test 2 ART2-GUI Version:2.2 CART Version:2.54
		6	2437.0	17.00	
		11	2462.0	17.00	
IEEE 802.11g	6M	1	2412.0	13.50	
		6	2437.0	13.50	
		11	2462.0	13.50	
IEEE 802.11n (2.4GHz) 20MHz	19.5M	1	2412.0	12.50	
		6	2437.0	12.50	
		11	2462.0	12.50	
IEEE 802.11n (2.4GHz) 40MHz	40.5M	3	2422.0	10.00	
		6	2437.0	10.00	
		9	2452.0	10.00	

Band	Data Rate	CH	Frequency (MHz)	RF Power setting in Test Software	Test Software Version
IEEE 802.11a	6M	36	5180.0	13.0	Atheros Radio
		40	5200.0	13.0	
		44	5220.0	13.0	
		48	5240.0	13.0	
		149	5745.0	13.0	
		153	5765.0	13.0	
		157	5785.0	13.0	
		161	5805.0	13.0	
		165	5825.0	13.0	
IEEE 802.11n (5GHz) 20MHz	26M	36	5180.0	12.5	
		40	5200.0	12.5	
		44	5220.0	12.5	
		48	5240.0	12.5	
		149	5745.0	12.5	
		153	5765.0	12.5	
		157	5785.0	12.5	
		161	5805.0	12.5	
		165	5825.0	12.5	
IEEE 802.11n (5GHz) 40MHz	54M	38	5190.0	10.5	
		46	5230.0	10.5	
		151	5755.0	10.5	
		159	5795.0	10.5	



Band	Data Rate	CH	Frequency (MHz)	Average Conducted power (dBm)		
				ANT-1	ANT-2	ANT-1+2
IEEE 802.11b	1M	1	2412.0	19.03	17.94	21.53
		6	2437.0	18.29	17.88	21.10
		11	2462.0	18.67	17.48	21.13
IEEE 802.11g	6M	1	2412.0	15.83	14.99	18.44
		6	2437.0	15.26	14.97	18.13
		11	2462.0	15.72	14.21	18.04
IEEE 802.11n (2.4GHz) 20MHz	13M	1	2412.0	14.37	14.04	17.22
		6	2437.0	13.96	13.90	16.94
		11	2462.0	14.28	13.19	16.78
IEEE 802.11n (2.4GHz) 40MHz	27M	3	2422.0	12.67	11.29	15.04
		6	2437.0	12.00	11.24	14.65
		9	2452.0	11.89	11.05	14.50
IEEE 802.11a	6M	36	5180.0	16.16	14.62	18.47
		40	5200.0	16.43	15.09	18.82
		44	5220.0	16.02	14.56	18.36
		48	5240.0	15.96	14.68	18.38
		149	5745.0	15.48	15.07	18.29
		153	5765.0	15.40	15.25	18.34
		157	5785.0	15.73	16.08	18.92
		161	5805.0	15.76	15.86	18.82
IEEE 802.11a (5GHz) 20MHz	13M	36	5180.0	15.27	14.16	17.76
		40	5200.0	15.81	14.57	18.24
		44	5220.0	14.98	14.50	17.76
		48	5240.0	15.58	14.54	18.10
		149	5745.0	14.92	14.25	17.61
		153	5765.0	14.81	14.71	17.77
		157	5785.0	15.18	15.58	18.39
		161	5805.0	15.30	15.86	18.60
		165	5825.0	14.75	15.79	18.31
IEEE 802.11a (5GHz) 40MHz	27M	38	5190.0	12.96	12.58	15.78
		46	5230.0	12.66	12.33	15.51
		151	5755.0	13.57	13.20	16.40
		159	5795.0	13.84	13.45	16.66



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] (dBi)	Duty Cycle	[P] x [G] with Duty cycle [TP] (mW)	Power Density [S] (mw)/cm ²
IEEE 802.11b	1M	2412	1.000	20	22	1	1.26	1	199.7	0.040
		2437	1.000	20	22	1	1.26	1	199.7	0.040
		2462	1.000	20	22	1	1.26	1	199.7	0.040
IEEE 802.11a	6M	5180	1.000	20	19	2	1.58	1	125.5	0.025
		5200	1.000	20	19	2	1.58	1	125.5	0.025
		5220	1.000	20	19	2	1.58	1	125.5	0.025
		5240	1.000	20	19	2	1.58	1	125.5	0.025
		5745	1.000	20	19	2	1.58	1	125.5	0.025
		5765	1.000	20	19	2	1.58	1	125.5	0.025
		5785	1.000	20	19	2	1.58	1	125.5	0.025
		5805	1.000	20	19	2	1.58	1	125.5	0.025
		5825	1.000	20	19	2	1.58	1	125.5	0.025

- Note: 1. The Numeric Gain calculated by $10^{(\text{ant. Gain(dBi)} / 10)}$.
- If the conducted power of (IEEE 802.11n-HT20 and IEEE 802.11n-HT40 for 5G) higher than IEEE 802.11a 0.25dB,(IEEE 802.11n-HT20 and IEEE 802.11n-HT40 for 5G) are supposed to be tested.
 - If the conducted power of (IEEE 802.11g & IEEE 802.11n) are higher than IEEE 802.11b 0.25dB,(IEEE 802.11g & IEEE 802.11n) are supposed to be tested.