RF Exposure Evaluation Declaration

Product Name　：WiFi Module

Model No.　　：WACIO_GP_XXX(XXX=001~100)

FCC ID.　　　：2AEL6WACIOGP001

Applicant : Phytrex Technology Corp.

Address　: 3F-2, No. 189, Sec. 2 Keelung Rd.,

　　　　　　Taipei, 11054. Taiwan

Date of Receipt　　：2015/03/28

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Report No.　　　　：1540306R-RF-US-Exp

Report Version　　：V1.0

Testing Laboratory
3024

The declaration results relate only to the samples calculated.

The declaration shall not be reproduced except in full without the written approval of QuieTek Corporation.

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in mW/cm^2

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

Pd id the limit of MPE, 1 mW/cm^2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18℃ and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product	WiFi Module
Test Mode	Transmit
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2dBi or 1.58 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11b(Ant 0)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
1	2412	190.5461	0.05989
6	2437	223.8721	0.07037
11	2462	158.4893	0.04982

IEEE 802.11g(Ant 0)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
1	2412	251.1886	0.07896
6	2437	281.8383	0.08859
11	2462	141.2538	0.04440

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.

Product	WiFi Module
Test Mode	Transmit
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2dBi or 1.58 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11n (20MHz) (Ant 0)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
1	2412	239.8833	0.07540
6	2437	288.4032	0.09065
11	2462	151.3561	0.04758

IEEE 802.11n (40MHz) (Ant 0)			
WLAN Function			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
3	2422	223.8721	0.07037
6	2437	263.0268	0.08268
9	2452	169.8244	0.05338

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.