MRT Technology (Suzhou) Co., Ltd
Phone: +86-512-66308358
Fax: +86-512-66308368
Web: www.mrt-cert.com

Report No.: 1605RSU00202
Report Version: V01
Issue Date: 05-31-2016

RF Exposure Evaluation Declaration

FCC ID:	TK4-10-WLE200NX
APPLICANT:	Compex Systems Pte Ltd

Application Type:	Certification
Product:	Wireless-A/B/G/N Network Mini PCIe Adapter
Model No.:	WLE200NX, WLE200NX-I
Brand Name:	COMPEX
FCC Classification:	Unlicensed National Information Infrastructure (UNII)

Reviewed By : Robin Wu
(Robin Wu)

Approved By : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date
1605RSU02002	Rev. 01	Initial report	05-31-2016

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	Wireless-A/B/G/N Network Mini PCIe Adapter
Model No.	WLE200NX, WLE200NX-I
Frequency Range	**For 5.0GHz Band:** 802.11a/n: 5150 ~ 5350MHz 5470 ~ 5725MHz 5725 ~ 5850MHz
Type of Modulation	802.11b: DSSS 802.11g/a/n: OFDM

1.2. Antenna Description

Antenna Type	Frequency Band (MHz)	Max Peak Gain (dBi)	Directional Gain (dBi)	
			For Power Measurement	For PSD Measurement
Dipole Antenna	5150 ~ 5850	2	2	5.01

Note: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

For CDD transmissions, directional gain is calculated as follows, N_{ANT} = 2, N_{SS} = 1.

If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

  Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;

- For power measurements on IEEE 802.11 devices,

  Array Gain = 0 dB for $N_{ANT} \leq 4$;

2. RF Exposure Evaluation

2.1. 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

Calculation 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 is the limit of MPE, $1mW/cm^2$. 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.

2.2. Test Result of RF Exposure Evaluation

Product	Wireless-A/B/G/N Network Mini PCIe Adapter
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to Clause 1.2 of antenna description.

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
802.11a/n	5180 ~ 5240 5260 ~ 5320 5500 ~ 5720 5745 ~ 5825	22.27	0.0532	1

CONCULISON:

The Max Power Density at R (20 cm) = 0.0532mW/cm^2 < 1mW/cm^2.

So the EUT complies with the requirement.

The End