# FCC TEST REPORT for Shenzhen Paoluy Silicone Technology Co., Ltd.

Bluetooth Keyboard Model No.: BL-BKB83B

Prepared for : Shenzhen Paoluy Silicone Technology Co., Ltd.

Address : No.31, Furong Road, Gushu Village, Xixiang Town, Bao'an

District, Shenzhen

Prepared By : Anbotek Compliance Laboratory Limited

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Report Number : 201112749F

Date of Test : Dec. 19~21, 2011

Date of Report : Dec. 22, 2011

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APPENDIX I (Photos of EUT) (3 Pages)

#### **TEST REPORT**

Applicant : Shenzhen Paoluy Silicone Technology Co., Ltd.

Manufacturer : Shenzhen Paoluy Silicone Technology Co., Ltd.

EUT : Bluetooth Keyboard

Model No. : BL-BKB83B

Serial No. : N/A

Rating : DC 3.7-4.2V, 5-7mA

Trade Mark : N/A

Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.249 & 15.209

The device described above is tested by Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Anbotek Compliance Laboratory Limited

Date of Test:	Dec. 19~21, 2011				
Prepared by:	Andy chen				
	(Engineer / Andy Chen)				
Reviewer :	Cow. Kiang				
	(Project Manager / Coco Xiang)				
	Henry. Jung.				
Approved & Authorized Signer:					
	(Manager / Henry Yang)				

## 1. GENERAL INFORMATION

## 1.1. Description of Device (EUT)

EUT : Bluetooth Keyboard

Model Number : BL-BKB83B

Test Power Supply: DC 3.7V

Frequency: 2402~2480MHz

Antenna : Printed Antenna: 1.87dBi

Specification

Applicant : Shenzhen Paoluy Silicone Technology Co., Ltd.

Address : No.31, Furong Road, Gushu Village, Xixiang Town, Bao'an District,

Shenzhen

Manufacturer : Shenzhen Paoluy Silicone Technology Co., Ltd.

Address : No.31, Furong Road, Gushu Village, Xixiang Town, Bao'an District,

Shenzhen

Date of receiver : Dec. 19, 2011

Date of Test : Dec. 19~21, 2011

## 1.2. Auxiliary Equipment Used during Test

PC : Manufacturer: DELL

M/N: OPTIPLEX 380

S/N: 1J63X2X CE , FCC: DOC

MONITOR : Manufacturer: DELL

M/N: E170Sc

S/N: CN-00V539-64180-055-0UPS

CE, FCC: DOC

MOUSE : Manufacturer: DELL

M/N: M-UARDEL7

S/N: N/A

CE, FCC: DOC

Cable: 1m, unshielded

Printer : Manufacturer:Brother

M/N: MFC-3360C

S/N: N/A

CE, FCC:DOC

Power Line : Non-Shielded, 1.5m

VGA Cable : Non-Shielded, 1.5m

USB Cable : Non-Shielded, 0.5m

#### 1.3. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### **CNAS - LAB Code: L3503**

Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

#### FCC-Registration No.: 752021

Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, August 20, 2010.

#### IC-Registration No.: 8058A-1

Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, August 30, 2010.

#### **Test Location**

All Emissions tests were performed at

Anbotek Compliance Laboratory Limited. at 1/F, 1 /Building, SEC Industrial Park, No. 4 Qianhai Road, Nanshan District, Shenzhen, 518054, China

#### 1.4. Measurement Uncertainty

Radiation Uncertainty : Ur = 4.3 dB

Conduction Uncertainty : Uc = 3.4dB

## 2. MEASURING DEVICE AND TEST EQUIPMENT

IVILIAD CITAL	d bevice mid test even ment							
Equipment	Manufacturer	Model #	Serial #	Data of Cal.	<b>Due Data</b>			
EMI Test Receiver	Rohde & Schwarz	ESCI	100119	Mar.03, 2011	Mar.02, 2012			
EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	Sep.22, 2011	Sep.21, 2012			
EMI Test Software	SHURPLE	ESK1	N/A	N/A	N/A			
Spectrum Analyzer	Agilent	E7405A	MY45114970	Jun.21, 2011	Jun.20, 2012			
Signal Generator	Rohde & Schwarz	SMR27	100124	Jul.06, 2011	Jul.05, 2012			
Signal Generator	Rohde & Schwarz	SML03	102319	Aug.01, 2011	Aug.01, 2012			
AC Power Source	Sepcial power system	YF650	N/A	N/A	N/A			
Absorbing Clamp	Rohde & Schwarz	MDS21	100218	Apr.30, 2011	Apr.29, 2012			
Power Meter	Rohde & Schwarz	NRVD	101287	Jul.19, 2011	Jul.18, 2012			
Coaxial Cable	N/A	N/A	N/A	May.31, 2011	May.30, 2012			
Coaxial Cable	N/A	N/A	N/A	May.31, 2011	May.30, 2012			
Coaxial Cable	N/A	N/A	N/A	May.31, 2011	May.30, 2012			
Universal radio Communication tester	Rohde & Schwarz	CMU200	101724	Sep.08, 2011	Sep.07, 2012			
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A			
BiConilog Antenna	ETS-LINDGREN	3142C	00042670	Mar.03, 2011	Mar.02, 2012			
BiConilog Antenna	ETS-LINDGREN	3142C	00042673	Mar.03, 2011	Mar.02, 2012			
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00035926	Nov.30, 2011	Nov.29, 2012			
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00041545	Nov.30, 2011	Nov.29, 2012			
Pre-amplifier	CD	PAM0203	804203	Jun.21, 2011	Jun.20, 2012			
RF Switch	CD	RSU-M3	706543	Jun.21, 2011	Jun.20, 2012			
Thermo-/Hygrometer	N/A	TH01	N/A	May.03, 2011	May.02, 2012			
Shielding Room	Zhong Yu Electronic	N/A	N/A	N/A	N/A			
3m Semi-Anechoic Chamber	Zhong Yu Electronic	N/A	N/A	Apr.28, 2011	Apr.27, 2012			

#### 3. Test Procedure

**GENERAL**: This report shall NOT be reproduced except in full without the written approval of Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

**RADIATION INTERFERENCE**: The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

**FORMULA OF CONVERSION FACTORS**: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

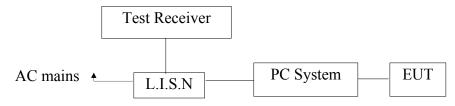
#### Example:

**ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES**: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

## 4. Conducted Limits

#### 4.1. Block Diagram of Test Setup

#### 4.1.1. Block diagram of connection between the EUT and simulators



(EUT: Bluetooth Keyboard)

## 4.2. Power Line Conducted Emission Measurement Limits (15.207)

Frequency	Limits dB(μV)				
MHz	Quasi-peak Level	Average Level			
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*			
0.50 ~ 5.00	56	46			
5.00 ~ 30.00	60	50			

Notes: 1. \*Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

## 4.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

EUT : Bluetooth Keyboard

Model Number : BL-BKB83B

Applicant : Shenzhen Paoluy Silicone Technology Co., Ltd.

#### 4.4. Operating Condition of EUT

4.4.1. Setup the EUT and simulator as shown as Section 4.1.

4.4.2. Turn on the power of all equipment.

4.4.3. Let the EUT work in test mode (Charging) and measure it.

#### 4.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2003 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test results are reported on Section 4.6.

## 4.6. Power Line Conducted Emission Measurement Results **PASS.**

The frequency range from 150KHz to 30 MHz is investigated.

Please refer the following pages.

#### CONDUCTED EMISSION TEST DATA

EUT: Bluetooth Keyboard M/N: BL-BKB83B

Operating Condition: Charging

Test Site: 1# Shielded Room

Operator: Andy Chen

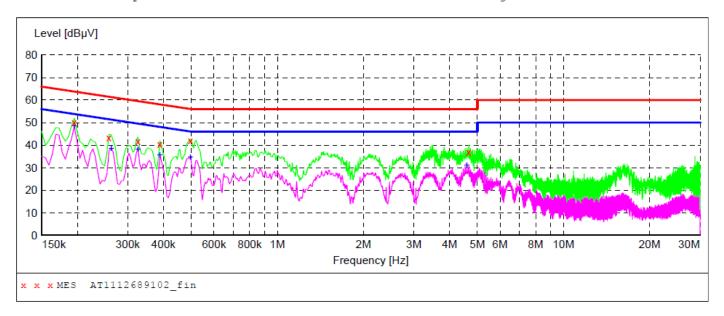
Test Specification: AC 120V/60Hz for PC

Comment: Live Line

Tem:25°C Hum:50%

#### SCAN TABLE: "Voltage (150K~30M) FIN"

Short Description: 150K-30M Disturbance Voltages



#### MEASUREMENT RESULT: "AT1112689102 fin"

12/21/2011	8:49AM						
Frequenc	y Level	Transd	Limit	Margin	Detector	Line	PE
MH	z dBµV	dB	dΒμV	dB			
0.19500	0 50.10	10.1	64	13.7	QP	L1	GND
0.25800	0 43.20	10.1	62	18.3	QP	L1	GND
0.32550	0 41.90	10.1	60	17.7	QP	L1	GND
0.38850	0 40.40	10.1	58	17.7	QP	L1	GND
0.49650	0 42.10	10.1	56	14.0	QP	L1	GND
4.66750	0 36.80	10.5	56	19.2	QP	L1	GND

#### MEASUREMENT RESULT: "AT1112689102 fin2"

12/21/2011 8 Frequency MHz	B:49AM Level dBμV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	48.40	10.1	54	5.4	AV	L1	GND
0.262500	38.40	10.1	51	13.0	AV	L1	GND
0.325500	38.30	10.1	50	11.3	AV	L1 $L1$	GND
0.388500	35.60	10.1	48	12.5	AV		GND
0.496500 4.595500	34.80 31.10	10.1	46 46	11.3	AV AV	L1 L1	GND GND

#### CONDUCTED EMISSION TEST DATA

EUT: Bluetooth Keyboard M/N: BL-BKB83B

**Operating Condition:** Charging

Test Site: 1# Shielded Room

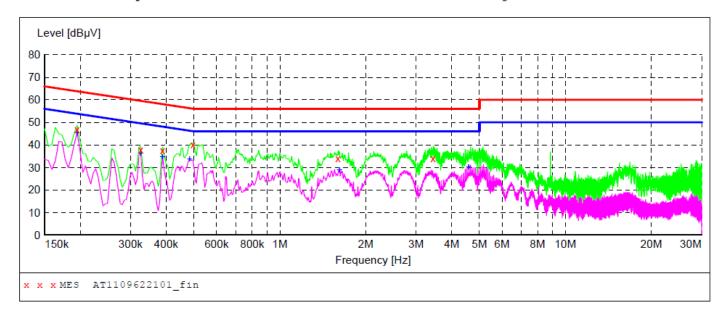
Operator: Andy Chen

Test Specification: AC 120V/60Hz for PC

Comment: **Neutral Line** 

Tem:25°C Hum:50%

SCAN TABLE: "Voltage (150K~30M) FIN"
Short Description: 150K-30M Disturbance Voltages



#### MEASUREMENT RESULT: "AT1112689101 fin"

12/21/2011 Frequency MHz	Level	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	46.90	10.1	64	16.9	QP	N	GND
0.325500	37.80	10.1	60	21.8	QP	N	GND
0.388500	37.50	10.1	58	20.6	QP	N	GND
0.496500	40.30	10.1	56	15.8	QP	N	GND
1.598500	34.10	10.3	56	21.9	QP	N	GND
3.443500	34.00	10.4	56	22.0	QP	N	GND

#### MEASUREMENT RESULT: "AT1112689101 fin2"

12/21/2011 8 Frequency MHz	B:45AM Level dBμV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	45.20	10.1	54	8.6	AV	N	GND
0.325500	36.30	10.1	50	13.3	AV	N	GND
0.388500	34.50	10.1	48	13.6	AV	N	GND
0.483000	33.80	10.1	46	12.5	AV	N	GND
1.616500	28.90	10.3	46	17.1	AV	N	GND
4.586500	30.10	10.5	46	15.9	AV	N	GND

#### 5. Radiation Interference

#### 5.1. Requirements (15.249, 15.209):

FIELD STRENGTH	FIELD STRENGTH	S15.209	
of Fundamental:	of Harmonics	30 - 88 MHz	40 dBuV/m @3M
902-928 MHZ		88 - 216 MHz	43.5
2.4-2.4835 GHz		216 - 960 MHz	46
94 dBμV/m @3m	54 dBμV/m @3m	ABOVE 960 MHz	54dBuV/m

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

#### 5.2 Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9\*6\*6 Chamber.

The test results are listed in Section 5.3.

#### 5.3 Test Results

PASS.

Please refer the following pages.

## Data:

Horizontal
CH Low(2402MHz)

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	$dB\mu V$	$dB\mu V/m$	$dB\mu V/m$	dB	
312.17	1.6	13.30	41.40	64.01	37.51	46.00	-8.49	ΩP
								QP
360.45	1.65	13.45	41.42	57.80	31.48	46.00	-14.52	QP
2402.00	2.20	31.24	35.30	88.40	86.54	114.0	-27.46	Peak
2402.00	2.20	31.24	35.30	85.40	83.54	94.0	-10.46	AV
4804.10	2.64	35.11	34.71	36.31	39.35	74.0	-34.65	Peak
4804.10	2.64	35.11	34.71	33.34	36.38	54.0	-17.62	AV
7207.93	3.09	36.20	35.15	36.14	40.28	74.0	-33.72	Peak
7207.93	3.09	36.20	35.15	33.04	37.18	54.0	-16.82	AV
9608.00								
12010.00								
14412.00								
16814.00								
19216.00								
21618.00								
24020.00								

CH	Mid	ر 11	(2/1/	1 1 1	$H_{2}$
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CII MIIUC	11 <b>C</b> (24411V)	111Z)						
Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	$dB\mu V$	$dB\mu V/m$	$dB\mu V/m$	dB	
312.17	1.6	13.30	41.40	64.15	37.65	46.00	-8.35	QP
2441.01	2.21	31.25	35.90	88.41	85.97	114.0	-28.03	Peak
2441.01	2.21	31.25	35.90	85.35	82.91	94.0	-11.09	AV
4882.12	2.65	35.10	34.73	38.20	41.22	74.0	-32.78	Peak
4882.12	2.65	35.10	34.73	35.10	38.12	54.0	-15.88	AV
7323.25	3.10	36.20	35.17	34.36	38.49	74.0	-35.51	Peak
7323.25	3.10	36.20	35.17	30.34	34.47	54.0	-19.53	AV
9764.00								
12205.00								
14646.00								
17087.00								
19528.00								
21969.00								
24410.00								

$C\Pi$	Lligh	(210	0MHz	`
$c_{\Pi}$	HISH	1240	UIVITZ	,

Frequency	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
MHz	dB	dB/m	dB	$dB\mu V$	$dB\mu V/m$	$dB\mu V/m \\$	dB	
312.17	1.6	13.30	41.40	62.88	36.38	46.00	-9.62	QP
2480.00	2.23	31.32	36.00	85.54	83.09	114.0	-30.91	Peak
2480.00	2.23	31.32	36.00	83.45	81.0	94.0	-13.0	AV
4960.10	2.67	35.06	34.80	37.20	40.13	74.0	-33.87	Peak
4960.10	2.67	35.06	34.80	33.10	36.03	54.0	-17.97	AV
7439.94	3.11	36.20	35.20	34.42	38.53	74.0	-35.47	Peak
7439.94	3.11	36.20	35.20	30.33	34.44	54.0	-19.56	AV
9920.00								
12400.00								
14880.00								
17360.00								
19840.00								
22320.00								
24800.00								

Vertical	
CH Low(2402MHz	)
Cabla	

CH Low(	(2402MHz	Z)						
Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
rrequency	Loss	Factor	Factor	Level	LCVCI	Lillit	Limit	Kemark
MHz	dB	dB/m	dB	$dB\mu V$	$dB\mu V/m$	$dB\mu V/m$	dB	
99.87	1.53	12.40	41.41	58.00	30.52	46.00	-15.48	QP
2402.02	2.20	31.24	36.00	87.60	85.04	114.0	-28.96	Peak
2402.02	2.20	31.24	36.00	85.68	83.12	94.0	-10.88	AV
4804.10	2.64	35.11	34.70	36.60	39.65	74.0	-34.35	Peak
4804.10	2.64	35.11	34.70	33.53	36.58	54.0	-17.42	AV
7207.93	3.09	36.20	35.17	34.40	38.52	74.0	-35.48	Peak
7207.93	3.09	36.20	35.17	31.34	35.46	54.0	-18.54	AV
9608.00								
12010.00								
14412.00								
16814.00								
19216.00								
21618.00								
24020.00								

FCC ID: X9PBKB83B

19840.00 22320.00 24800.00

_	C 1D. A)1 BI	DOSD							
	CH Midd	lle(2441M)	Hz)						
	Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
	MII-	Loss	Factor	Factor	Level	dDV/aa	JD., W/***	Limit	
	MHz	dB	dB/m	dB	dΒμV	dBμV/m	dBμV/m	dB	
	312.17	1.6	13.30	41.40	62.44	35.94	46.00	-10.06	QP
	2441.01	2.21	31.25	35.90	84.74	82.30	114.0	-31.70	Peak
	2441.01	2.21	31.25	35.90	82.67	80.23	94.0	-13.77	AV
	4882.12	2.65	35.10	34.72	36.41	39.44	74.0	-34.56	Peak
	4882.12	2.65	35.10	34.72	33.30	36.33	54.0	-17.67	AV
	7323.25	3.10	36.20	35.17	33.59	37.72	74.0	-36.28	Peak
	7323.25	3.10	36.20	35.17	30.68	34.81	54.0	-19.19	AV
	9764.00								
	12205.00								
	14646.00								
	17087.00								
	19528.00								
	21969.00								
	24410.00								
	CH High	(2480MHz	<b>z</b> )						
	Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
	MII-	Loss	Factor	Factor	Level	4D V /	4DV/	Limit	
	MHz	dB	dB/m	dB	dΒμV	dBμV/m	dBμV/m	dB	
	99.87	1.53	12.40	41.41	57.23	29.75	46.00	-16.25	QP
	2480.00	2.23	31.32	36.00	84.10	81.65	114.0	-32.35	Peak
	2480.00	2.23	31.32	36.00	82.05	79.60	94.0	-14.40	AV
	4960.10	2.67	35.06	34.80	34.95	37.88	74.0	-36.12	Peak
	4960.10	2.67	35.06	34.80	32.85	35.78	54.0	-18.22	AV
	7439.94	3.11	36.20	35.20	35.74	39.85	74.0	-34.15	Peak
	7439.94	3.11	36.20	35.20	32.71	36.82	54.0	-17.18	AV
	9920.00								
	12400.00								
	14880.00								
	17360.00								

NOTE: "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

## 6. Occupied Bandwidth

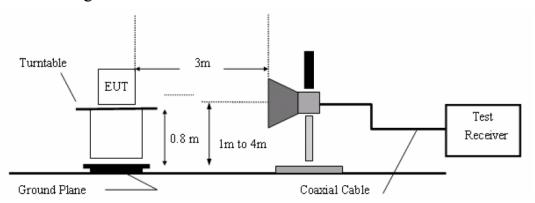
## 6.1. Requirements (15.249):

The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

#### 6.2. Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

### 6.3. Test Configuration:



#### 6.4. Test Results

Pass.

Please refer the following plot.

(Note: Marker 3 means the highest value in 2.31GHz~2.39GHz or 2.4835~2.5GHz)

