





RF Exposure Evaluation Declaration

Applicant : Compex Systems Pte Ltd
Product : WIRELESS-BGN 23DBM 2X2 NETWORK MINI PCIE
ADAPTER
Model No. : WLE200N2-23, MMS2N26E, MPS2N26E, MMJ2N26E,
MML2N26E, MPE72N2-23, WPE72N2-23, MMS72N2-23,
MPS72N2-23, MMJ72N2-23
Brand Name : COMPEX
FCC ID : TK4WLE200N2-23
Standards : FCC Oet65 Supplement C June 2001
Test Date : May 26, 2013 ~ Jun 09, 2013

Reviewed By : 
(Engineer: Sunny Sun)
Approved By : 
(Manager: Marlin Chen)

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date
1305RSU00203	Rev. 01	Initial report	2013-06-09
1305RSU00203	Rev. 02	Updated the model no for EUT	2013-06-19

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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1mW/cm². 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°C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product	WIRELESS-BGN 23DBM 2X2 NETWORK MINI PCIE ADAPTER
Test Item	RF Exposure Evaluation

Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 14dBi for 2.4GHz in logarithm scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

Operation Mode	Frequency Range (MHz)	Maximum EIRP (dBm)	Limit of Power Density $S(W/m^2)$	Safety Distance r(cm)
802.11b/g/n(20MHz)	2412~2462	27.19	10	6.45
802.11n(40MHz)	2422~2452	27.12	10	6.40

So the safety distance is 6.45cm for WIRELESS-BGN 23DBM 2X2 NETWORK MINI PCIE ADAPTER installed without any other radio equipment.