



RF Exposure Report

Report No.: SA141229E04

FCC ID: Q87-WRT1200AC

Test Model: WRT1200AC

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Applicant: Linksys LLC

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Release Control Record

Issue No.	Description	Date Issued
SA141229E04	Original release.	Mar. 13, 2015

2 RF Exposure

2.1 Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 22cm away from the body of the user.

So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Brand	Gain (dBi)	Cable Loss (dB)	Net Gain (dBi)	Frequency Range (GHz to GHz)	Antenna Type	Connector Type
Chain (0)	LINKSYS	2.5	1	1.5	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	1.6	1	5.15 ~ 5.25		
		3.8	1.9	1.9	5.725 ~ 5.85		
Chain (1)	LINKSYS	2.5	1	1.5	2.4 ~ 2.4835	DIPOLE	R-SMA
		2.6	1.5	1.1	5.15 ~ 5.25		
		3.8	2.1	1.7	5.725 ~ 5.85		

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	938.114	4.51	22	0.43571	1
5180-5240	928.803	4.06	22	0.38893	1
5745-5825	974.638	4.81	22	0.48505	1

NOTE:

For 15.247

2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$ = 4.51dBi

5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$ = 4.81dBi

For 15.407

5GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$ = 4.06dBi

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 +etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.43571 + 0.48505 = 0.921

Therefore the maximum calculations of above situations are less than the “1” limit.

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