



Compliance Certification Services Inc.

Report No: C160330Z01-RP1 MPE FCC ID: 2AHVHPW5002 Date of Issue: May 27, 2016

RADIO FREQUENCY EXPOSURE

LIMIT

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See §15.247(b)(4) and §1.1307(b)(1) of this chapter.

Conducted Power Results

Antenna	Mode	Frequency(MHz)	AVG Conducted Output Power (dBm)
Antenna 1	IEEE 802.11b	2412	14.42
		2437	12.04
		2462	12.31
	IEEE 802.11g	2412	13.27
		2437	14.05
		2462	12.53
	IEEE 802.11n HT20	2412	8.53
		2437	8.7
		2462	9.59
	IEEE 802.11n HT40	2422	9.59
		2437	9.47
		2452	9.5
Antenna 2	IEEE 802.11b	2412	11.56
		2437	11.25
		2462	12.17
	IEEE 802.11g	2412	9.87
		2437	10.03
		2462	10.55
	IEEE 802.11n HT20	2412	9.45
		2437	9.29
		2462	9.76
	IEEE 802.11n HT40	2422	9.85
		2437	10.1
		2452	10.01



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Manufacturing tolerance

Antenna 1			
IEEE 802.11b (AVG)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	14.0	12.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11g (AVG)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	13.0	14.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (AVG)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	8.0	8.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (AVG)			
Frequency (MHz)	2422	2437	2452
Target (dBm)	9.0	9.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
Antenna 2			
IEEE 802.11b (AVG)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	11.0	11.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11g (AVG)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	9.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (AVG)			
Frequency (MHz)	2412	2437	2462
Target (dBm)	9.0	9.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (AVG)			
Frequency (MHz)	2422	2437	2452
Target (dBm)	9.0	10.0	10.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0



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EUT Specification

EUT	600M Powerline Adapter with WiFi
Frequency band (Operating)	☒ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ WLAN: 5.745GHz ~ 5.825GHz ☐ Bluetooth: 2.402GHz~ 2.480GHz ☐ Others
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others _____
Exposure classification	☐ Occupational/Controlled exposure ($S = 5mW/cm^2$) ☒ General Population/Uncontrolled exposure ($S=1mW/cm^2$)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Max. output power	14.42dBm (27.67mW)
Antenna gain (Max)	3.0dBi (Numeric gain:2.00)
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Note:

1. The maximum output power(including turn tolerance) is 14.42dBm (27.67mW) and maximum antenna gain is 3.0dBi
2. For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20 cm, even if the calculations indicate that the MPE distance would be lesser.



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TEST RESULT

No non-compliance noted.

Calculation

Given $S = \frac{P \times G}{4\pi d^2}$ *Equation 1*

Where $d = \text{distance in cm}$

$P = \text{Power in mW}$

$G = \text{Numeric antenna gain}$

$S = \text{Power Density in mW / cm}^2$

Maximum Permissible Exposure

EUT Output Power=27.67mW

Numeric antenna gain=2.00

Substituting the MPE safe distance using $d=20$ cm into *Equation 1* :

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The power density $S = 27.67 \times 2.00 / (4\pi \times 400) \text{ cm}^2 = 1.10 \times 10^{-2} \text{ mW/cm}^2$

(For mobile or fixed location transmitters, the maximum power density is 1.0 mW / cm^2 even if the calculation indicates that the power density would be larger.)