

---

# FCC Test Report

---

Report No.: AGC05534151101FE03

**FCC ID** : 2AGMHYY151  
**APPLICATION PURPOSE** : Original Equipment  
**PRODUCT DESIGNATION** : Bluetooth Phone  
**BRAND NAME** : **PIPSQUEAK®**  
**MODEL NAME** : YY151  
**CLIENT** : Yip Yap, Inc.  
**DATE OF ISSUE** : Dec.03,2015  
**STANDARD(S)** : FCC Part 15 Rules  
**TEST PROCEDURE(S)**  
**REPORT VERSION** : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



**CAUTION:**

This report shall not be reproduced except in full without the written permission of the test laboratory and shall not be quoted out of context.



### Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec.03,2015	Valid	Original Report

TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY ..... 4

2. GENERAL INFORMATION ..... 5

    2.1. PRODUCT DESCRIPTION.....5

    2.2. TABLE OF CARRIER FREQUENCYS.....5

3. MEASUREMENT UNCERTAINTY..... 7

4. DESCRIPTION OF TEST MODES..... 7

5. SYSTEM TEST CONFIGURATION ..... 8

    5.1. CONFIGURATION OF EUT SYSTEM .....8

    5.2. EQUIPMENT USED IN EUT SYSTEM .....8

    5.3. SUMMARY OF TEST RESULTS .....8

6. TEST FACILITY ..... 9

7.ALL TEST EQUIPMENT LIST ..... 9

8. RADIATED EMISSION ..... 11

    8.1TEST LIMIT..... 11

    8.2. MEASUREMENT PROCEDURE .....12

    8.3. TEST SETUP .....14

    8.4. TEST RESULT .....16

9. BAND EDGE EMISSION ..... 42

    9.1. MEASUREMENT PROCEDURE .....42

    9.2 TEST SETUP .....42

    9.3 RADIATED TEST RESULT .....43

10. 20DB BANDWIDTH..... 51

    10.1. MEASUREMENT PROCEDURE .....51

    10.2. TEST SET-UP .....51

    10.3. LIMITS AND MEASUREMENT RESULTS.....51

11. FCC LINE CONDUCTED EMISSION TEST ..... 60

    11.1. LIMITS OF LINE CONDUCTED EMISSION TEST .....60

    11.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST.....60

    11.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST .....61

    11.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST.....61

    11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST .....62

APPENDIX A: PHOTOGRAPHS OF TEST SETUP ..... 66

APPENDIX B: PHOTOGRAPHS OF EUT ..... 68

## 1. VERIFICATION OF CONFORMITY

<b>Applicant</b>	Yip Yap, Inc.
<b>Address</b>	13785 Research Blvd., Suite 125, Asutin, TX, 78750
<b>Manufacturer</b>	Shenzhen Winton Technology Co.,Ltd
<b>Address</b>	301, HT Industry Park, Baolong Road, Longgang District, Shenzhen, P.R. of China
<b>Product Designation</b>	Bluetooth Phone
<b>Brand Name</b>	<b>PIPSQUEAK®</b>
<b>Test Model</b>	YY151
<b>Date of test</b>	Nov.19,2015 to Nov.23,2015
<b>Deviation</b>	None
<b>Condition of Test Sample</b>	Normal
<b>Report Template</b>	AGCRT-US-BR/RF

We hereby certify that:

The above equipment was tested by Dongguan Precise Testing Service Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.249.

Tested By Time Huang  
Time Huang(Huang Nanhui) Dec.03,2015

Reviewed By Forrest Lei  
Forrest Lei(Lei Yonggang) Dec.03,2015

Approved By Solger Zhang  
Solger Zhang(Zhang Hongyi)  
Authorized Officer Dec.03,2015

## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

<b>Operation Frequency</b>	2.402 GHz to 2.480GHz
<b>RF Output Power</b>	2.76dBm(Max)
<b>Bluetooth Version</b>	V4.0
<b>Modulation</b>	GFSK, $\pi/4$ -DQPSK, 8DPSK
<b>Number of channels</b>	79 for BR/EDR, 40 for BLE
<b>Hardware Version</b>	Z08_MAIN_V2.1
<b>Software Version</b>	z08_bt_20151102_v1.0.7
<b>Antenna Designation</b>	PCB Antenna (Met 15.203 Antenna requirement)
<b>Antenna Gain</b>	0.8dBi
<b>Power Supply</b>	DC 3.7V by battery
Note: The USB port only used for charging and can't be used to transfer data with PC. The chip of EUT only supports Bluetooth function.	

### 2.2. TABLE OF CARRIER FREQUENCIES

BR/EDR channel List

Frequency Band	Channel Number	Frequency
2400~2483.5MHZ	0	2402MHZ
	1	2403MHZ
	:	:
	38	2440 MHZ
	39	2441 MHZ
	40	2442 MHZ
	:	:
	77	2479 MHZ
	78	2480 MHZ

BLE Channel List

Frequency Band	Channel Number	Frequency
2400~2483.5MHZ	0	2402MHZ
	1	2404MHZ
	:	:
	38	2478 MHZ
	39	2480 MHZ

### 3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 3.18\text{dB}$
2	All emissions, radiated	$\pm 3.91\text{dB}$
3	Temperature	$\pm 0.5^\circ\text{C}$
4	Humidity	$\pm 2\%$

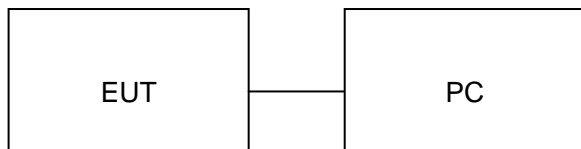
### 4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel GFSK
2	Middle channel GFSK
3	High channel GFSK
4	Low channel $\pi/4$ -DQPSK
5	Middle channel $\pi/4$ -DQPSK
6	High channel $\pi/4$ -DQPSK
7	Low channel 8DPSK
8	Middle channel 8DPSK
9	High channel 8DPSK
10	BT Link with charging
Note: 1. Only the result of the worst case was recorded in the report, if no other cases. 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode. 3. The EUT used fully-charged battery when tested.	

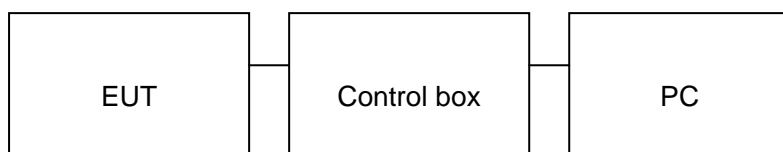
## 5. SYSTEM TEST CONFIGURATION

### 5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal hopping)



Configure 2: (Control continuous TX)



### 5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Bluetooth Phone	<b>PIPSQUEAK®</b>	YY151	EUT
2	PC	SONY	E1412AYCW	A.E
3	Control box	N/A	N/A	A.E
4	USB Cable	N/A	0.5m, unshielded	A.E
5	Temporary Antenna	T10	N/A	A.E

### 5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249	Radiated Emission	Compliant
§15.249	Band Edges	Compliant
§15.207	Conduction Emission	Compliant
N/A	BANDWIDTH	Compliant



## 6. TEST FACILITY

<b>Site</b>	Dongguan Precise Testing Service Co., Ltd.
<b>Location</b>	Building D,Baoding Technology Park,Guangming Road2,Dongcheng District, Dongguan, Guangdong, China,
<b>FCC Registration No.</b>	371540
<b>Description</b>	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009.

## 7. ALL TEST EQUIPMENT LIST

### FOR RADIATED EMISSION TEST (BELOW 1GHZ)

Radiated Emission Test Site					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI Test Receiver	Rohde & Schwarz	ESCI	101417	July 4, 2015	July 3, 2016
Trilog Broadband Antenna (25M-1GHz)	SCHWARZBECK	VULB9160	9160-3355	July 4, 2015	July 3, 2016
Signal Amplifier	SCHWARZBECK	BBV 9475	9745-0013	July 4, 2015	July 3, 2016
RF Cable	SCHWARZBECK	AK9515E	96221	July 4, 2015	July 3, 2016
3m Anechoic Chamber	CHENGYU	966	PTS-001	June 6, 2015	June 5, 2016
MULTI-DEVICE Positioning Controller	Max-Full	MF-7802	MF780208339	N/A	N/A
Active loop antenna (9K-30MHz)	Schwarzbeck	FMZB1519	1519-038	June 6, 2015	June 5, 2016
Spectrum analyzer	Agilent	E4407B	MY46185649	June 6, 2015	June 5, 2016

### FOR RADIATED EMISSION TEST (1GHZ ABOVE)

Radiated Emission Test Site					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI Test Receiver	Rohde & Schwarz	ESCI	101417	July 4, 2015	July 3, 2016
Horn Antenna (1G-18GHz)	SCHWARZBECK	BBHA9120D	9120D-1246	July 11, 2015	July 10, 2016
Spectrum Analyzer	Agilent	E4411B	MY4511453	July 4, 2015	July 3, 2016
Signal Amplifier	SCHWARZBECK	BBV 9718	9718-269	July 7, 2015	July 6, 2016
RF Cable	SCHWARZBECK	AK9515H	96220	July 8, 2015	July 7, 2016
3m Anechoic Chamber	CHENGYU	966	PTS-001	June 6, 2015	June 5, 2016
MULTI-DEVICE Positioning Controller	Max-Full	MF-7802	MF780208339	N/A	N/A
Horn Ant (18G-40GHz)	Schwarzbeck	BBHA 9170	9170-181	June 6, 2015	June 5, 2016

Conducted Emission Test Site					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI Test Receiver	- Rohde & Schwarz	ESCI	101417	July 4, 2015	July 3, 2016
Artificial Mains Network	Narda	L2-16B	000WX31025	July 8, 2015	July 7, 2016
Artificial Mains Network (AUX)	Narda	L2-16B	000WX31026	July 8, 2015	July 7, 2016
RF Cable	SCHWARZBECK	AK9515E	96222	July 4, 2015	July 3, 2016
Shielded Room	CHENGYU	843	PTS-002	June 6,2015	June 5,2016

## 8. RADIATED EMISSION

### 8.1 TEST LIMIT

#### Standard FCC15.249

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

#### Standard FCC 15.209

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		$\mu$ V/m	dB( $\mu$ V)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0 dB( $\mu$ V)/m (Peak) 54.0 dB( $\mu$ V)/m (Average)	

Remark: (1) Emission level  $\text{dB}\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$   
 (2) The smaller limit shall apply at the cross point between two frequency bands.  
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

## 8.2. MEASUREMENT PROCEDURE

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1.5MHz VBW and RBW for peak reading. Then 1.5MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

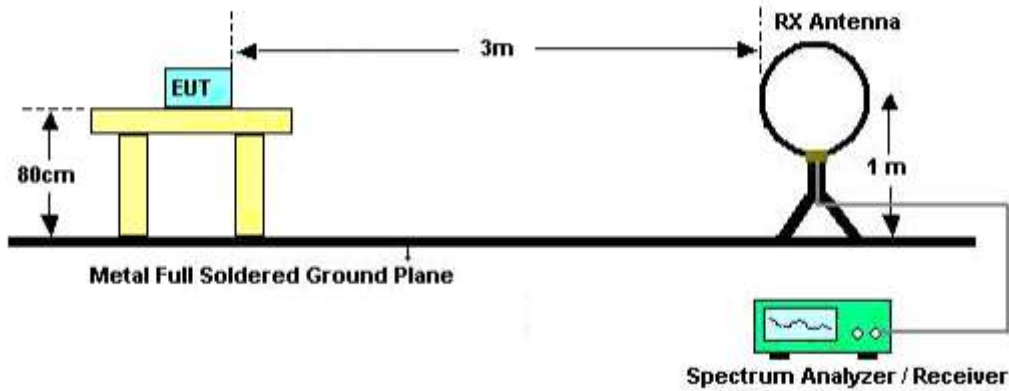
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1.5MHz/1.5MHz for Peak, 1.5MHz/10Hz for Average

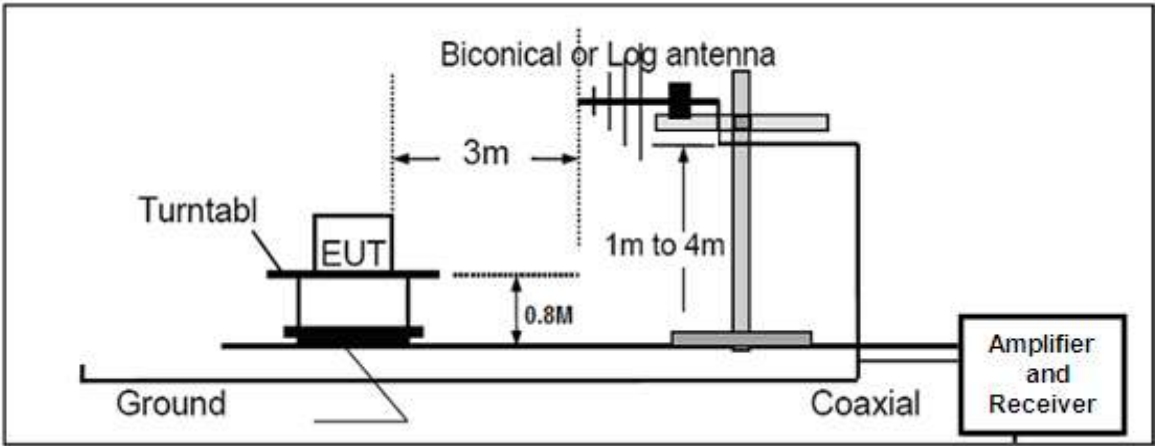
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

8.3. TEST SETUP

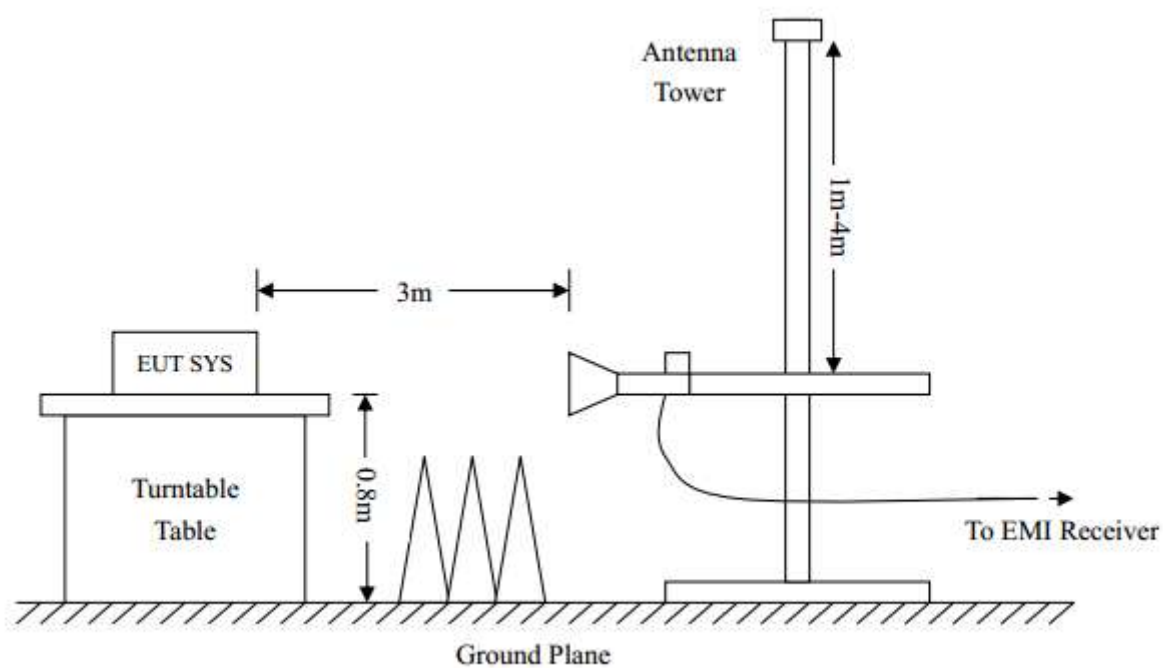
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



# RADIATED EMISSION TEST SETUP ABOVE 1000MHz



## 8.4. TEST RESULT

(Worst modulation:GFSK)

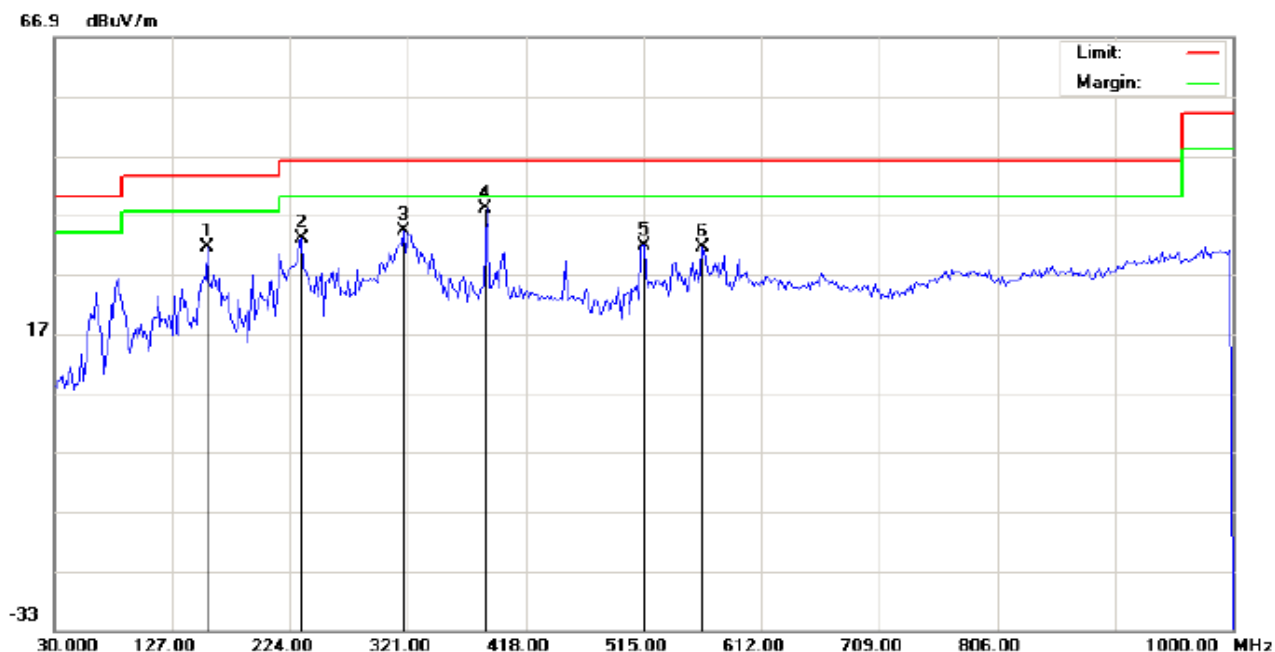
FOR BR/EDR

### RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

### RADIATED EMISSION BELOW 1GHZ

RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL-HORIZONTAL



Site: site #1  
Limit: FCC Class B 3M Radiation  
EUT: Bluetooth Phone  
M/N: YY151  
Mode: Low Channel TX  
Note:

Polarization: **Horizontal**  
Power:  
Distance:

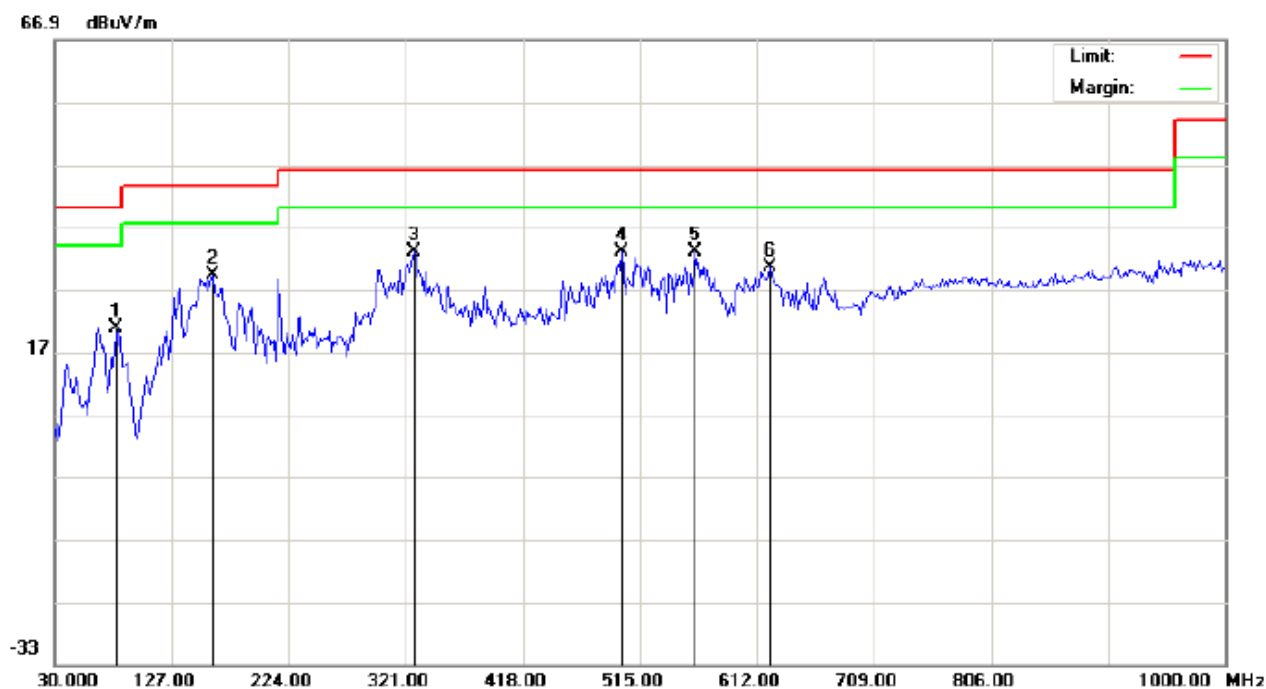
Temperature: 23.3  
Humidity: 56.7 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		156.0997	16.23	15.30	31.53	43.50	-11.97	peak			
2		233.6999	19.82	13.28	33.10	46.00	-12.90	peak			
3		317.7667	17.61	16.59	34.20	46.00	-11.80	peak			
4	*	385.6666	18.94	18.98	37.92	46.00	-8.08	peak			
5		515.0000	10.18	21.53	31.71	46.00	-14.29	peak			
6		563.5000	8.67	22.82	31.49	46.00	-14.51	peak			

RESULT: PASS



# RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL -VERTICAL



Site: site #1

Polarization: *Vertical*

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.7 %

EUT: Bluetooth Phone

Distance:

M/N: YY151

Mode: Low Channel TX

Note:

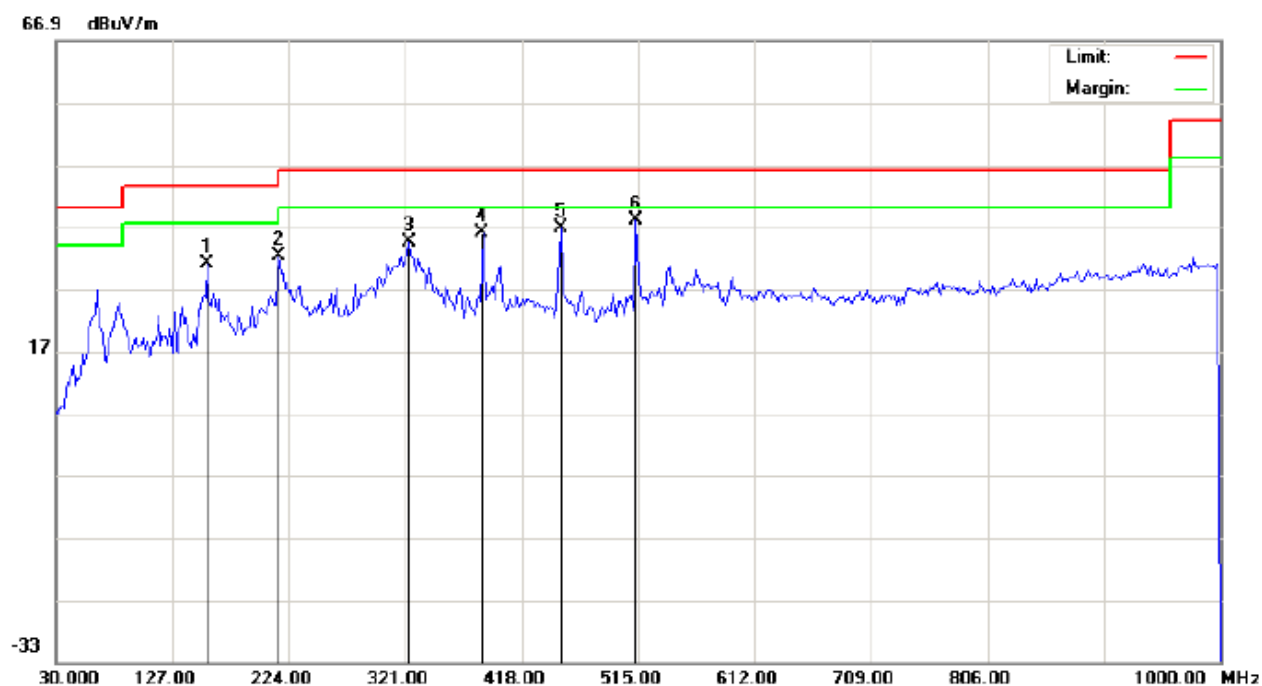
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		81.7330	18.27	2.42	20.69	40.00	-19.31	peak			
2		160.9499	13.94	15.27	29.21	43.50	-14.29	peak			
3	*	327.4667	15.79	17.24	33.03	46.00	-12.97	peak			
4		500.4499	11.84	21.14	32.98	46.00	-13.02	peak			
5		560.2667	10.44	22.53	32.97	46.00	-13.03	peak			
6		623.3165	7.18	23.25	30.43	46.00	-15.57	peak			

**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

# RADIATED EMISSION TEST- (30MHZ-1GHZ)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1  
Limit: FCC Class B 3M Radiation  
EUT: Bluetooth Phone  
M/N: YY151  
Mode: Middle Channel TX  
Note:

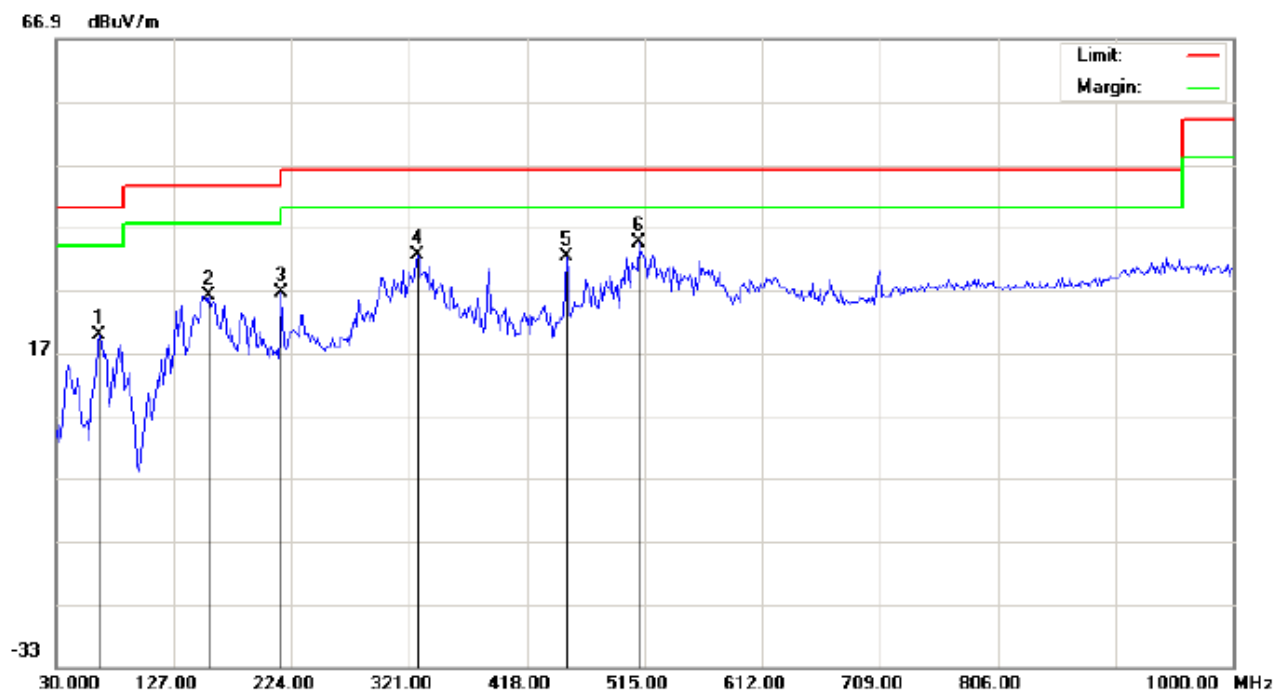
Polarization: *Horizontal*  
Power:  
Distance:

Temperature: 23.3  
Humidity: 56.7 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		156.0997	15.73	15.30	31.03	43.50	-12.47	peak			
2		215.9165	19.64	12.60	32.24	43.50	-11.26	peak			
3		324.2332	17.51	17.02	34.53	46.00	-11.47	peak			
4		385.6666	16.94	18.98	35.92	46.00	-10.08	peak			
5		450.3333	16.10	20.59	36.69	46.00	-9.31	peak			
6	*	513.3831	16.61	21.49	38.10	46.00	-7.90	peak			

**RESULT: PASS**

# RADIATED EMISSION TEST- (30MHZ-1GHZ)- MIDDLE CHANNEL -VERTICAL



Site: site #1  
Limit: FCC Class B 3M Radiation  
EUT: Bluetooth Phone  
M/N: YY151  
Mode: Middle Channel TX  
Note:

Polarization: **Vertical**  
Power:  
Distance:

Temperature: 23.3  
Humidity: 56.7 %

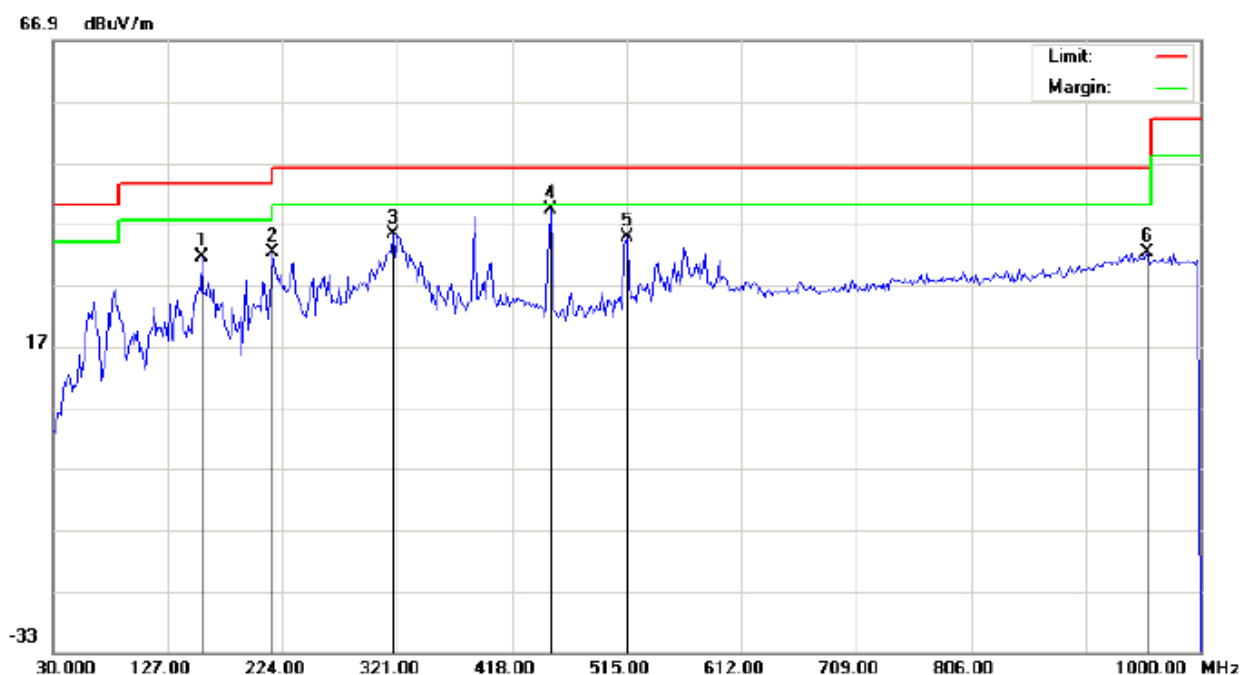
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		65.5664	13.79	5.98	19.77	40.00	-20.23	peak			
2		156.0997	10.78	15.30	26.08	43.50	-17.42	peak			
3		215.9165	15.87	10.56	26.43	43.50	-17.07	peak			
4		327.4667	15.29	17.24	32.53	46.00	-13.47	peak			
5		450.3333	11.74	20.59	32.33	46.00	-13.67	peak			
6	*	510.1499	13.12	21.40	34.52	46.00	-11.48	peak			

**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

# RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL-HORIZONTAL

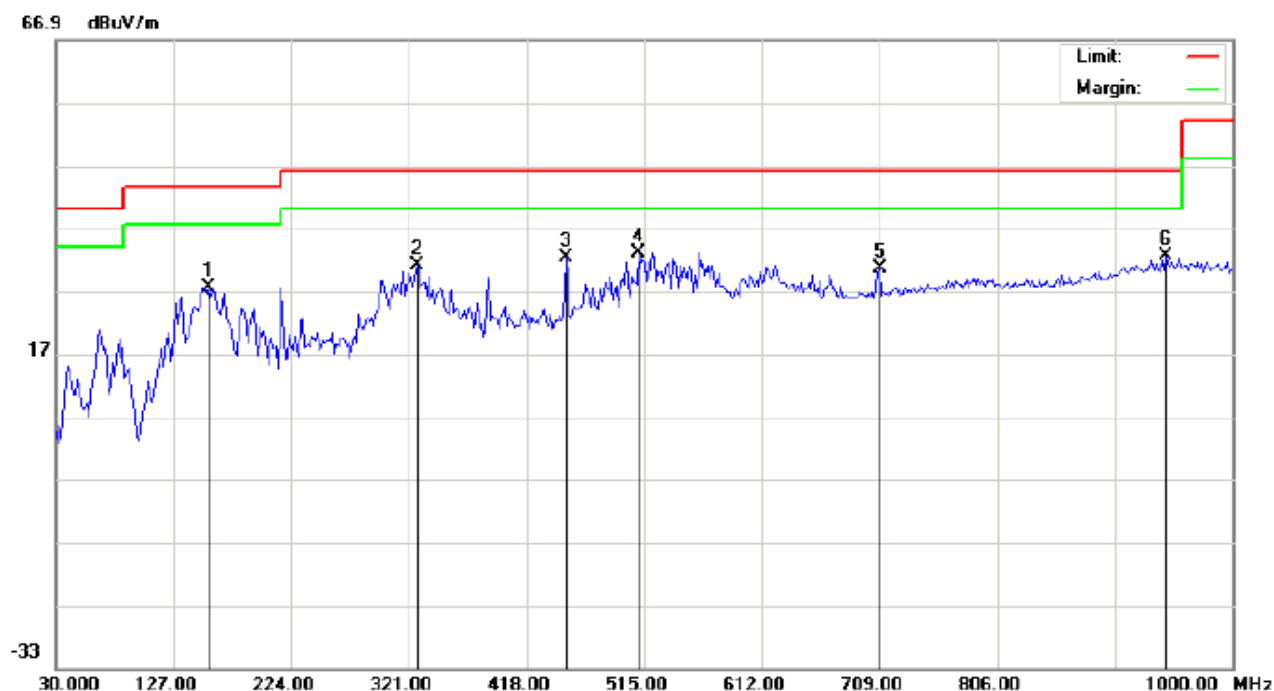


Site: site #1 Polarization: **Horizontal** Temperature: 23.3  
Limit: FCC Class B 3M Radiation Power: Humidity: 56.7 %  
EUT: Bluetooth Phone Distance:  
M/N: YY151  
Mode: High Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		156.1000	16.23	15.30	31.53	43.50	-11.97	peak			
2		215.9167	19.64	12.60	32.24	43.50	-11.26	peak			
3		317.7667	18.61	16.59	35.20	46.00	-10.80	peak			
4	*	450.3333	18.60	20.59	39.19	46.00	-6.81	peak			
5		515.0000	13.18	21.53	34.71	46.00	-11.29	peak			
6		954.7333	2.22	29.95	32.17	46.00	-13.83	peak			

**RESULT: PASS**

# RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL -VERTICAL



Site: site #1  
Limit: FCC Class B 3M Radiation  
EUT: Bluetooth Phone  
M/N: YY151  
Mode: High Channel TX  
Note:

Polarization: **Vertical**  
Power:  
Distance:

Temperature: 23.3  
Humidity: 56.7 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		156.1000	12.28	15.30	27.58	43.50	-15.92	peak			
2		327.4667	13.79	17.24	31.03	46.00	-14.97	peak			
3		450.3333	11.74	20.59	32.33	46.00	-13.67	peak			
4	*	510.1500	11.62	21.40	33.02	46.00	-12.98	peak			
5		709.0000	5.00	25.45	30.45	46.00	-15.55	peak			
6		945.0333	2.74	29.86	32.60	46.00	-13.40	peak			

**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

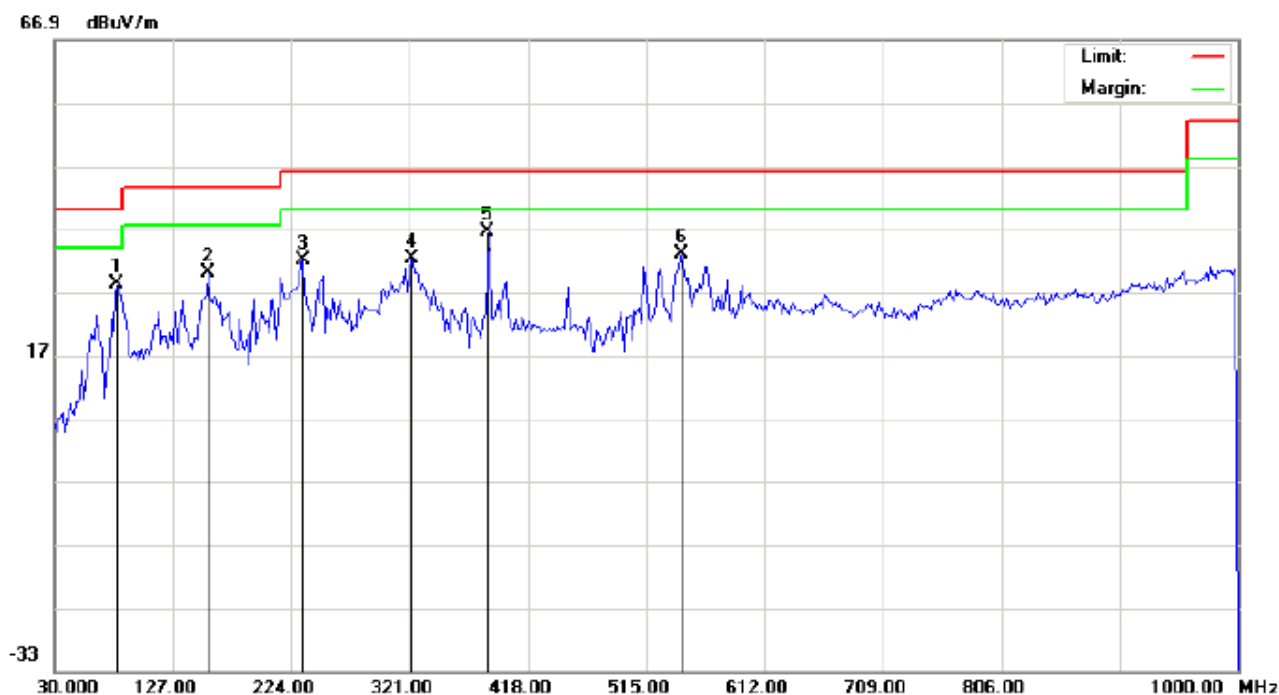
FOR BLE

### RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

### RADIATED EMISSION BELOW 1GHZ

#### RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL-HORIZONTAL



Site: site #1  
Limit: FCC Class B 3M Radiation  
EUT: Bluetooth Phone  
M/N: YY151  
Mode: Low Channel TX  
Note:

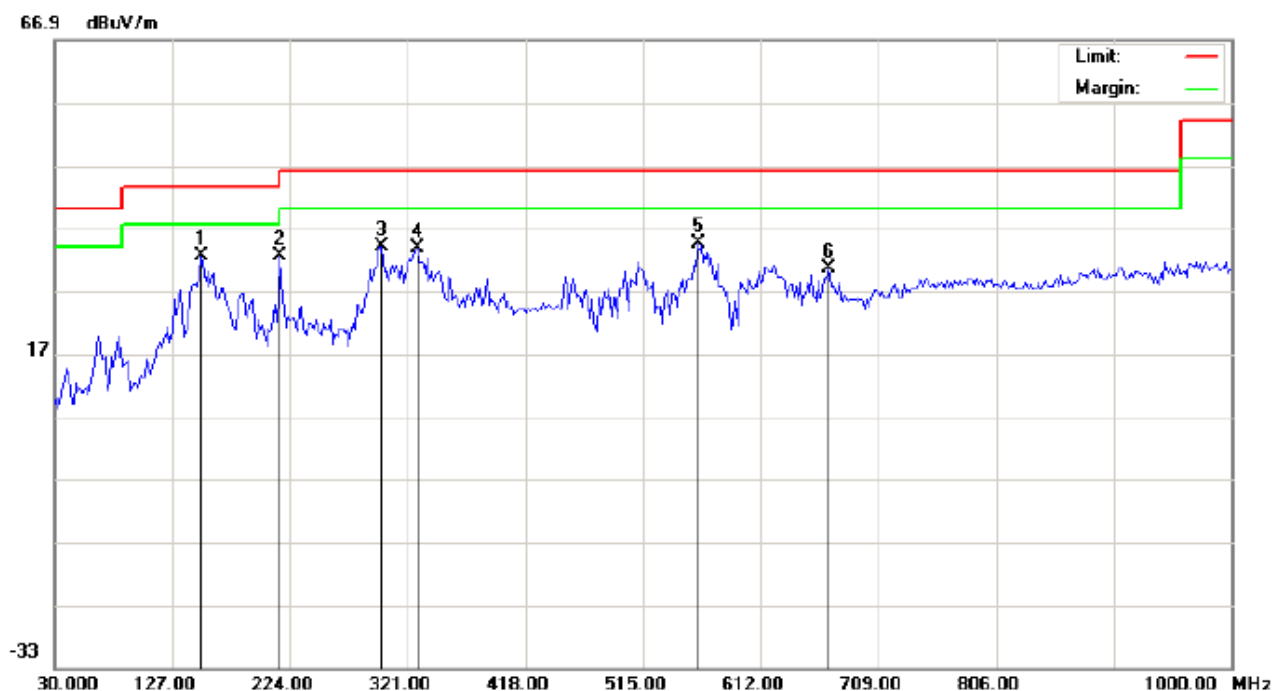
Polarization: *Horizontal*  
Power:  
Distance:

Temperature: 23.3  
Humidity: 56.7 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		81.7330	18.48	9.73	28.21	40.00	-11.79	peak			
2		156.0997	14.73	15.30	30.03	43.50	-13.47	peak			
3		233.6999	18.82	13.28	32.10	46.00	-13.90	peak			
4		322.6166	15.25	16.92	32.17	46.00	-13.83	peak			
5	*	385.6666	17.44	18.98	36.42	46.00	-9.58	peak			
6		544.1000	10.79	22.32	33.11	46.00	-12.89	peak			

RESULT: PASS

# RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL -VERTICAL



Site: site #1

Limit: FCC Class B 3M Radiation

EUT: Bluetooth Phone

M/N: YY151

Mode: Low Channel TX

Note:

Polarization: **Vertical**

Power:

Distance:

Temperature: 23.3

Humidity: 56.7 %

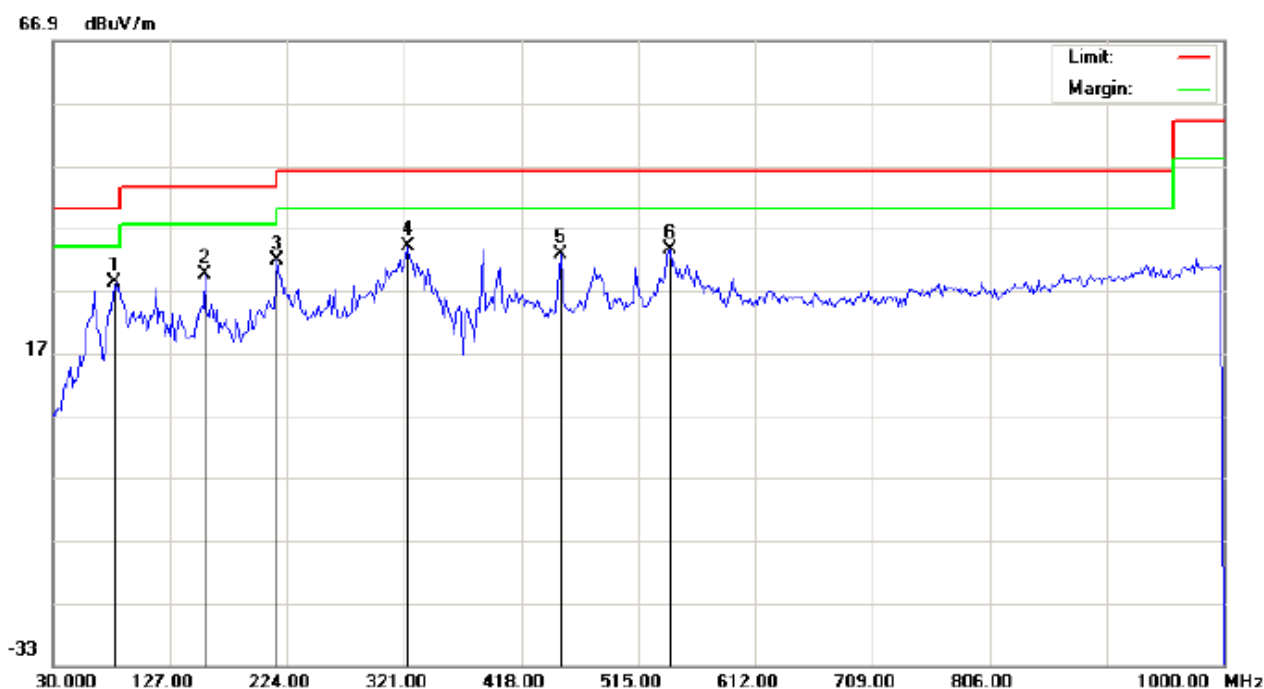
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	151.2500	17.28	15.27	32.55	43.50	-10.95	peak			
2		215.9165	21.87	10.56	32.43	43.50	-11.07	peak			
3		299.9832	18.68	15.41	34.09	46.00	-11.91	peak			
4		329.0833	16.48	17.35	33.83	46.00	-12.17	peak			
5		560.2667	11.94	22.53	34.47	46.00	-11.53	peak			
6		668.5833	6.07	24.35	30.42	46.00	-15.58	peak			

**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

# RADIATED EMISSION TEST- (30MHZ-1GHZ)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1

Limit: FCC Class B 3M Radiation

EUT: Bluetooth Phone

M/N: YY151

Mode: Middle Channel TX

Note:

Polarization: *Horizontal*

Power:

Distance:

Temperature: 23.3

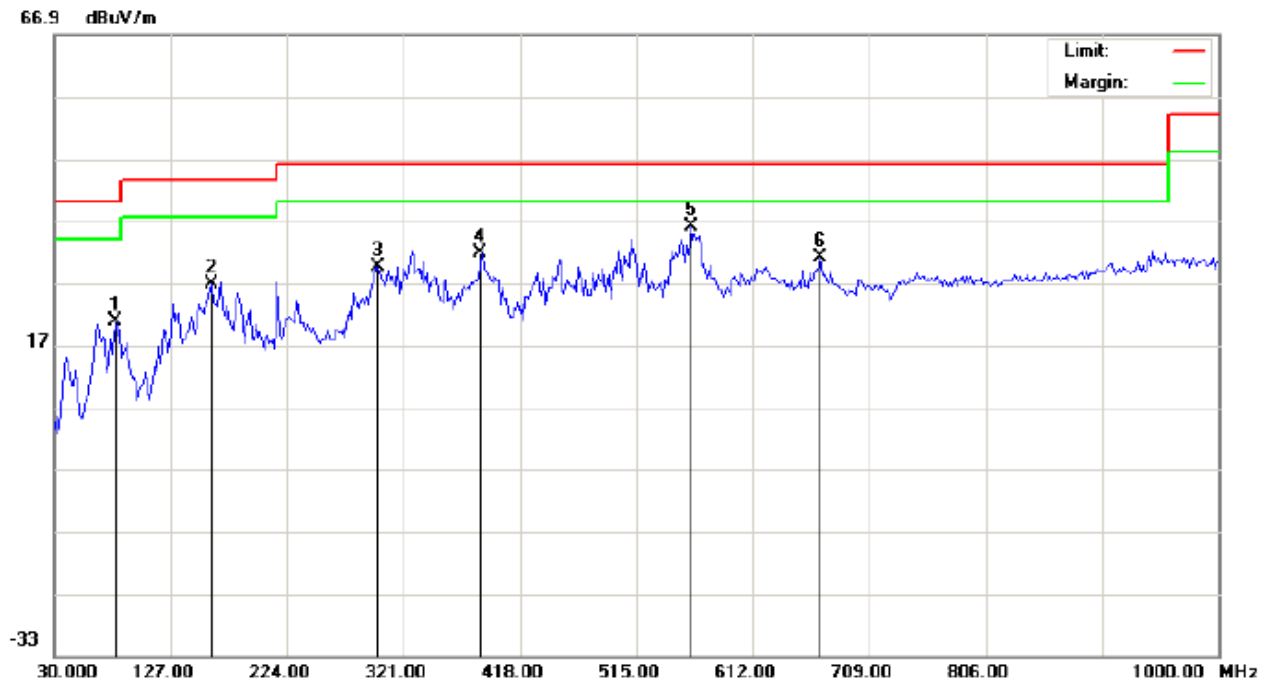
Humidity: 56.7 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		81.7330	18.48	9.73	28.21	40.00	-11.79	peak			
2		156.0997	14.23	15.30	29.53	43.50	-13.97	peak			
3	*	215.9165	19.14	12.60	31.74	43.50	-11.76	peak			
4		324.2332	17.01	17.02	34.03	46.00	-11.97	peak			
5		450.3333	12.10	20.59	32.69	46.00	-13.31	peak			
6		540.8667	11.18	22.23	33.41	46.00	-12.59	peak			

**RESULT: PASS**



## RADIATED EMISSION TEST- (30MHZ-1GHZ)- MIDDLE CHANNEL -VERTICAL



Site: site #1

Polarization: **Vertical**

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.7 %

EUT: Bluetooth Phone

Distance:

M/N: YY151

Mode: Middle Channel TX

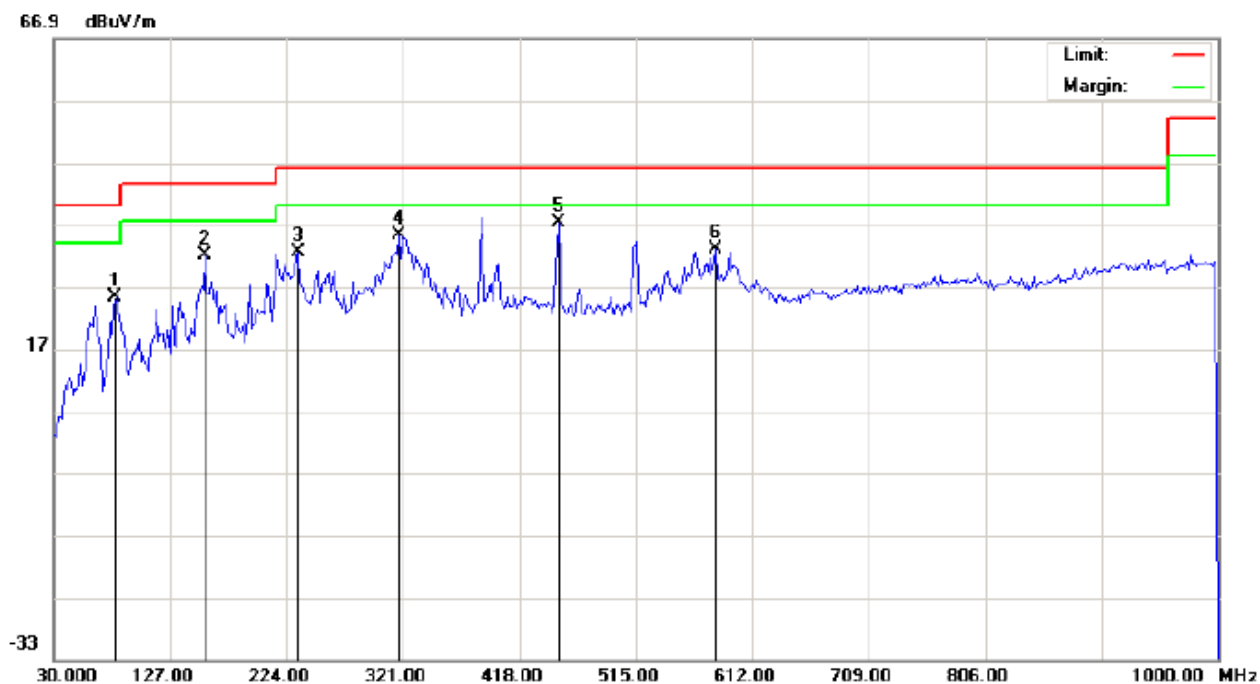
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		81.7330	18.27	2.42	20.69	40.00	-19.31	peak			
2		160.9499	11.44	15.27	26.71	43.50	-16.79	peak			
3		299.9832	14.18	15.41	29.59	46.00	-16.41	peak			
4		385.6666	12.72	18.98	31.70	46.00	-14.30	peak			
5	*	560.2667	13.44	22.53	35.97	46.00	-10.03	peak			
6		668.5833	6.57	24.35	30.92	46.00	-15.08	peak			

**RESULT: PASS****Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

# RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL-HORIZONTAL



Site: site #1

Limit: FCC Class B 3M Radiation

EUT: Bluetooth Phone

M/N: YY151

Mode: High Channel TX

Note:

Polarization: *Horizontal*

Power:

Distance:

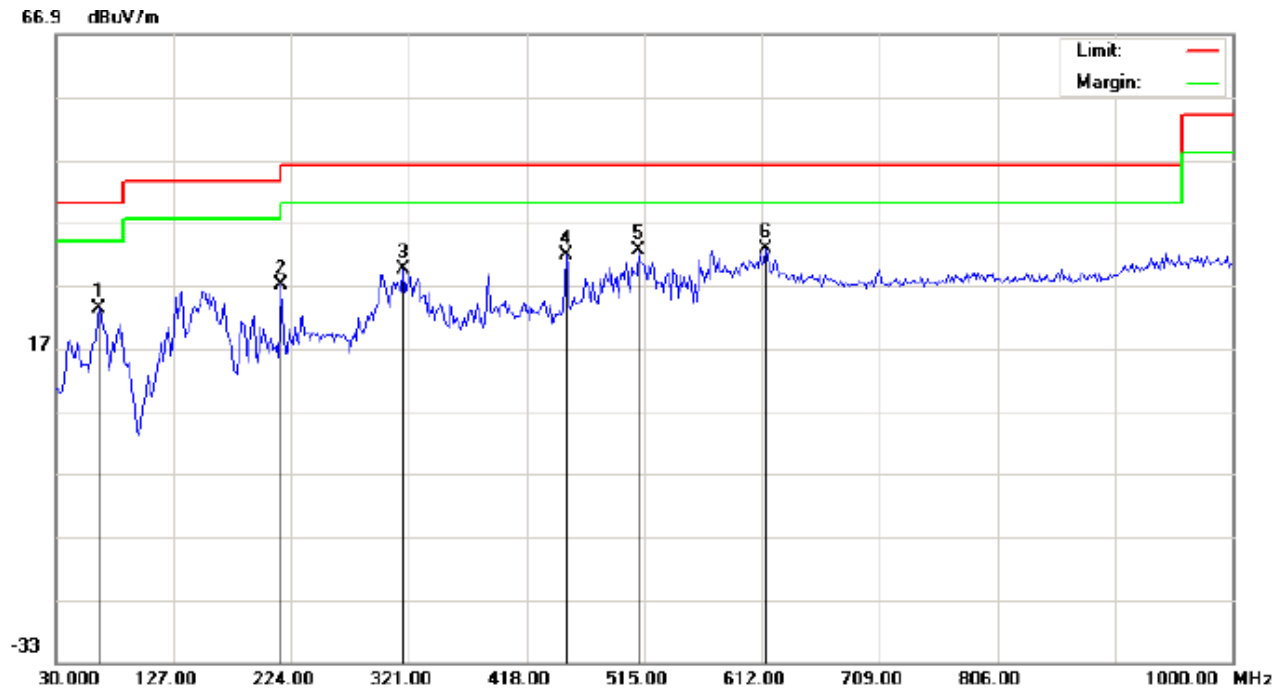
Temperature: 23.3

Humidity: 56.7 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		81.7330	15.48	9.73	25.21	40.00	-14.79	peak			
2		156.0997	16.73	15.30	32.03	43.50	-11.47	peak			
3		233.6999	19.32	13.28	32.60	46.00	-13.40	peak			
4		317.7667	18.61	16.59	35.20	46.00	-10.80	peak			
5	*	450.3333	16.60	20.59	37.19	46.00	-8.81	peak			
6		581.2833	9.88	23.26	33.14	46.00	-12.86	peak			

**RESULT: PASS**

## RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL -VERTICAL



Site: site #1

Polarization: **Vertical**

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.7 %

EUT: Bluetooth Phone

Distance:

M/N: YY151

Mode: High Channel TX

Note:

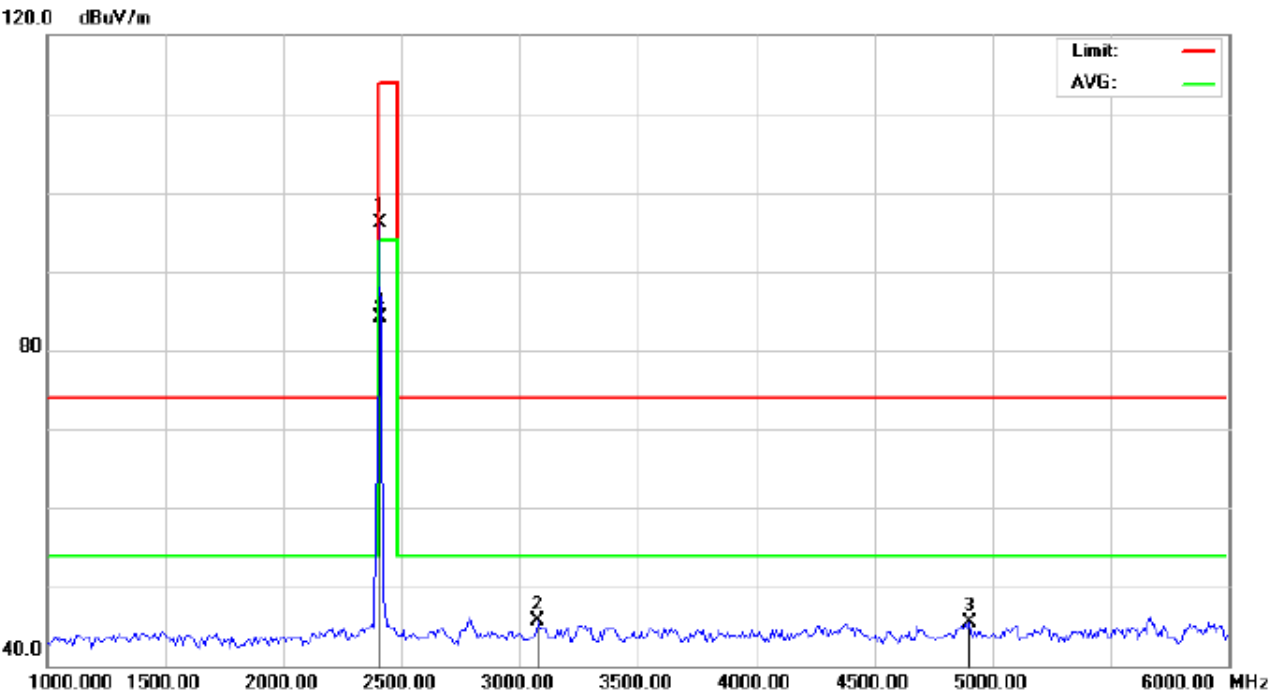
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		65.5664	17.29	5.98	23.27	40.00	-16.73	peak			
2		215.9165	16.37	10.56	26.93	43.50	-16.57	peak			
3		316.1499	12.97	16.49	29.46	46.00	-16.54	peak			
4		450.3333	11.24	20.59	31.83	46.00	-14.17	peak			
5		510.1499	11.12	21.40	32.52	46.00	-13.48	peak			
6	*	615.2332	9.73	23.07	32.80	46.00	-13.20	peak			

**RESULT: PASS****Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

RADIATED EMISSION ABOVE 1GHZ  
FOR BR/EDR

RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL-HORIZONTAL

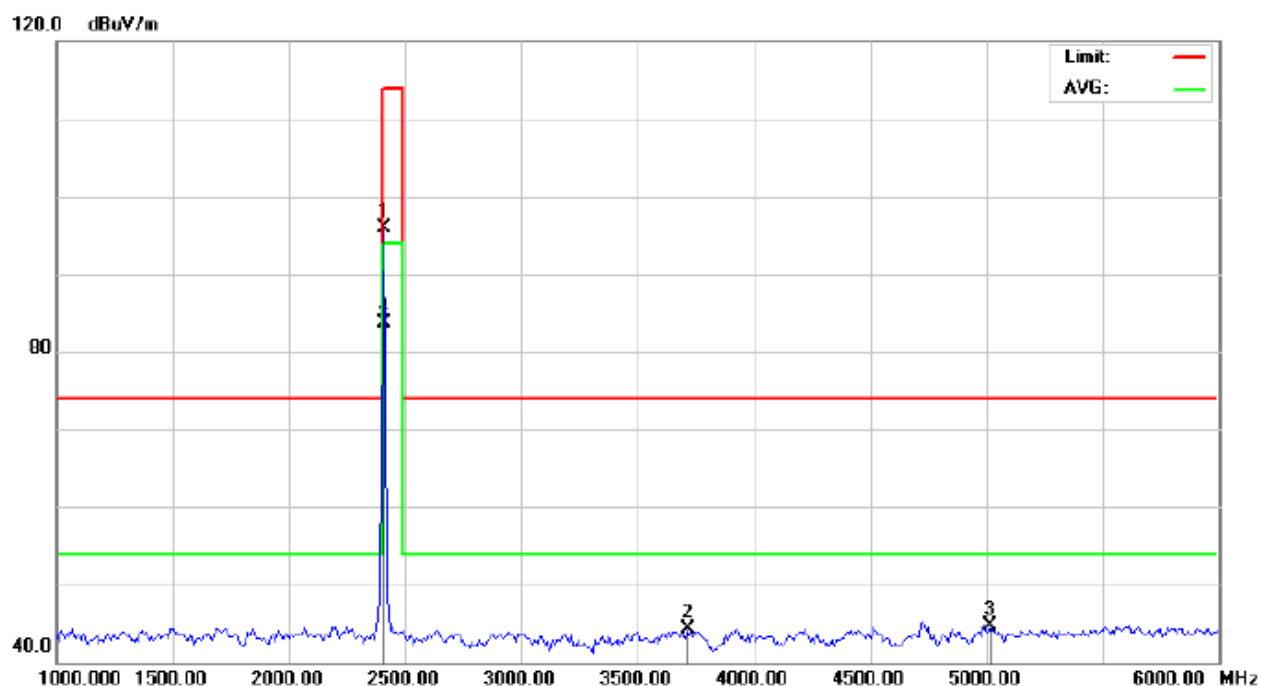


Site: site #1 Polarization: *Horizontal* Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: Low Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2402.000	105.75	-9.68	96.07	114.00	-17.93	peak			
2		3075.000	53.99	-8.29	45.70	74.00	-28.30	peak			
3		4900.000	47.48	-2.06	45.42	74.00	-28.58	peak			
4	*	2402.000	93.87	-9.68	84.19	94.00	-9.81	AVG	100	210	

RESULT: PASS

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL- VERTICAL

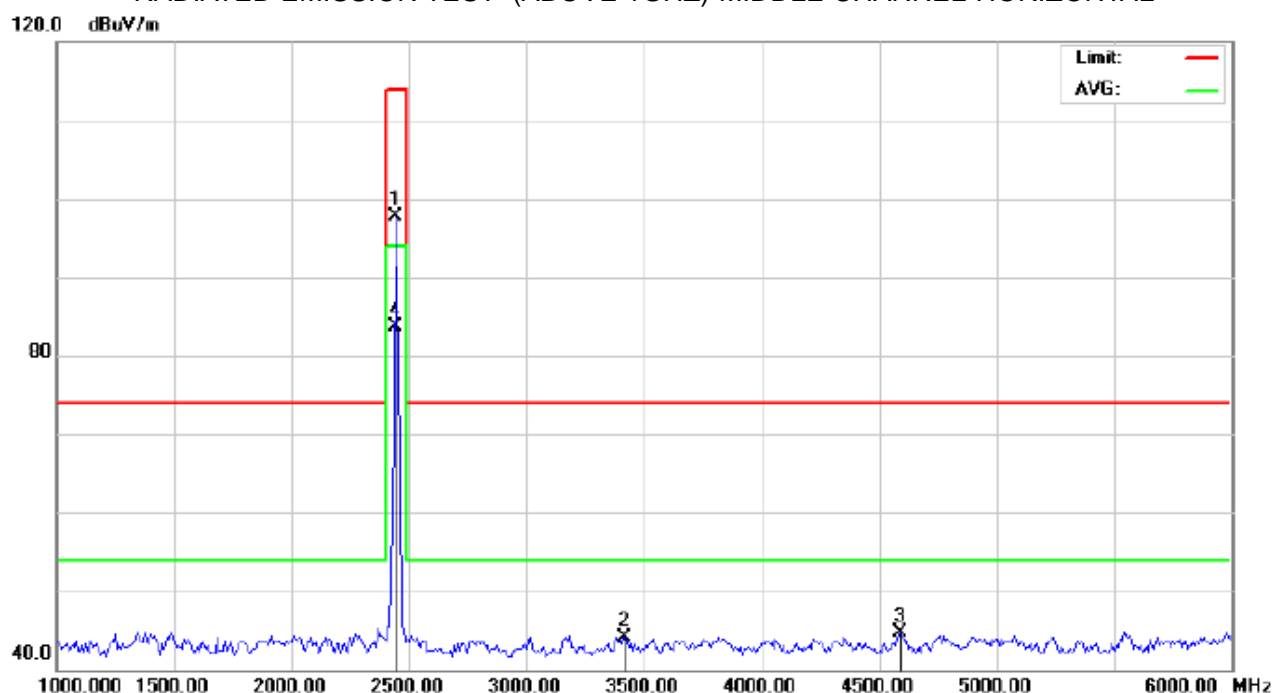


Site: site #1 Polarization: **Vertical** Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: Low Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2402.000	105.65	-9.68	95.97	114.00	-18.03	peak			
2		3716.667	50.78	-6.56	44.22	74.00	-29.78	peak			
3		5016.667	46.49	-1.80	44.69	74.00	-29.31	peak			
4	*	2402.000	93.40	-9.68	83.72	94.00	-10.28	AVG	100	157	

**RESULT: PASS**

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-MIDDLE CHANNEL-HORIZONTAL

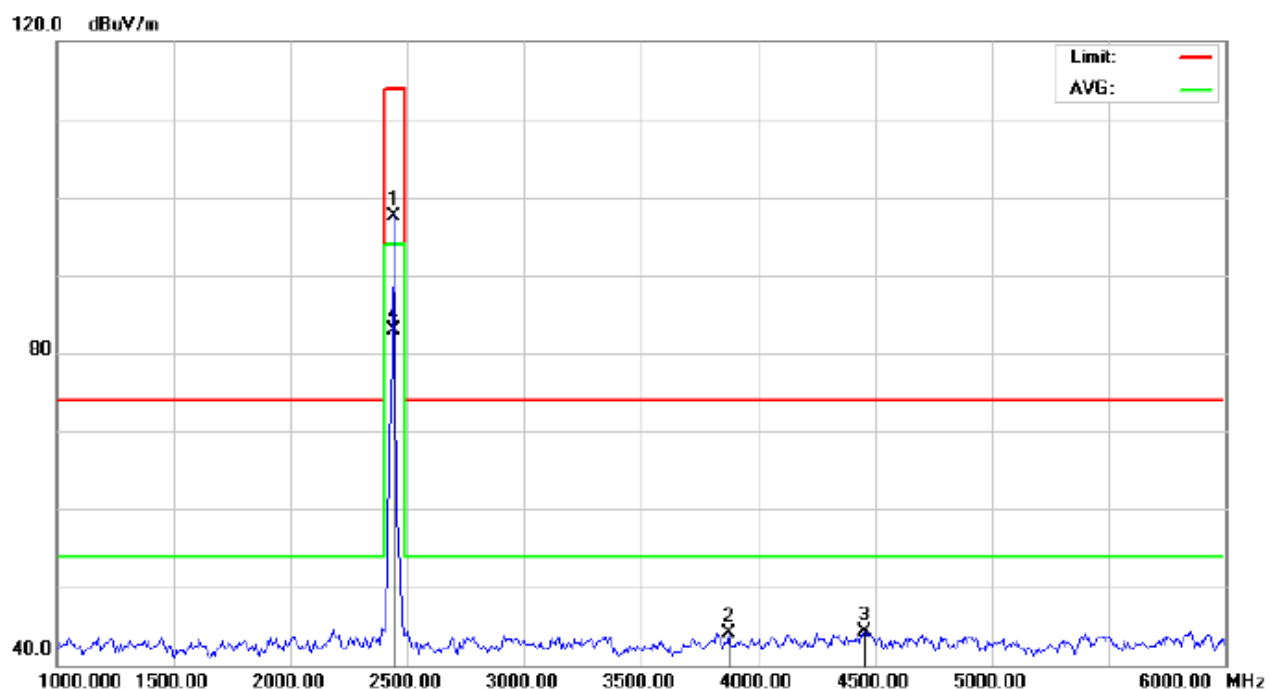


Site: site #1 Polarization: *Horizontal* Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: Middle Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2441.000	107.29	-9.63	97.66	114.00	-16.34	peak			
2		3416.667	52.16	-7.97	44.19	74.00	-29.81	peak			
3		4591.667	47.64	-2.87	44.77	74.00	-29.23	peak			
4	*	2441.000	93.24	-9.63	83.61	94.00	-10.39	AVG	100	213	

**RESULT: PASS**

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-MIDDLE CHANNEL- VERTICAL

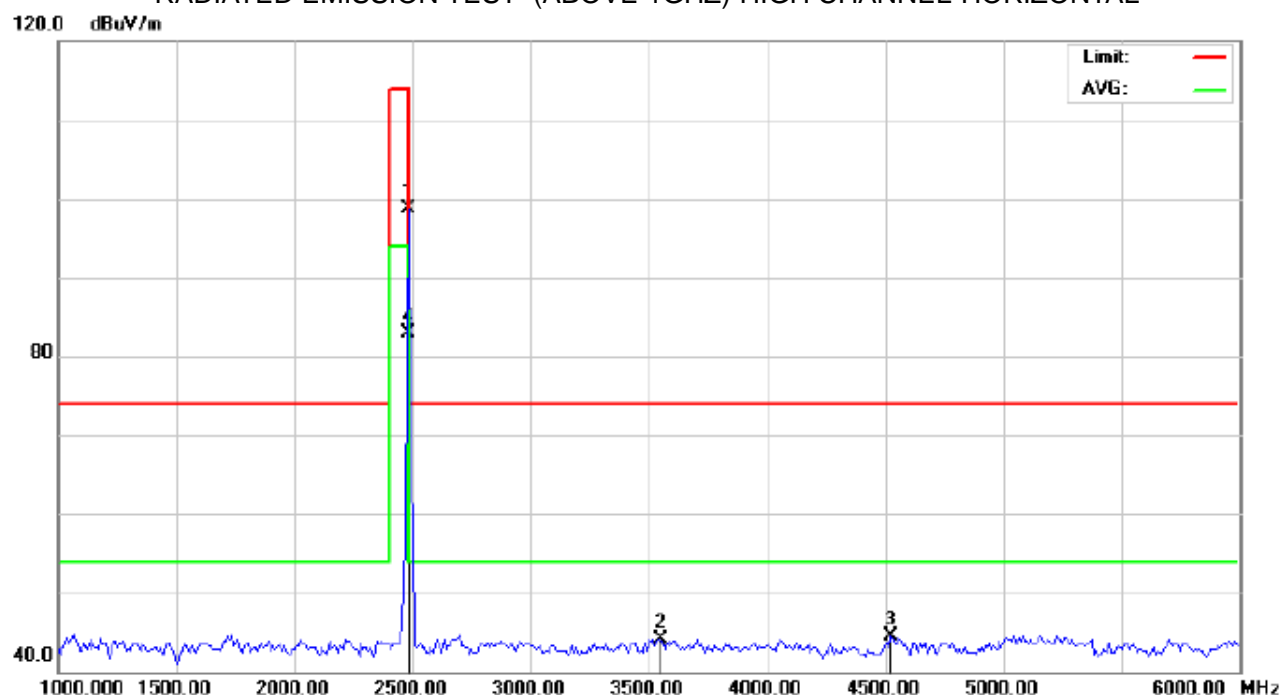


Site: site #1 Polarization: **Vertical** Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: Middle Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2441.000	107.17	-9.63	97.54	114.00	-16.46	peak			
2		3875.000	49.61	-5.58	44.03	74.00	-29.97	peak			
3		4458.333	47.57	-3.25	44.32	74.00	-29.68	peak			
4	*	2441.000	92.58	-9.63	82.95	94.00	-11.05	AVG	100	156	

**RESULT: PASS**

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-HIGH CHANNEL-HORIZONTAL



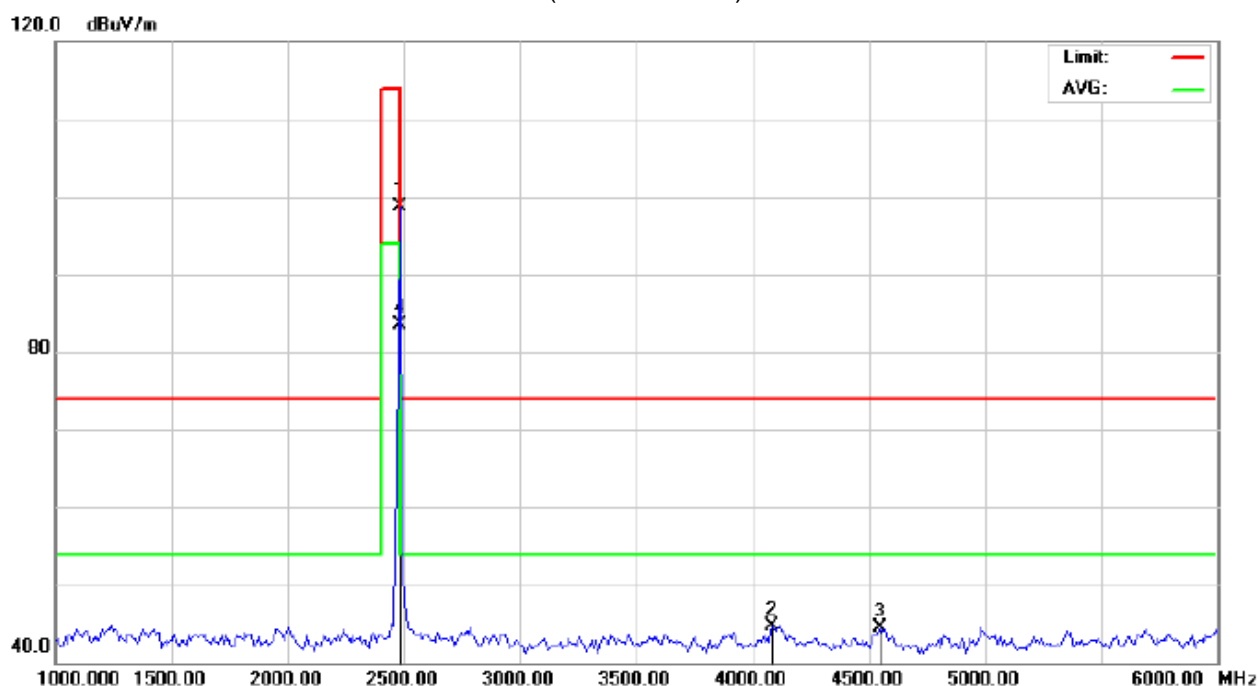
Site: site #1 Polarization: *Horizontal* Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: High Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	108.32	-9.59	98.73	114.00	-15.27	peak			
2		3550.000	51.71	-7.58	44.13	74.00	-29.87	peak			
3		4525.000	47.45	-3.04	44.41	74.00	-29.59	peak			
4	*	2480.000	92.47	-9.59	82.88	94.00	-11.12	AVG	100	209	

**RESULT: PASS**



# RADIATED EMISSION TEST- (ABOVE 1GHZ)-HIGH CHANNEL- VERTICAL



Site: site #1 Polarization: **Vertical** Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: High Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	108.34	-9.59	98.75	114.00	-15.25	peak			
2		4083.333	49.23	-4.53	44.70	74.00	-29.30	peak			
3		4550.000	47.49	-2.98	44.51	74.00	-29.49	peak			
4	*	2480.000	93.06	-9.59	83.47	94.00	-10.53	AVG	100	155	

**RESULT: PASS**

**Note:** 6~25GHz at least have 20dB margin. No recording in the test report.

Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

# **Field strength of the fundamental signal**

## **Peak value**

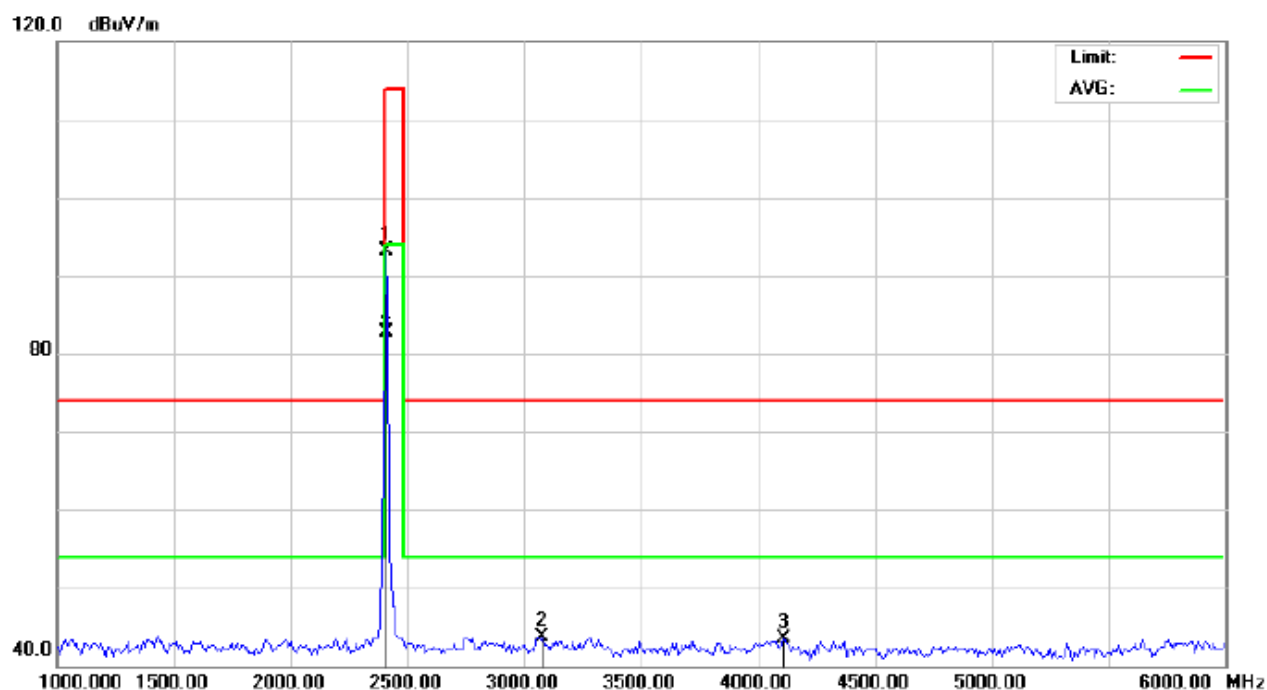
Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	105.75	-9.68	96.07	114	-17.93	Horizontal
2402	105.65	-9.68	95.97	114	-18.03	Vertical
2441	107.29	-9.63	97.66	114	-16.34	Horizontal
2441	107.17	-9.63	97.54	114	-16.46	Vertical
2480	108.32	-9.59	98.73	114	-15.27	Horizontal
2480	108.34	-9.59	98.75	114	-15.25	Vertical

## **Average value**

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	93.87	-9.68	84.19	94	-9.81	Horizontal
2402	93.40	-9.68	83.72	94	-10.28	Vertical
2441	93.24	-9.63	83.61	94	-10.39	Horizontal
2441	92.58	-9.63	82.95	94	-11.05	Vertical
2480	92.47	-9.59	82.88	94	-11.12	Horizontal
2480	93.06	-9.59	83.47	94	-10.53	Vertical

# FOR BLE

## RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL-HORIZONTAL

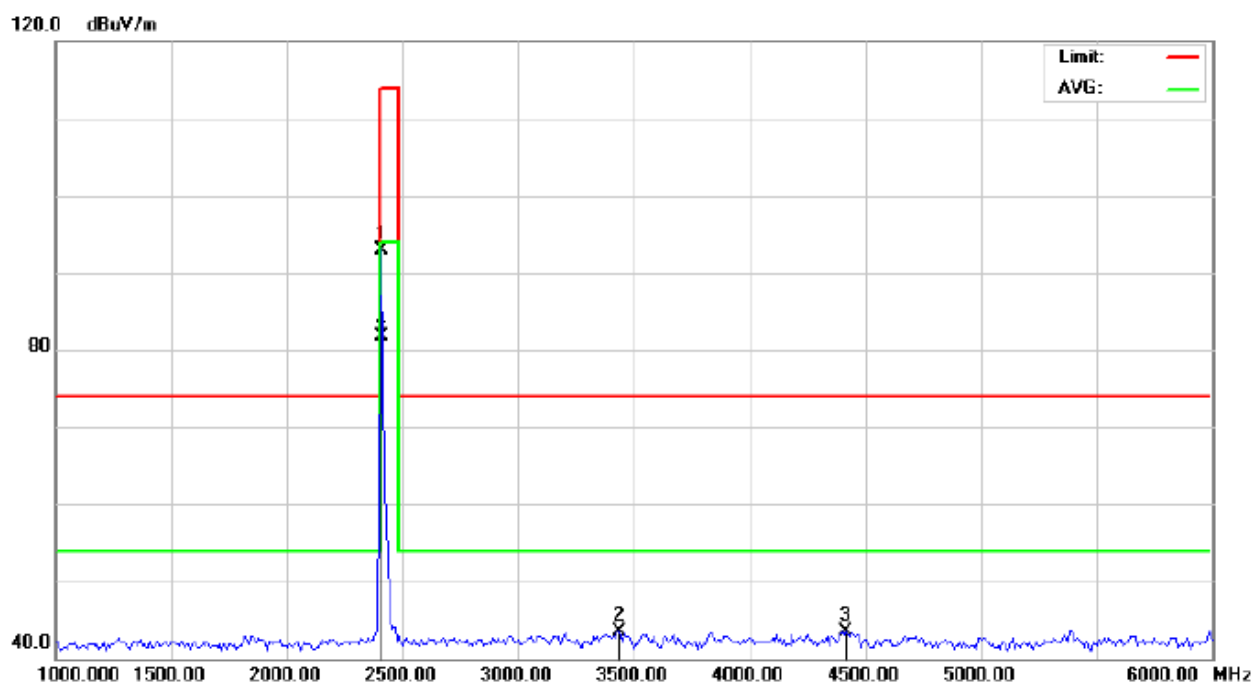


Site: site #1 Polarization: *Horizontal* Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: Low Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2402.000	102.69	-9.68	93.01	114.00	-20.99	peak			
2		3075.000	51.99	-8.29	43.70	74.00	-30.30	peak			
3		4108.333	47.99	-4.44	43.55	74.00	-30.45	peak			
4	*	2402.000	92.39	-9.68	82.71	94.00	-11.29	AVG	100	317	

**RESULT: PASS**

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL- VERTICAL



Site: site #1

Polarization: **Vertical**

Temperature: 26

Limit: FCC Class B 3M Radiation above 1GHZ(PK)-

Power:

Humidity: 60 %

EUT: Bluetooth Phone

Distance: 3m

M/N: YY151

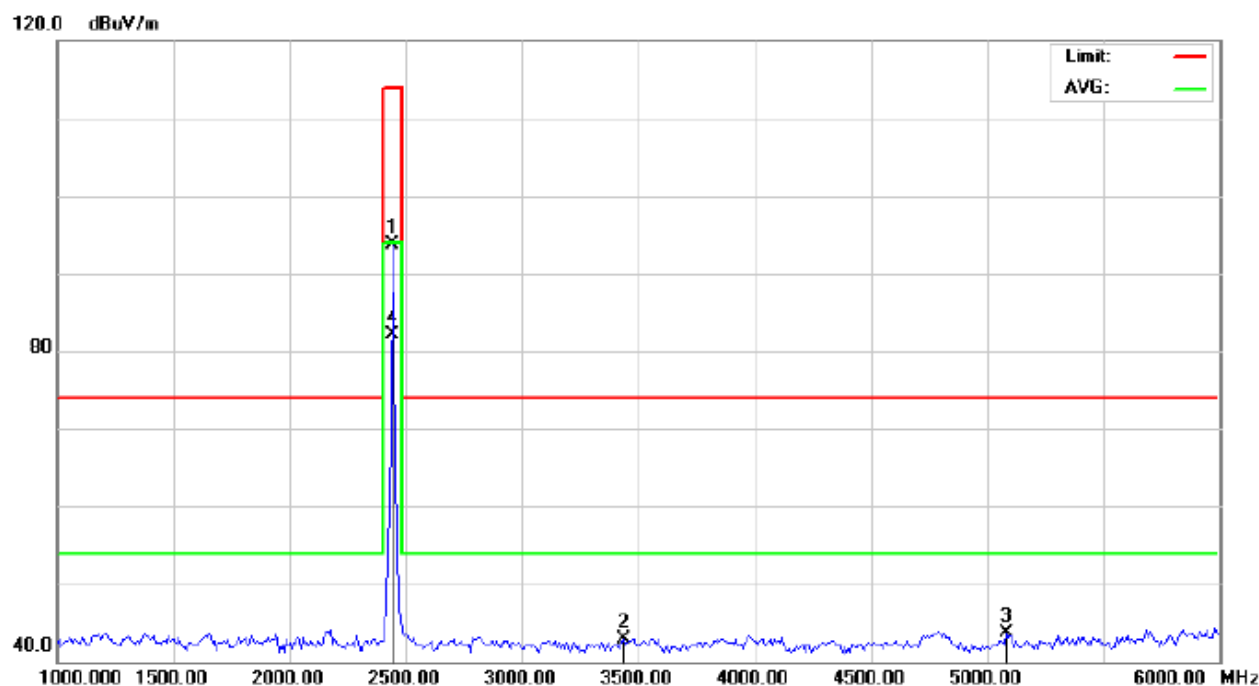
Mode: Low Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2402.000	102.65	-9.68	92.97	114.00	-21.03	peak			
2		3433.333	51.37	-7.95	43.42	74.00	-30.58	peak			
3		4416.667	46.94	-3.39	43.55	74.00	-30.45	peak			
4	*	2402.000	91.47	-9.68	81.79	94.00	-12.21	AVG	100	176	

**RESULT: PASS**

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1

Polarization: *Horizontal*

Temperature: 26

Limit: FCC Class B 3M Radiation above 1GHZ(PK)-

Power:

Humidity: 60 %

EUT: Bluetooth Phone

Distance: 3m

M/N: YY151

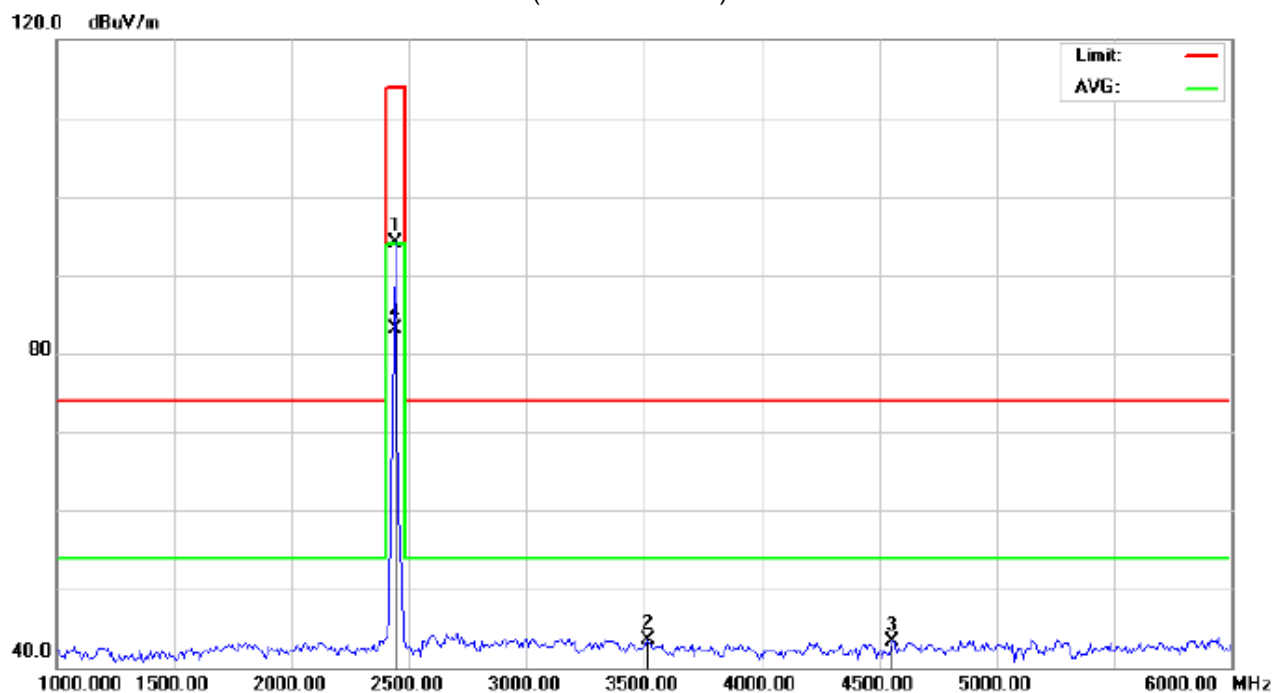
Mode: Middle Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2440.000	103.35	-9.64	93.71	114.00	-20.29	peak			
2		3433.333	50.91	-7.95	42.96	74.00	-31.04	peak			
3		5083.333	45.46	-1.80	43.66	74.00	-30.34	peak			
4	*	2440.000	91.75	-9.64	82.11	94.00	-11.89	AVG	100	316	

**RESULT: PASS**

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-MIDDLE CHANNEL- VERTICAL

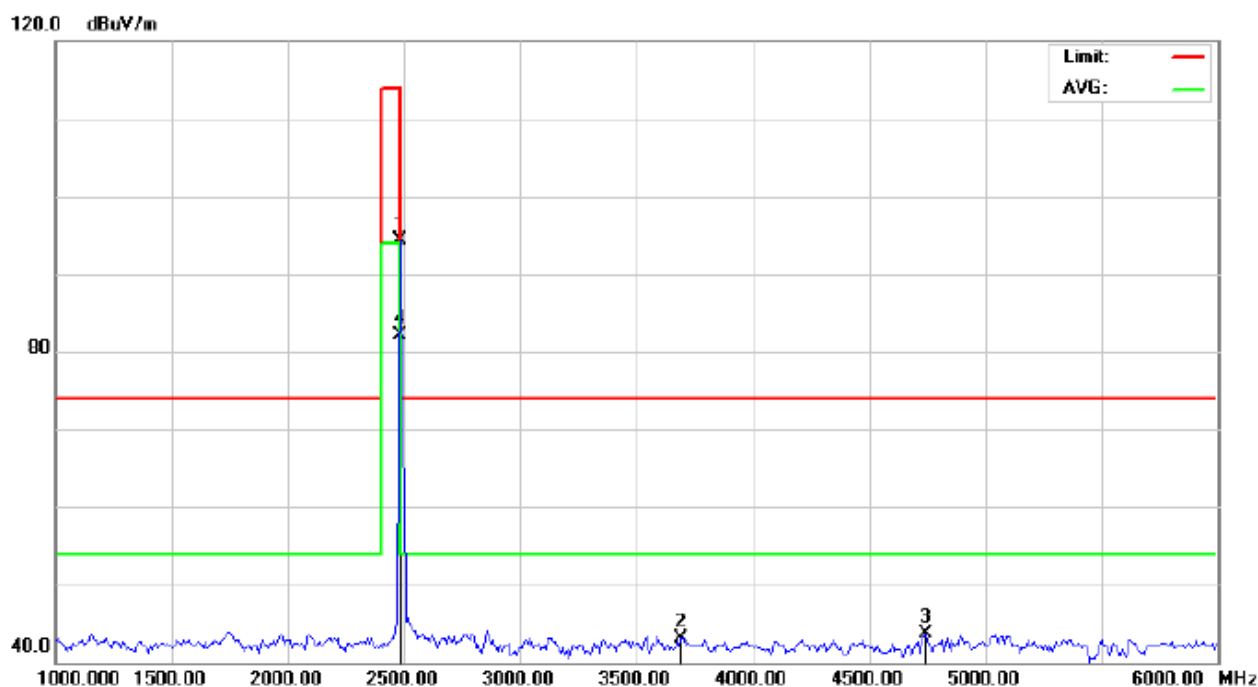


Site: site #1 Polarization: **Vertical** Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: Middle Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2440.000	103.69	-9.64	94.05	114.00	-19.95	peak			
2		3516.667	51.22	-7.79	43.43	74.00	-30.57	peak			
3		4558.333	46.17	-2.96	43.21	74.00	-30.79	peak			
4	*	2440.000	92.69	-9.64	83.05	94.00	-10.95	AVG	100	178	

**RESULT: PASS**

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-HIGH CHANNEL-HORIZONTAL

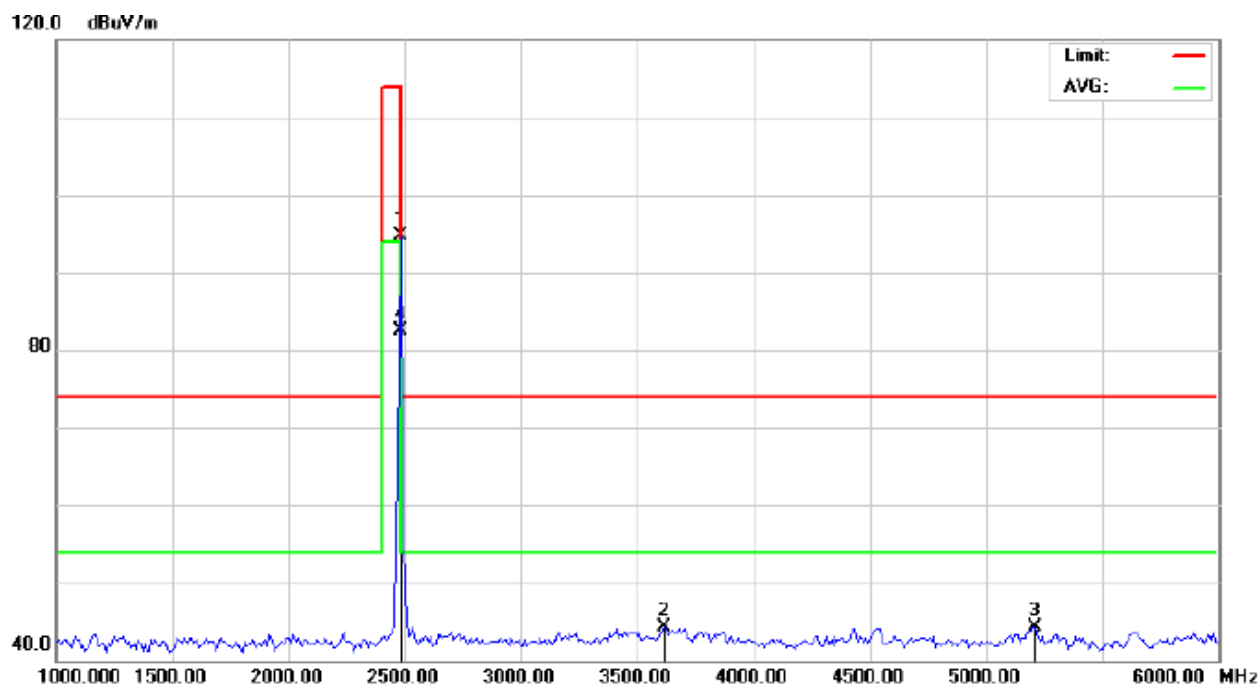


Site: site #1 Polarization: *Horizontal* Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance: 3m  
M/N: YY151  
Mode: High Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	103.92	-9.59	94.33	114.00	-19.67	peak			
2		3691.667	49.81	-6.71	43.10	74.00	-30.90	peak			
3		4741.667	46.10	-2.48	43.62	74.00	-30.38	peak			
4	*	2480.000	91.76	-9.59	82.17	94.00	-11.83	AVG	100	320	

**RESULT: PASS**

# RADIATED EMISSION TEST- (ABOVE 1GHZ)-HIGH CHANNEL- VERTICAL



Site: site #1

Polarization: **Vertical**

Temperature: 26

Limit: FCC Class B 3M Radiation above 1GHZ(PK)-

Power:

Humidity: 60 %

EUT: Bluetooth Phone

Distance: 3m

M/N: YY151

Mode: High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	104.32	-9.59	94.73	114.00	-19.27	peak			
2		3616.667	51.47	-7.17	44.30	74.00	-29.70	peak			
3		5208.333	46.07	-1.80	44.27	74.00	-29.73	peak			
4	*	2480.000	92.05	-9.59	82.46	94.00	-11.54	AVG	100	174	

**RESULT: PASS**

**Note:** 6~25GHz at least have 20dB margin. No recording in the test report.

Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.

The "Factor" value can be calculated automatically by software of measurement system.



# **Field strength of the fundamental signal**

## **Peak value**

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	102.69	-9.68	93.01	114	-20.99	Horizontal
2402	102.65	-9.68	92.97	114	-21.03	Vertical
2440	103.35	-9.64	93.71	114	-20.29	Horizontal
2440	103.69	-9.64	94.05	114	-19.95	Vertical
2480	103.92	-9.59	94.33	114	-19.67	Horizontal
2480	104.32	-9.59	94.73	114	-19.27	Vertical

## **Average value**

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	92.39	-9.68	82.71	94	-11.29	Horizontal
2402	91.47	-9.68	81.79	94	-12.21	Vertical
2440	91.75	-9.64	82.11	94	-11.89	Horizontal
2440	92.69	-9.64	83.05	94	-10.95	Vertical
2480	91.76	-9.59	82.17	94	-11.83	Horizontal
2480	92.05	-9.59	82.46	94	-11.54	Vertical

## 9. BAND EDGE EMISSION

### 9.1. MEASUREMENT PROCEDURE

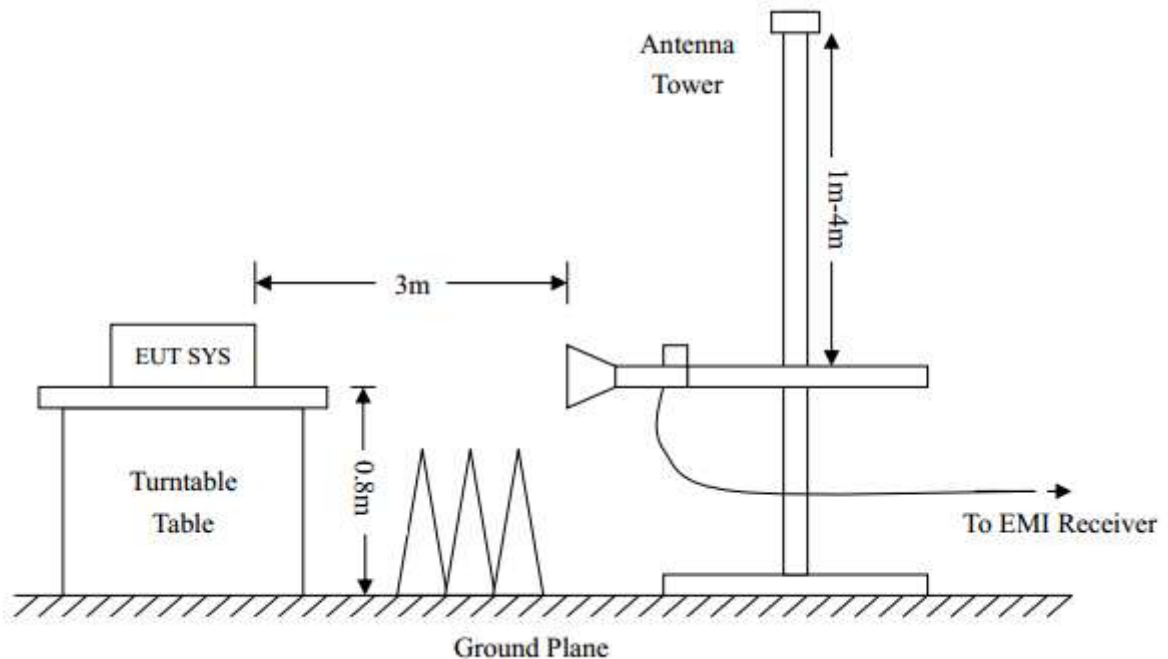
1The EUT operates at hopping-off test mode. The lowest or highest channels are tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.

2Max hold the trace of the setp 1,and the EUT operates at hopping-on test mode to verify the largest spurious emissions power.

3Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission: (a) PEAK: RBW=VBW=1.5MHz / Sweep=AUTO

### 9.2 TEST SETUP

#### RADIATED EMISSION TEST SETUP

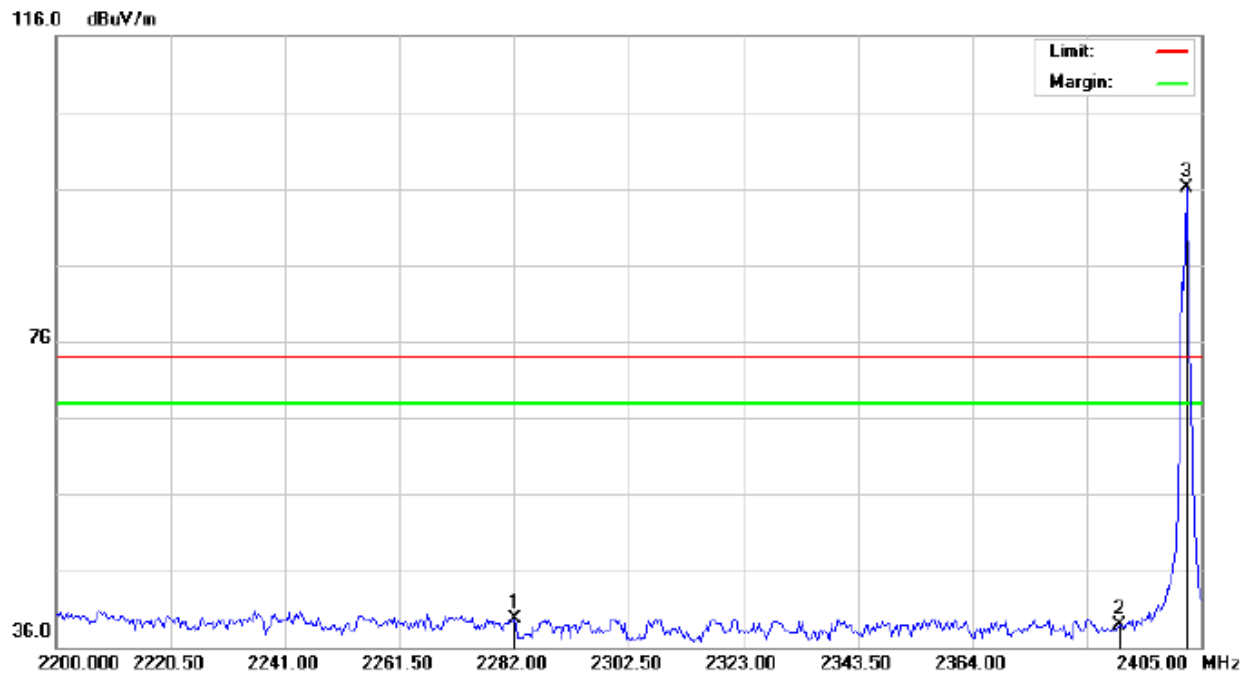


### 9.3 RADIATED TEST RESULT

(Worst modulation:GFSK)

FOR BR/EDR

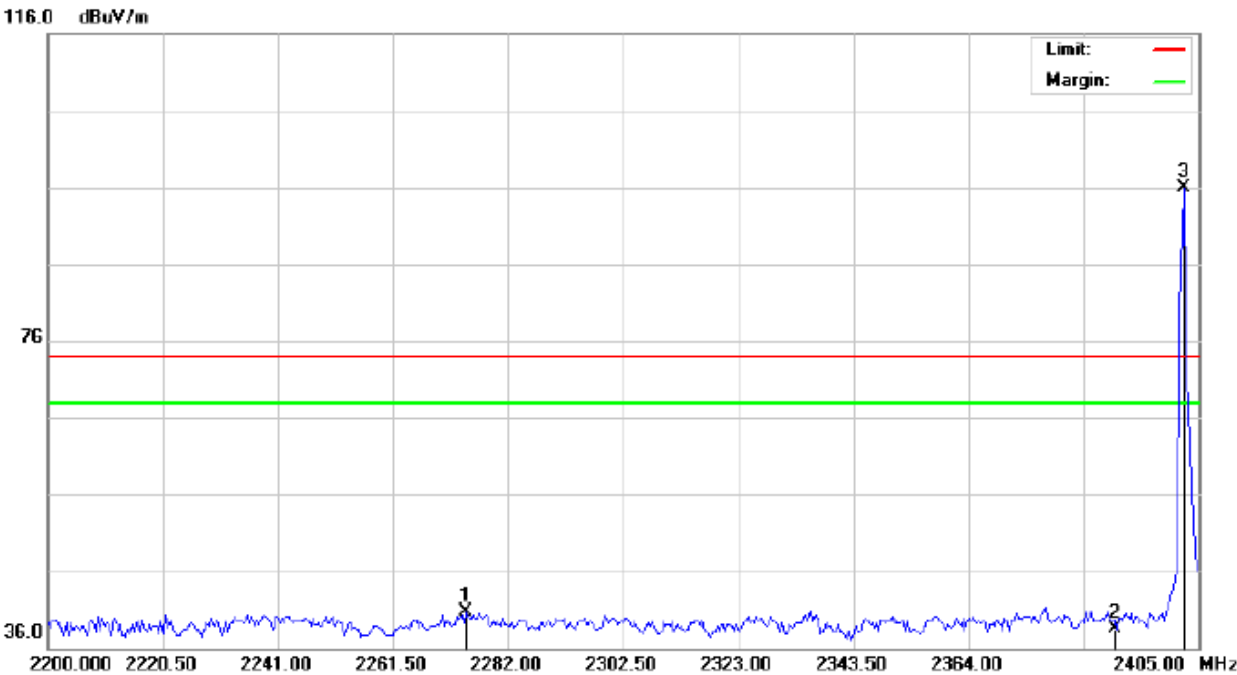
TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal



Site: site #1	Polarization: <b>Horizontal</b>	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)	Power:	Humidity: 60 %
EUT: Bluetooth Phone	Distance:	
M/N: YY151		
Mode: Low Channel TX		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2282.000	29.46	10.19	39.65	74.00	-34.35	peak			
2		2390.000	28.50	10.31	38.81	74.00	-35.19	peak			
3	*	2402.000	85.72	10.32	96.04	74.00	22.04	peak			

TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical



Site: site #1

Limit: FCC Class B 3M Radiation above 1GHZ(PK)

EUT: Bluetooth Phone

M/N: YY151

Mode: Low Channel TX

Note:

Polarization: Vertical

Power:

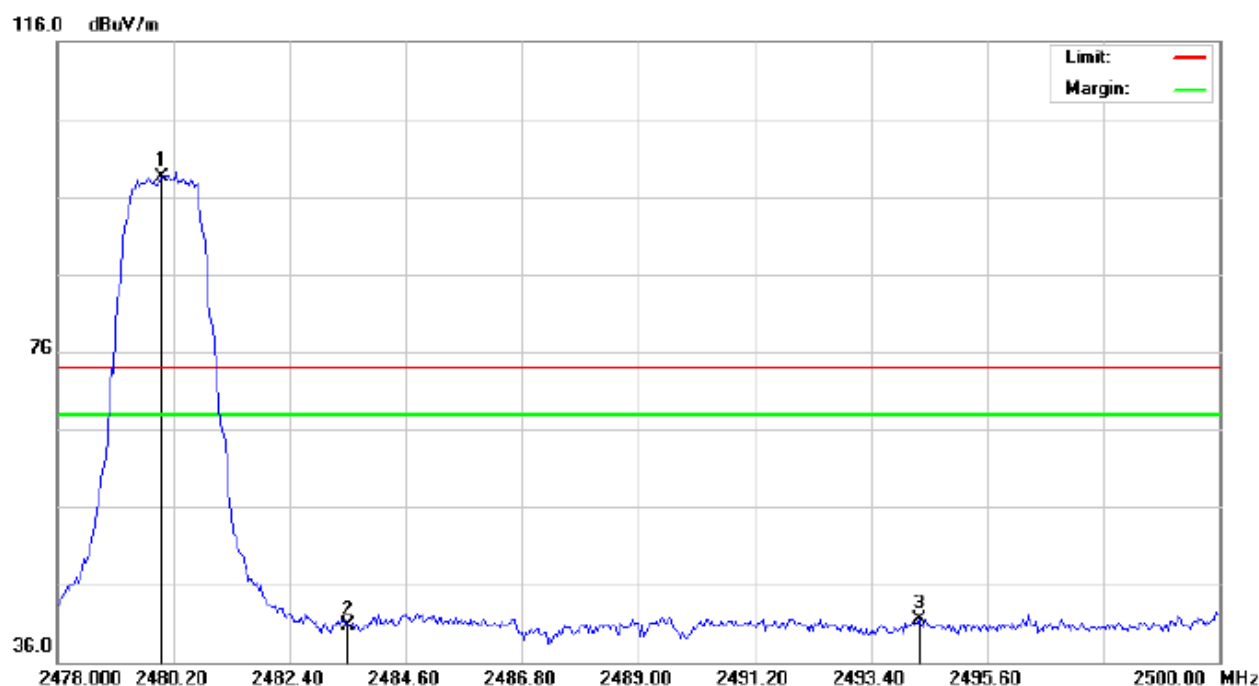
Distance:

Temperature: 26

Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2274.483	30.58	10.18	40.76	74.00	-33.24	peak			
2		2390.000	28.21	10.31	38.52	74.00	-35.48	peak			
3	*	2402.000	85.59	10.32	95.91	74.00	21.91	peak			

# TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal



Site: site #1

Polarization: *Horizontal*

Temperature: 26

Limit: FCC Class B 3M Radiation above 1GHZ(PK)

Power:

Humidity: 60 %

EUT: Bluetooth Phone

Distance:

M/N: YY151

Mode: High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	88.05	10.41	98.46	74.00	24.46	peak			
2		2483.500	30.19	10.41	40.60	74.00	-33.40	peak			
3		2494.317	31.03	10.42	41.45	74.00	-32.55	peak			

# TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical



Site: site #1 Polarization: **Vertical** Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK) Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance:  
M/N: YY151  
Mode: High Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	88.32	10.41	98.73	74.00	24.73	peak			
2		2483.500	28.76	10.41	39.17	74.00	-34.83	peak			
3		2493.913	28.94	10.42	39.36	74.00	-34.64	peak			

## RESULT: PASS

**Note:** The other modes radiation emission have enough 20dB margin.

Factor=Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

# FOR BLE

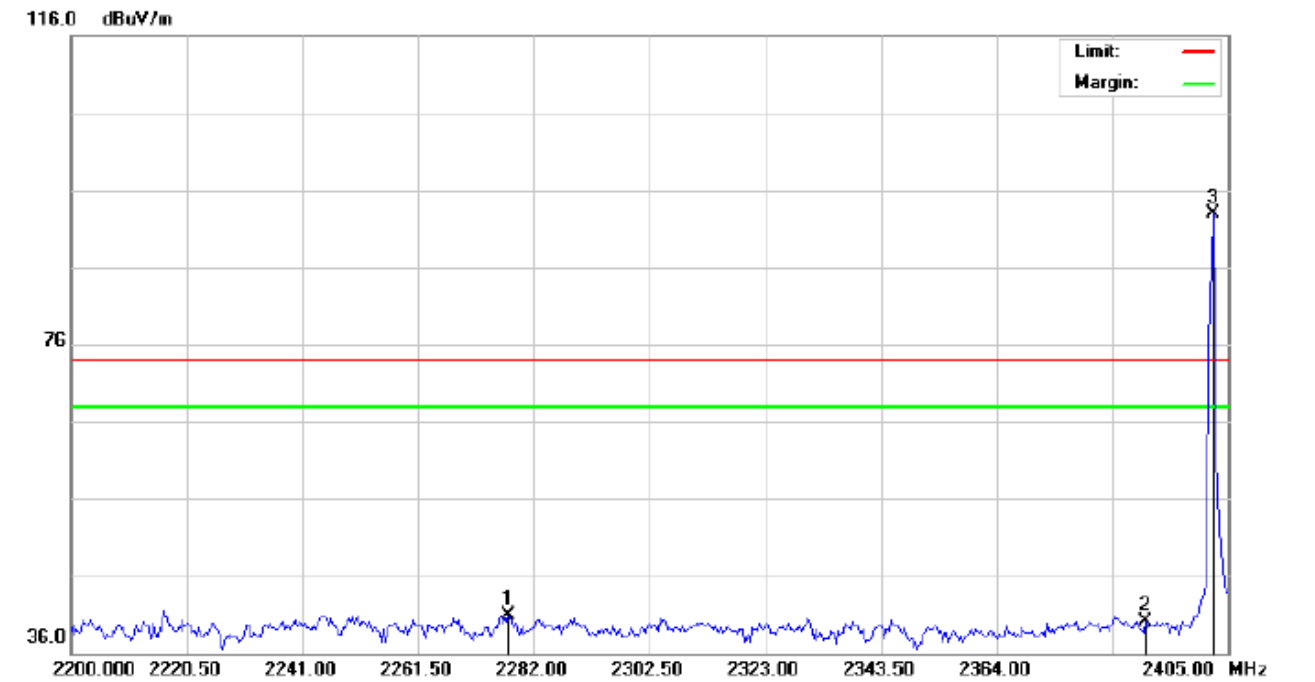
## TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal



Site: site #1 Polarization: *Horizontal* Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK) Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance:  
M/N: YY151  
Mode: Low Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2278.242	30.53	10.19	40.72	74.00	-33.28	peak			
2		2390.000	29.00	10.31	39.31	74.00	-34.69	peak			
3	*	2402.000	82.72	10.32	93.04	74.00	19.04	peak			

TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical

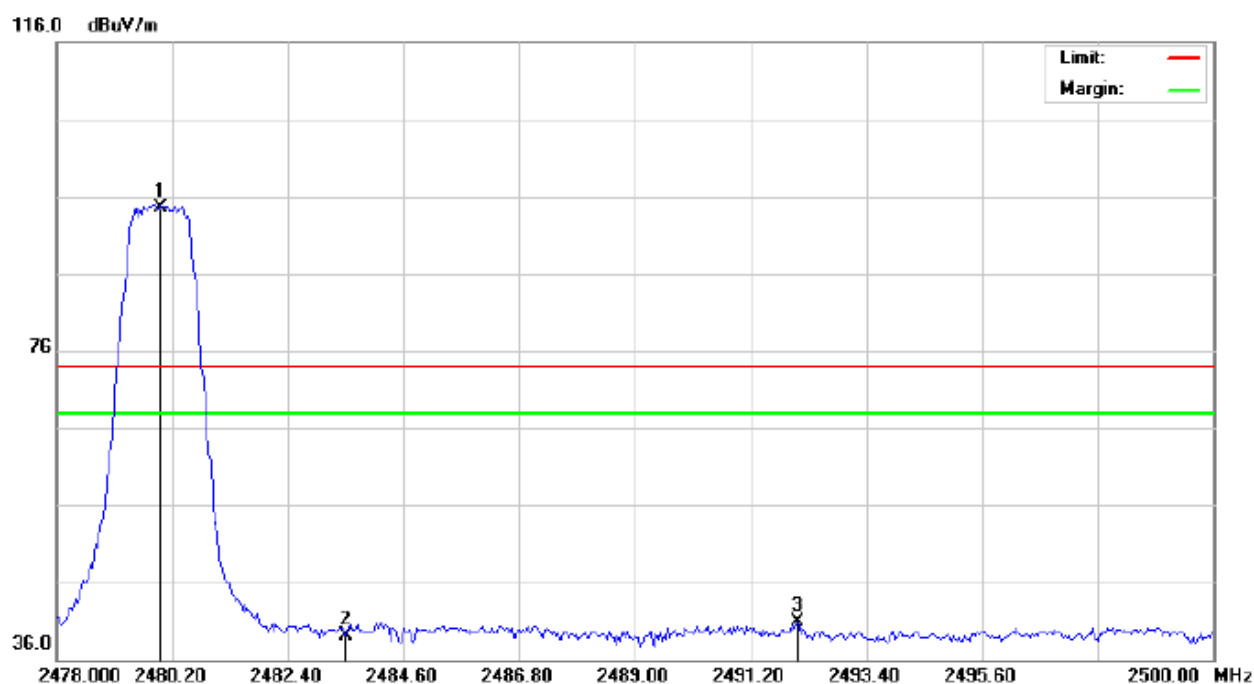


Site: site #1	Polarization: <i>Vertical</i>	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)	Power:	Humidity: 60 %
EUT: Bluetooth Phone	Distance:	
M/N: YY151		
Mode: Low Channel TX		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2277.558	30.68	10.19	40.87	74.00	-33.13	peak			
2		2390.000	29.71	10.31	40.02	74.00	-33.98	peak			
3	*	2402.000	82.57	10.32	92.89	74.00	18.89	peak			



# TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal



Site: site #1

Polarization: *Horizontal*

Temperature: 26

Limit: FCC Class B 3M Radiation above 1GHZ(PK)

Power:

Humidity: 60 %

EUT: Bluetooth Phone

Distance:

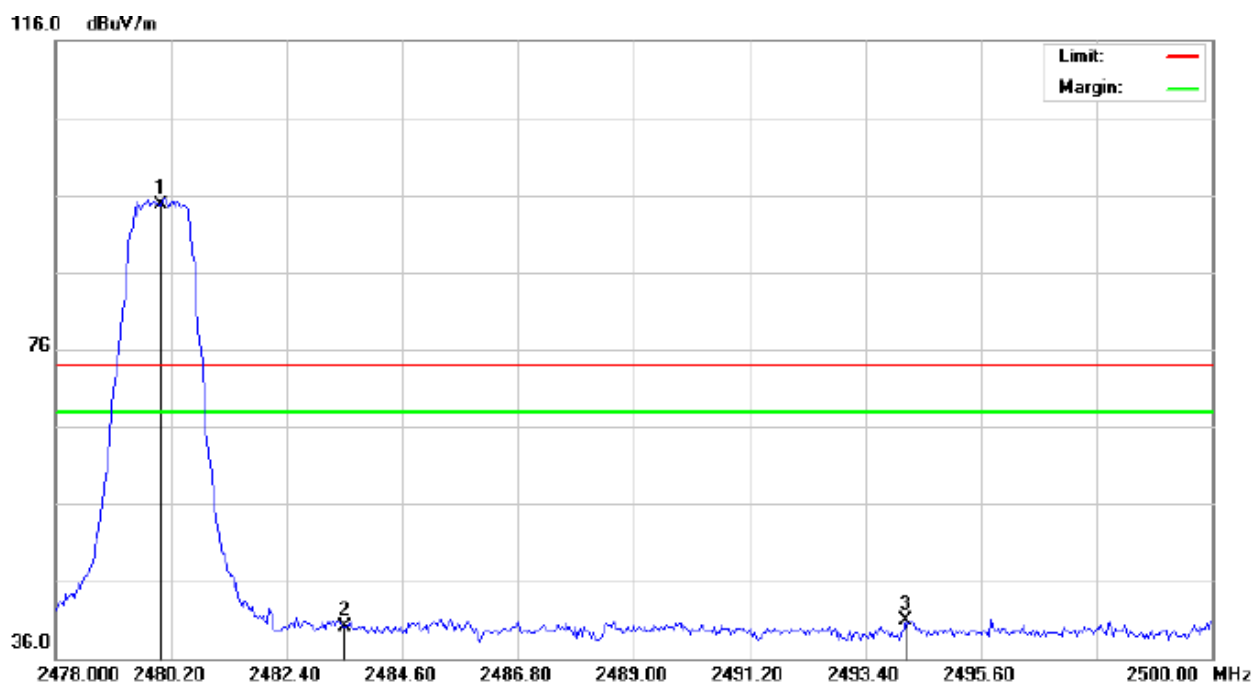
M/N: YY151

Mode: High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	84.05	10.41	94.46	74.00	20.46	peak			
2		2483.500	28.69	10.41	39.10	74.00	-34.90	peak			
3		2492.080	30.42	10.42	40.84	74.00	-33.16	peak			

# TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical



Site: site #1 Polarization: **Vertical** Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK) Power: Humidity: 60 %  
EUT: Bluetooth Phone Distance:  
M/N: YY151  
Mode: High Channel TX  
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	84.32	10.41	94.73	74.00	20.73	peak			
2		2483.500	29.76	10.41	40.17	74.00	-33.83	peak			
3		2494.170	30.47	10.42	40.89	74.00	-33.11	peak			

## RESULT: PASS

**Note:** The other modes radiation emission have enough 20dB margin.

Factor=Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

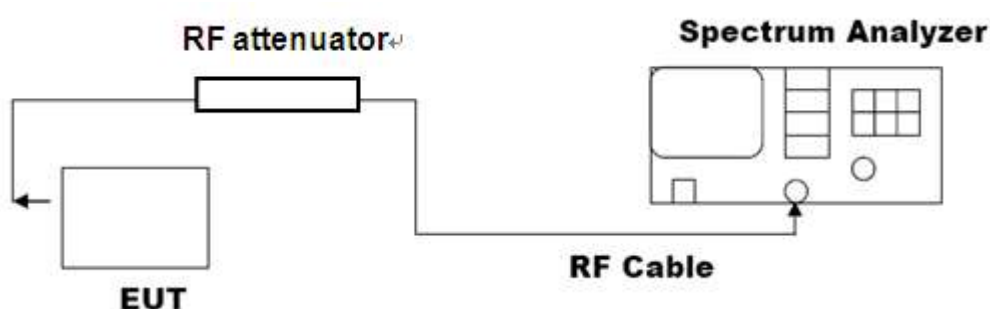
## 10. 20DB BANDWIDTH

### 10.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hoping channel  
RBW  $\geq$  1% of the 20 dB bandwidth, VBW  $\geq$  RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

### 10.2. TEST SET-UP

(BLOCK DIAGRAM OF CONFIGURATION)



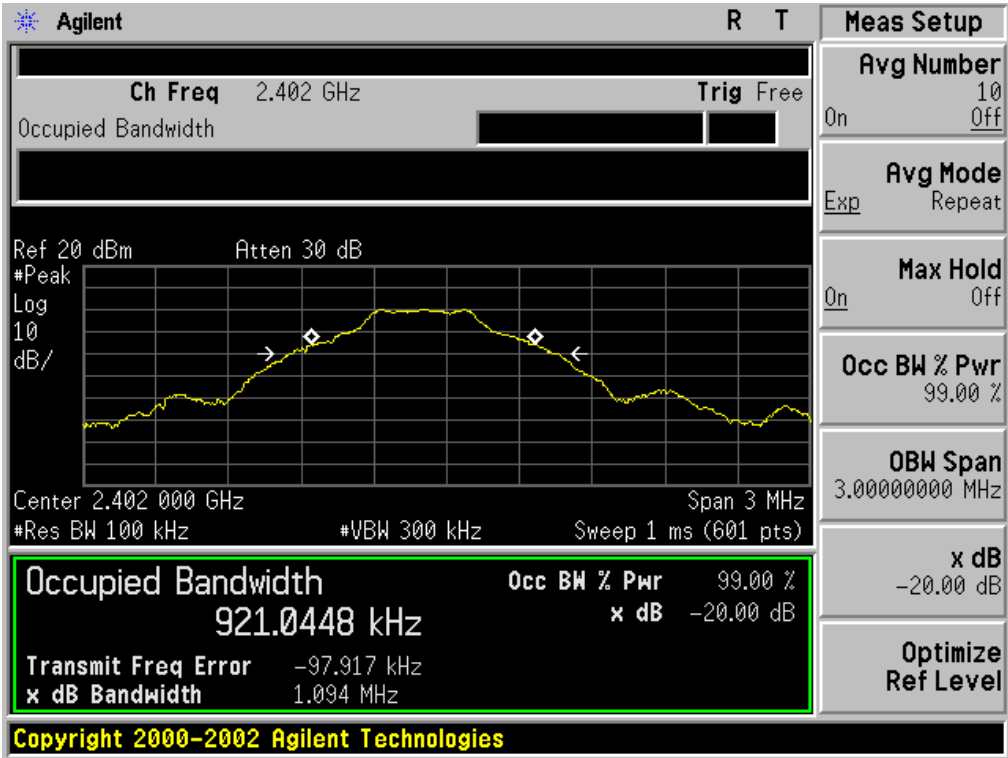
Note: The EUT has been used temporary antenna connector for testing.

### 10.3. LIMITS AND MEASUREMENT RESULTS

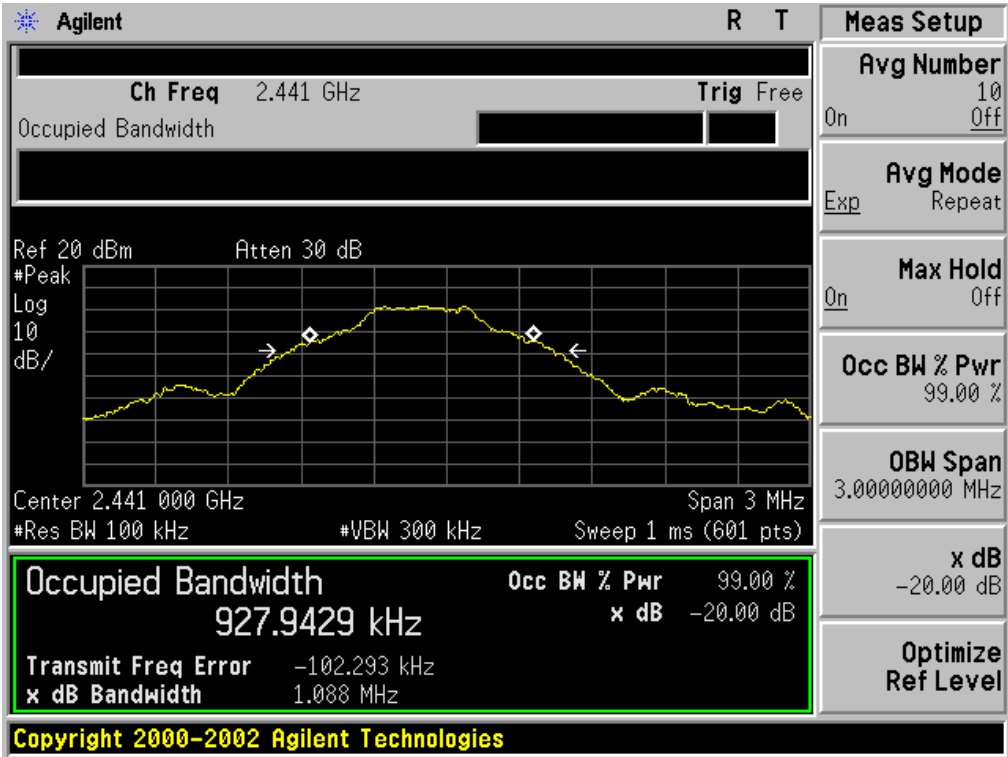
FOR BR/EDR

BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESUL			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.094	PASS
	Middle Channel	1.088	PASS
	High Channel	1.105	PASS

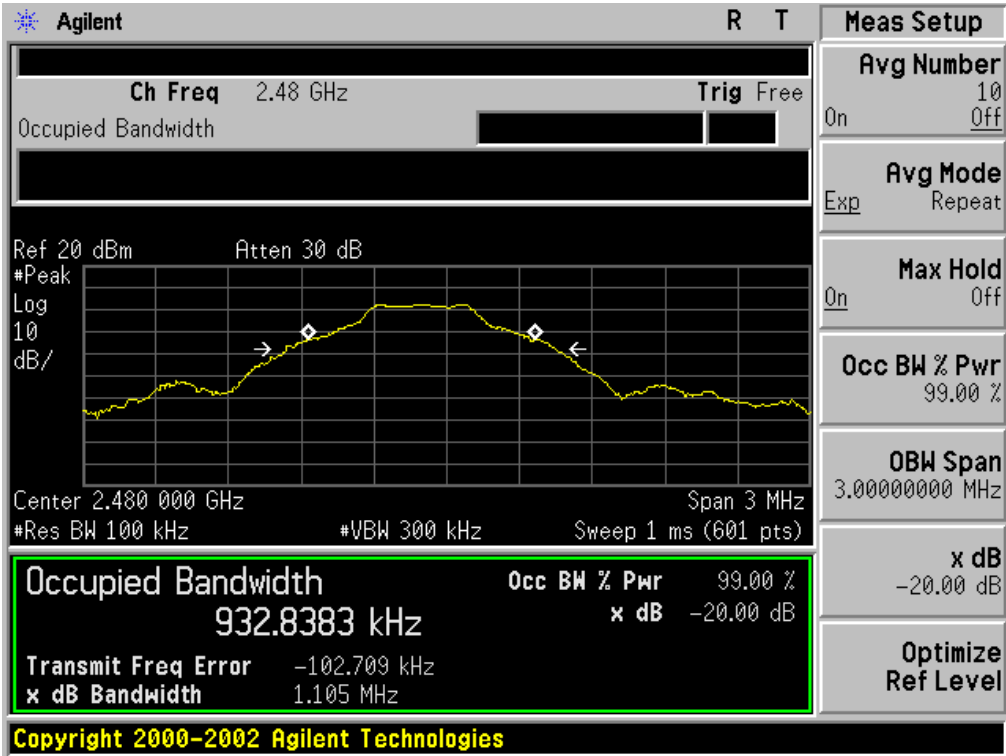
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

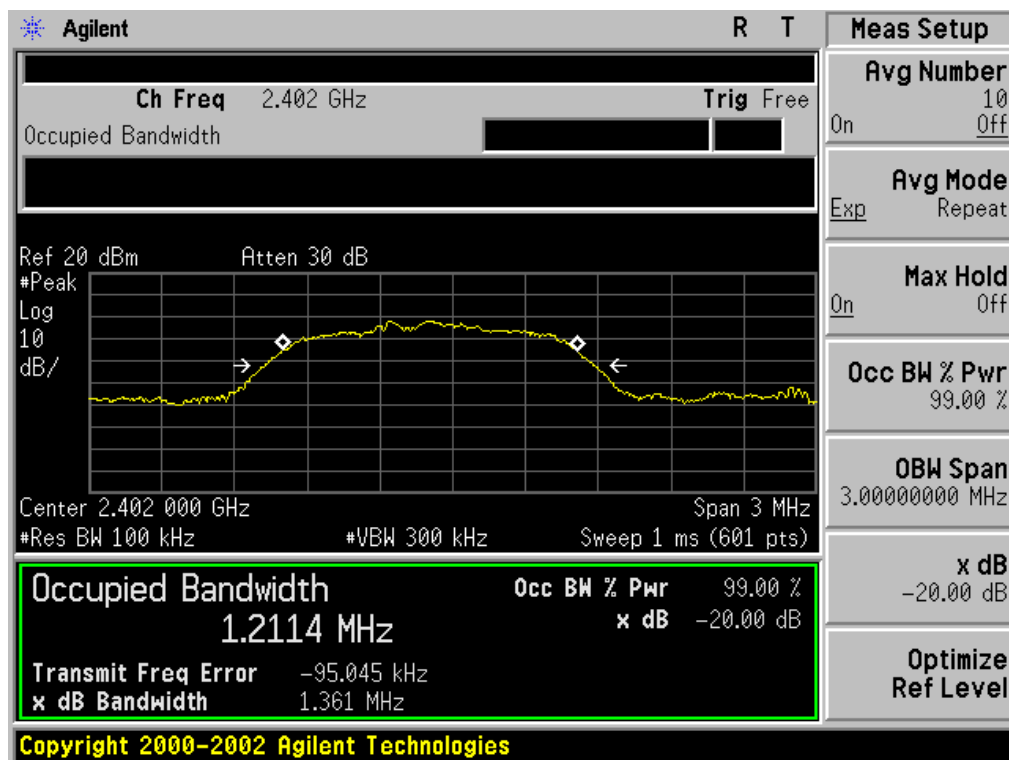


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

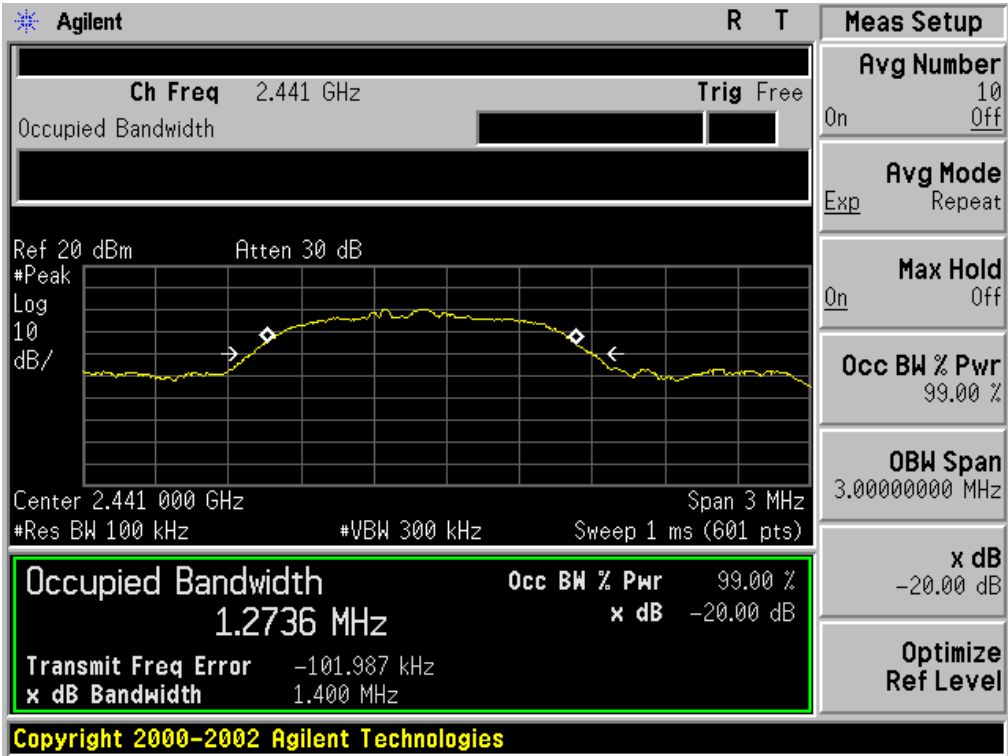


BLUETOOTH 2Mbps LIMITS AND MEASUREMENT RESUL			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.361	PASS
	Middle Channel	1.400	PASS
	High Channel	1.405	PASS

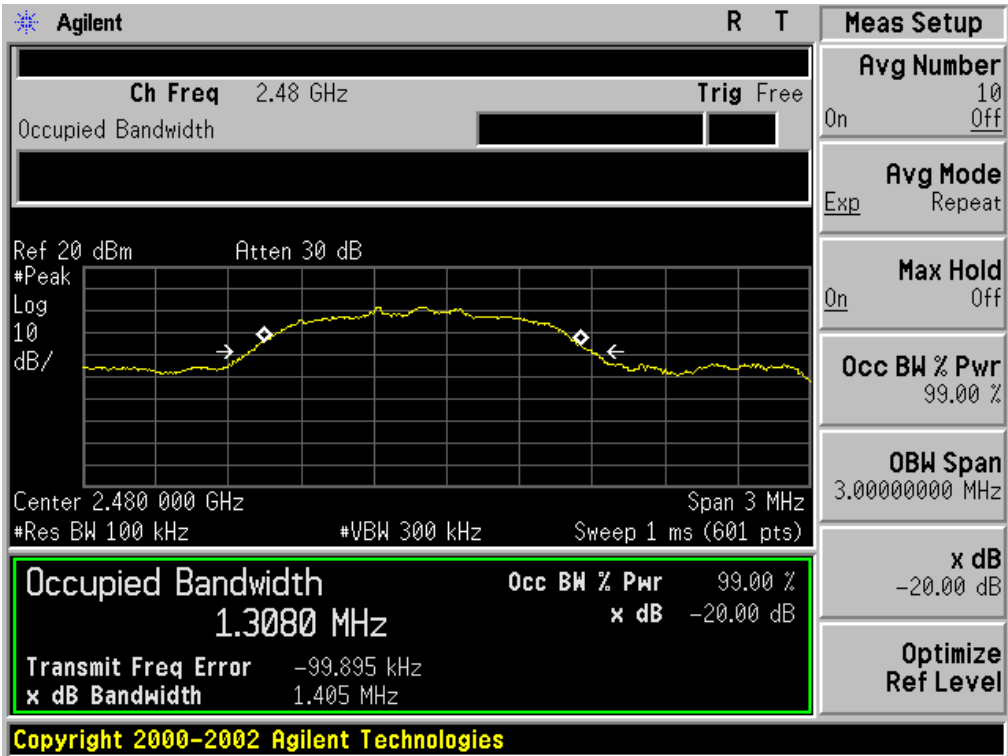
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

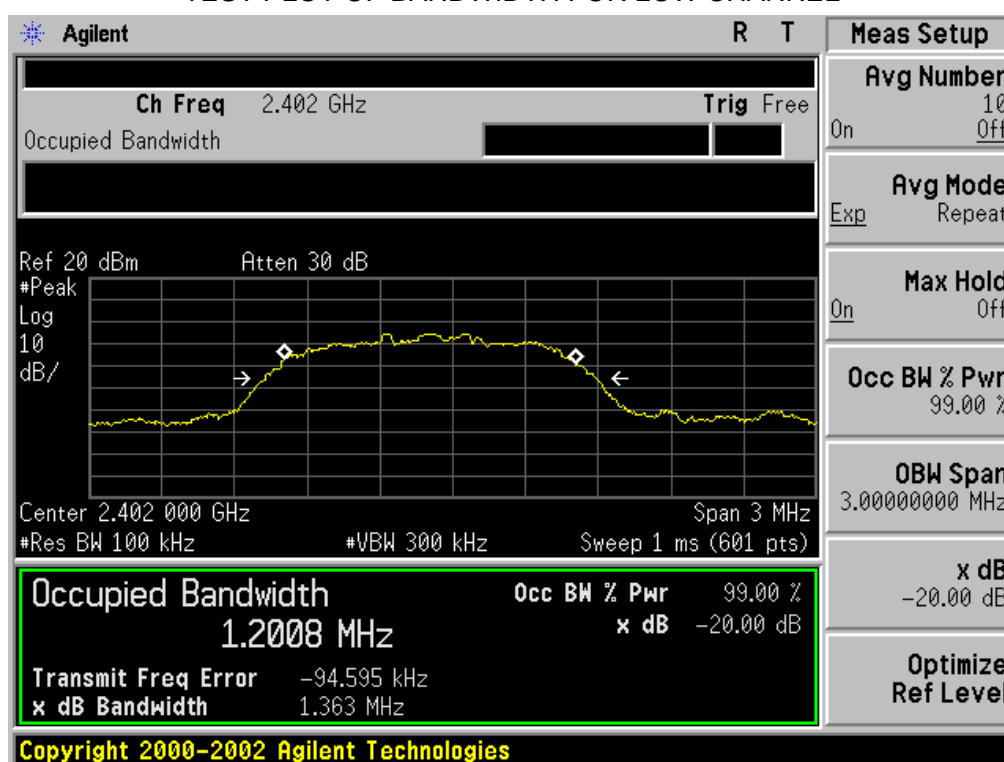


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



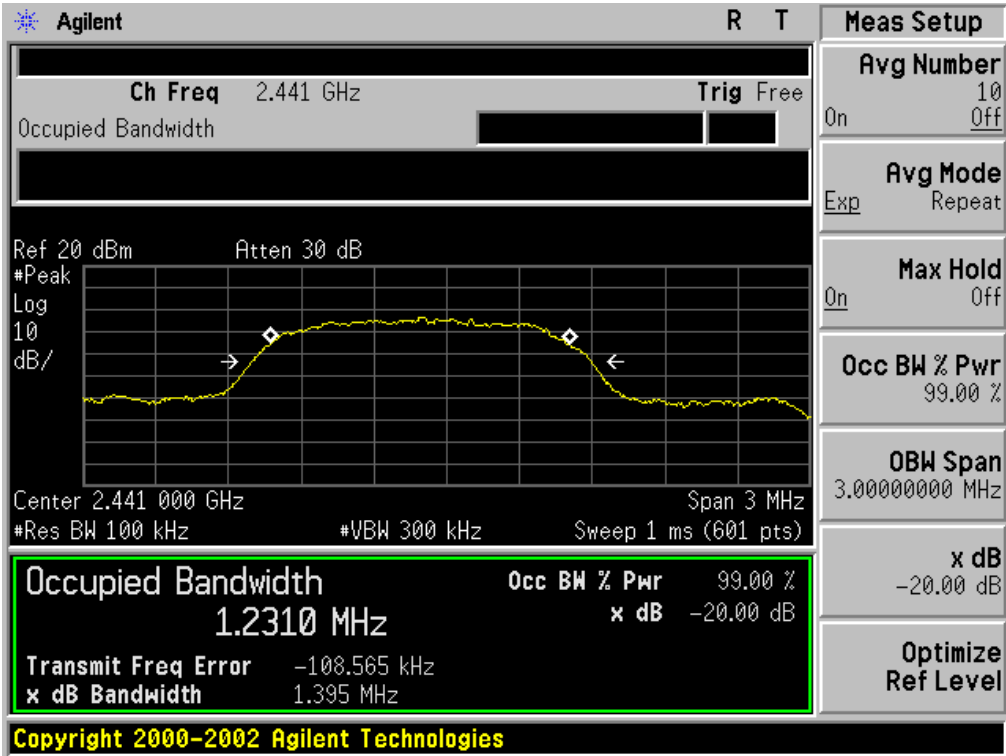
BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESUL			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.363	PASS
	Middle Channel	1.395	PASS
	High Channel	1.370	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

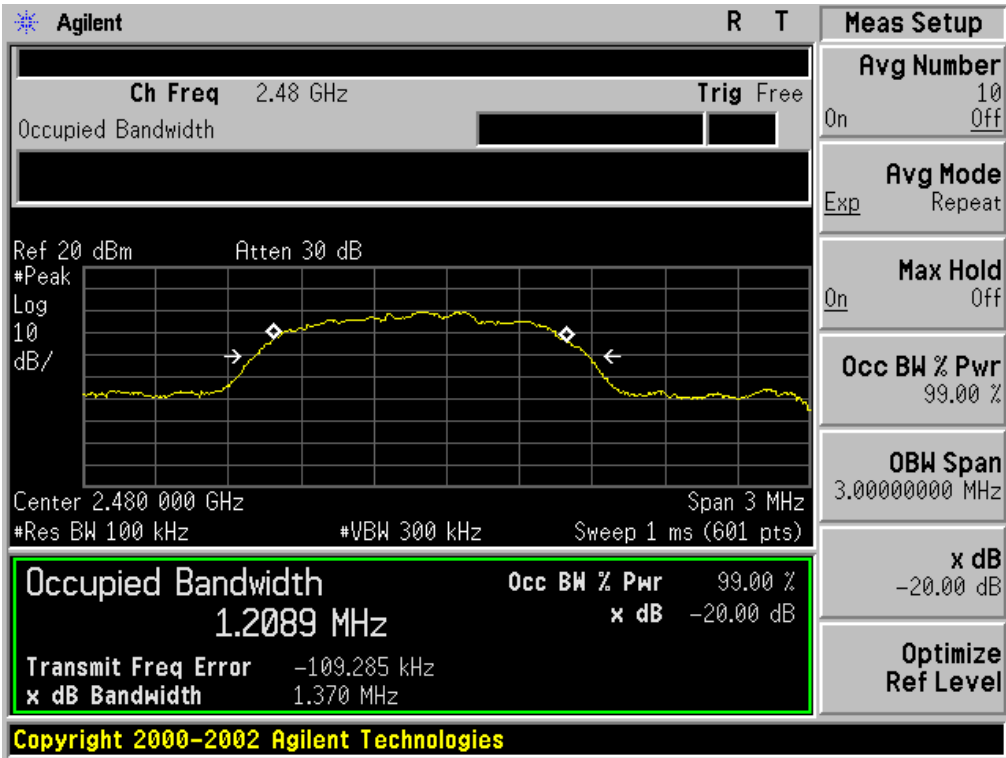




TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



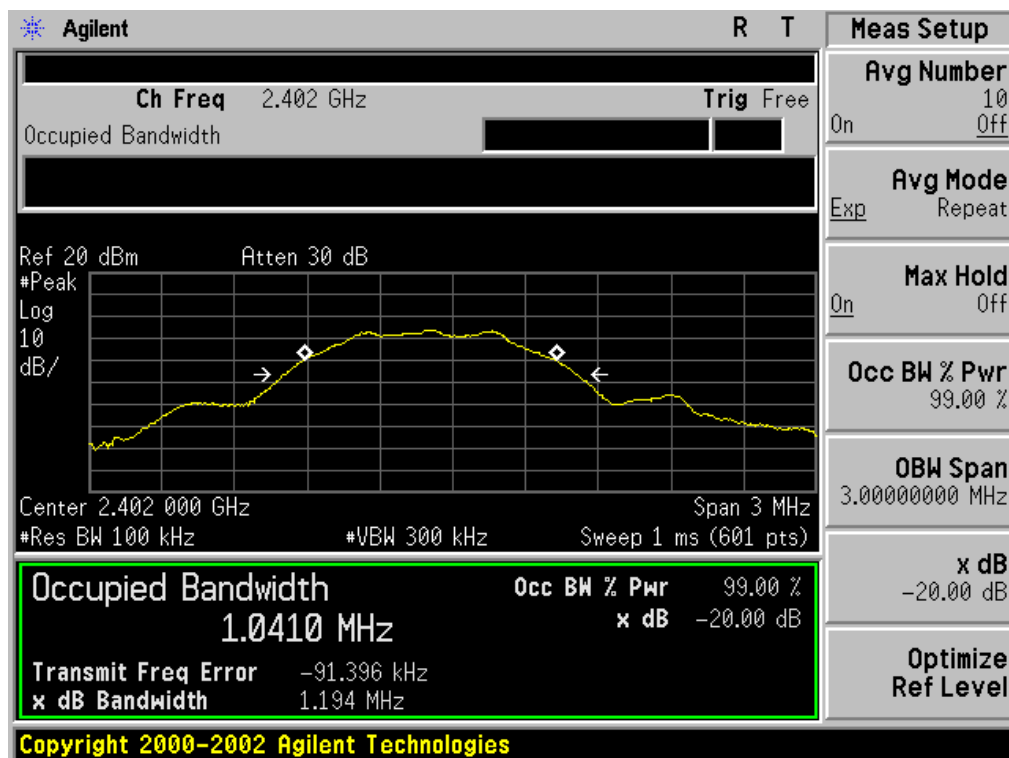
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



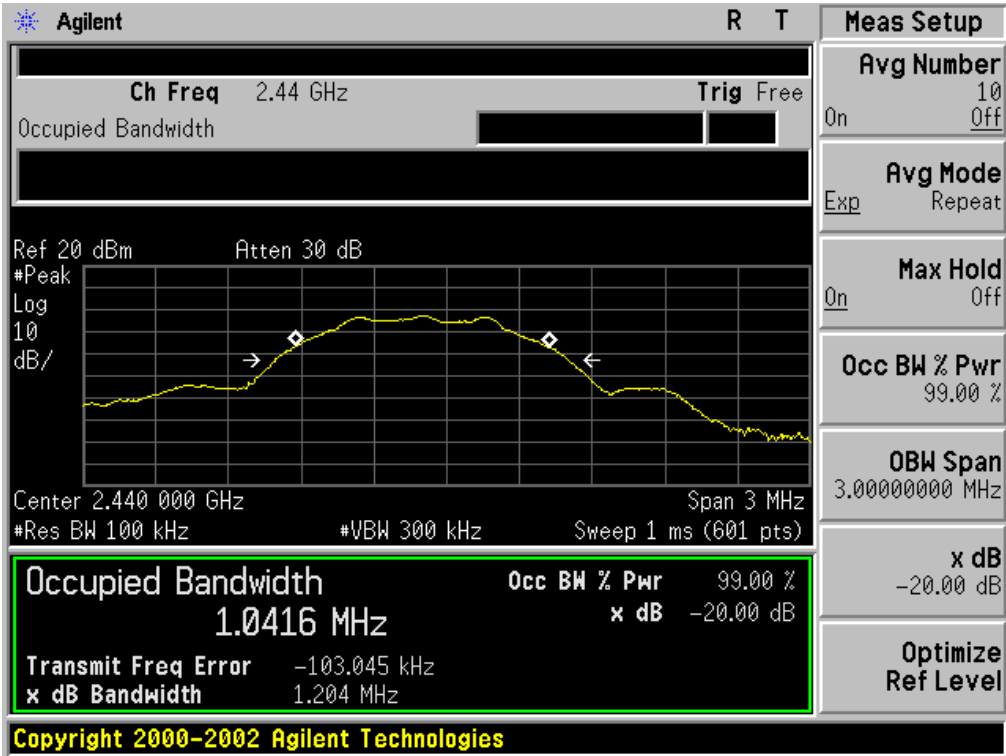
FOR BLE

BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESUL			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.194	PASS
	Middle Channel	1.204	PASS
	High Channel	1.200	PASS

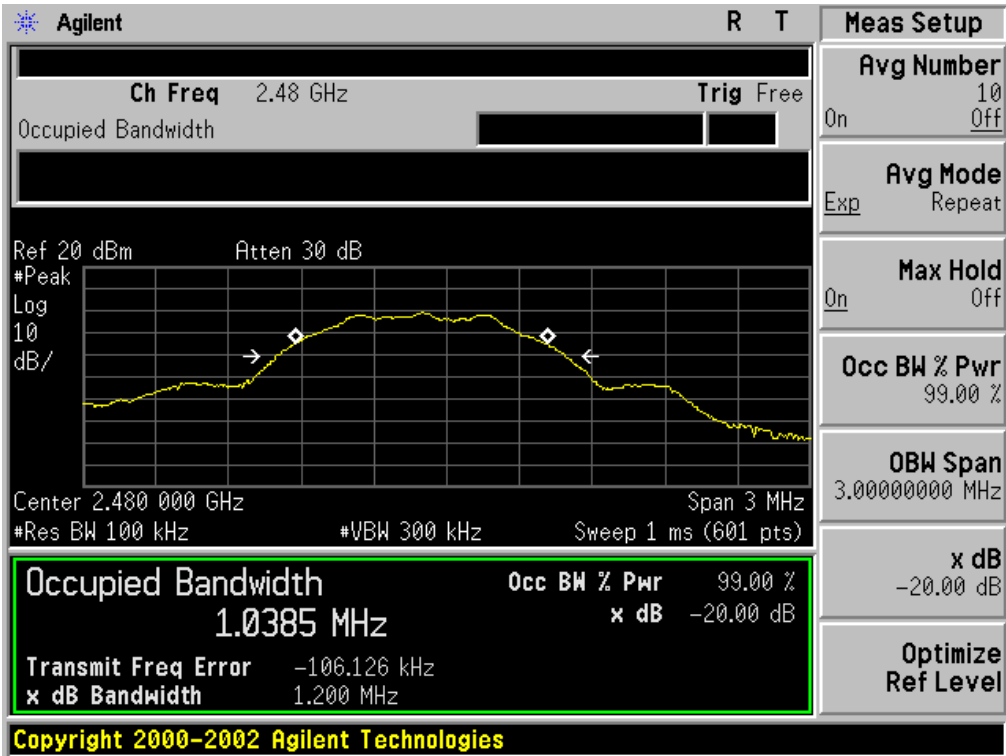
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



## 11. FCC LINE CONDUCTED EMISSION TEST

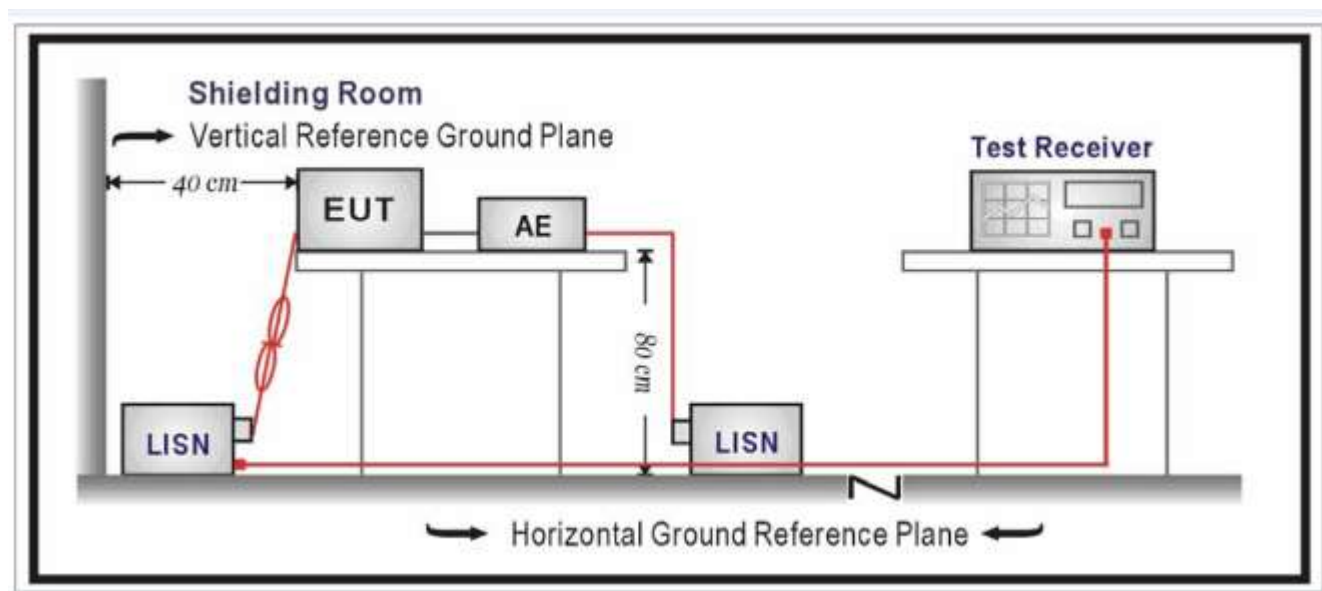
### 11.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.( dBuV)	Average( dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 11.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



### 11.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

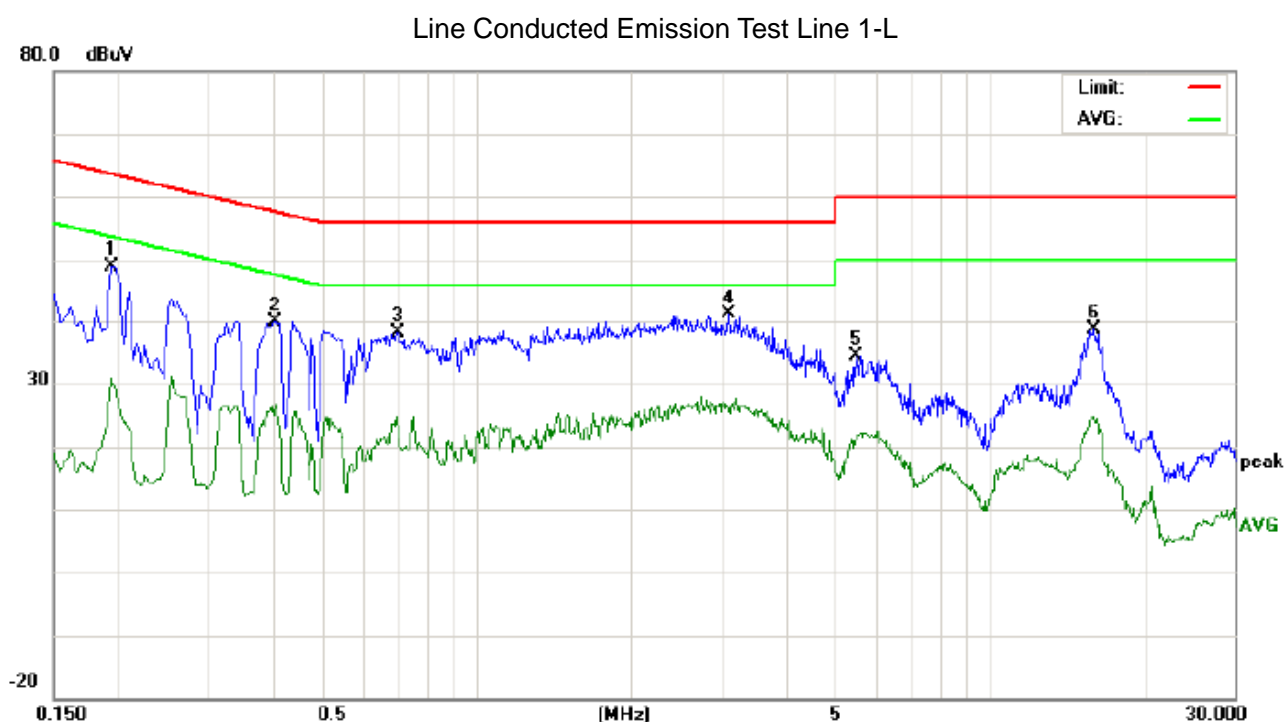
1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.4.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC charging voltage by PC which received 120V/60Hz power by a LISN..
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### 11.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
  3. The test data of the worst case condition(s) was reported on the Summary Data page.

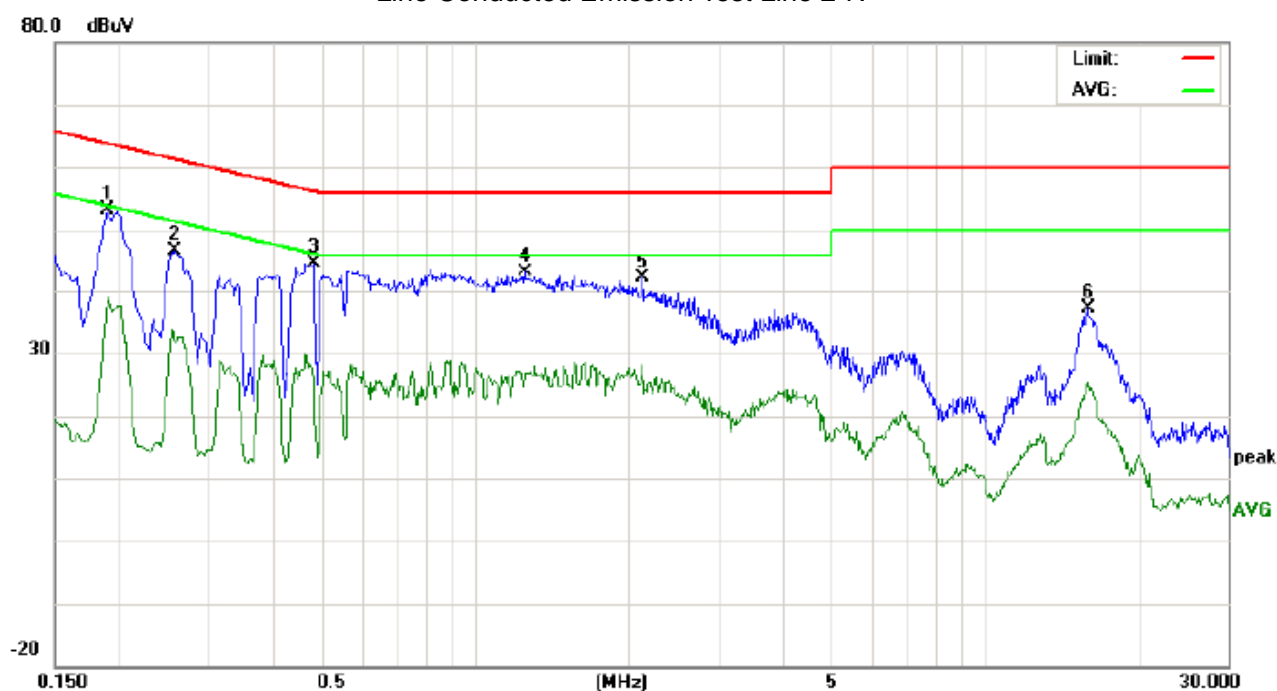
# 11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST FOR BR/EDR



Site: Conduction Phase: **L1** Temperature: 23.5  
Limit: FCC Class B Conduction(QP) Power: Humidity: 57.2 %  
EUT: Bluetooth Phone  
M/N: YY151  
Mode: BT Link with charging  
Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1940	38.65		20.67	10.21	48.86		30.88	63.86	53.86	-15.00	-22.98	P	
2	0.4060	29.67		16.44	10.33	40.00		26.77	57.73	47.73	-17.73	-20.96	P	
3	0.7019	27.80		11.69	10.35	38.15		22.04	56.00	46.00	-17.85	-23.96	P	
4	3.1020	30.59		15.41	10.54	41.13		25.95	56.00	46.00	-14.87	-20.05	P	
5	5.4899	24.11		11.20	10.25	34.36		21.45	60.00	50.00	-25.64	-28.55	P	
6	15.9820	28.45		14.62	10.11	38.56		24.73	60.00	50.00	-21.44	-25.27	P	

# Line Conducted Emission Test Line 2-N

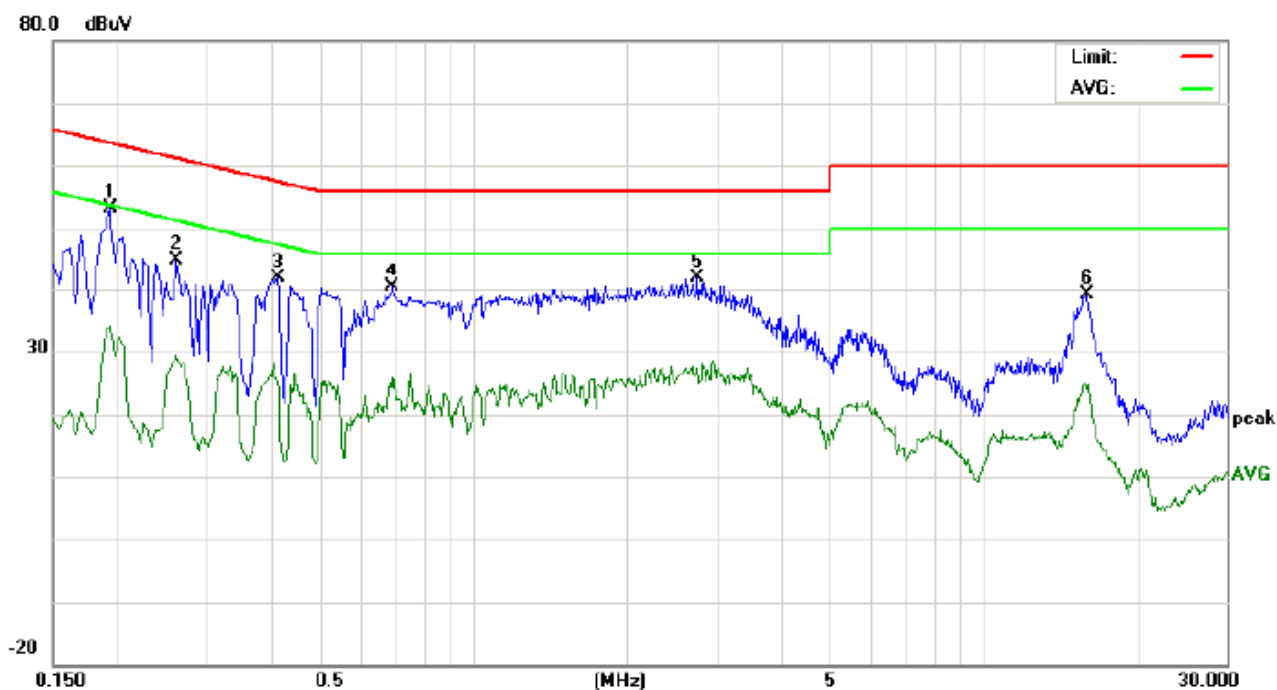


Site: Conduction Phase: **N** Temperature: 23.5  
Limit: FCC Class B Conduction(QP) Power: Humidity: 57.2 %  
EUT: Bluetooth Phone  
M/N: YY151  
Mode: BT Link with charging  
Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1900	42.99		28.99	10.20	53.19		39.19	64.03	54.03	-10.84	-14.84	P	
2	0.2580	36.39		21.44	10.27	46.66		31.71	61.49	51.49	-14.83	-19.78	P	
3	0.4820	34.23		15.24	10.39	44.62		25.63	56.30	46.30	-11.68	-20.67	P	
4	1.2500	32.85		16.63	10.37	43.22		27.00	56.00	46.00	-12.78	-19.00	P	
5	2.1340	31.79		17.78	10.28	42.07		28.06	56.00	46.00	-13.93	-17.94	P	
6	15.9660	27.11		14.57	10.11	37.22		24.68	60.00	50.00	-22.78	-25.32	P	

FOR BLE

Line Conducted Emission Test Line 1-L

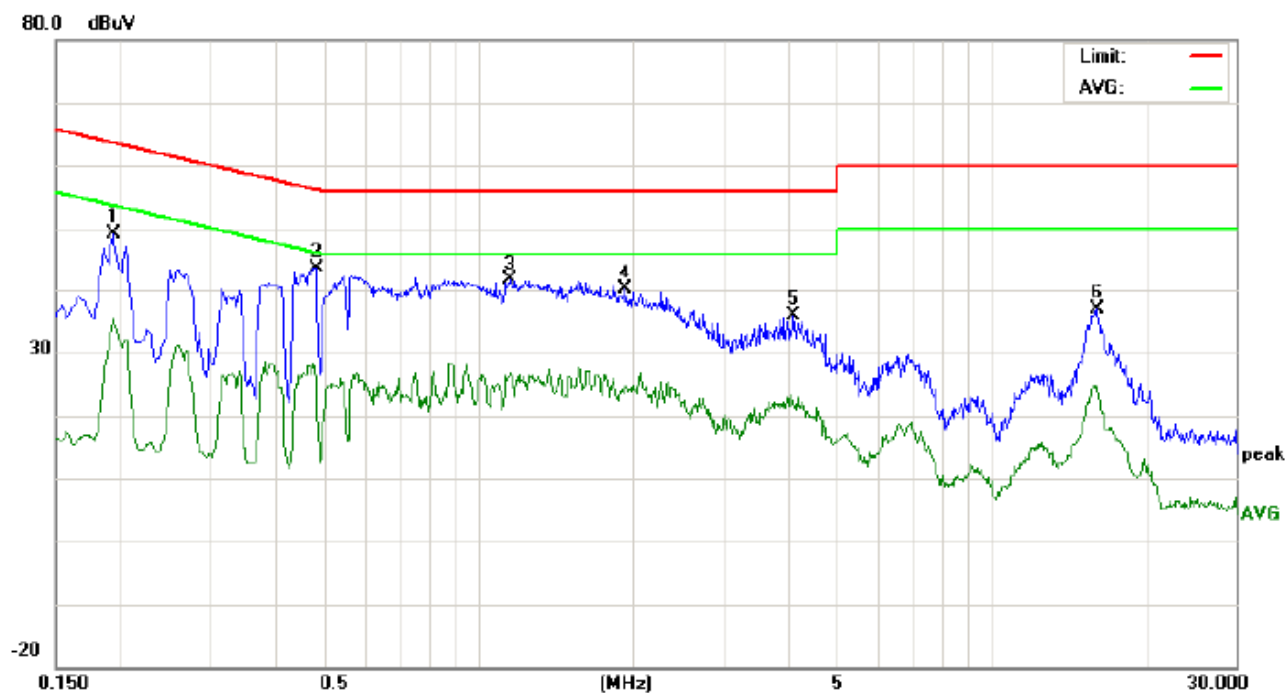


Site: Conduction Phase: **L1** Temperature: 23.5  
Limit: FCC Class B Conduction(QP) Power: Humidity: 57.2 %  
EUT: Bluetooth Phone  
M/N: YY151  
Mode: BT Link with charging  
Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1940	42.99		23.90	10.21	53.20		34.11	63.86	53.86	-10.66	-19.75	P	
2	0.2620	34.57		19.03	10.27	44.84		29.30	61.36	51.36	-16.52	-22.06	P	
3	0.4140	31.49		15.13	10.34	41.83		25.47	57.57	47.57	-15.74	-22.10	P	
4	0.6940	30.00		14.14	10.35	40.35		24.49	56.00	46.00	-15.65	-21.51	P	
5	2.7540	31.30		16.77	10.49	41.79		27.26	56.00	46.00	-14.21	-18.74	P	
6	15.9460	29.02		13.97	10.11	39.13		24.08	60.00	50.00	-20.87	-25.92	P	



# Line Conducted Emission Test Line 2-N



Site: Conduction

Phase: **N**

Temperature: 23.5

Limit: FCC Class B Conduction(QP)

Power:

Humidity: 57.2 %

EUT: Bluetooth Phone

M/N: YY151

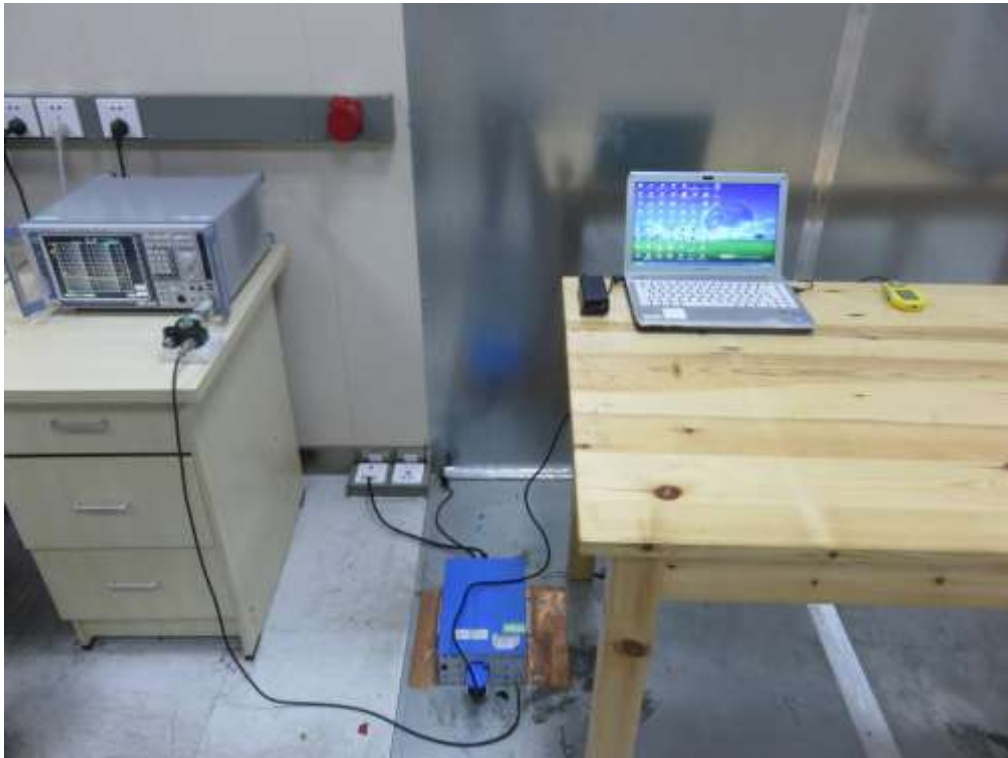
Mode: BT Link with charging

Note:

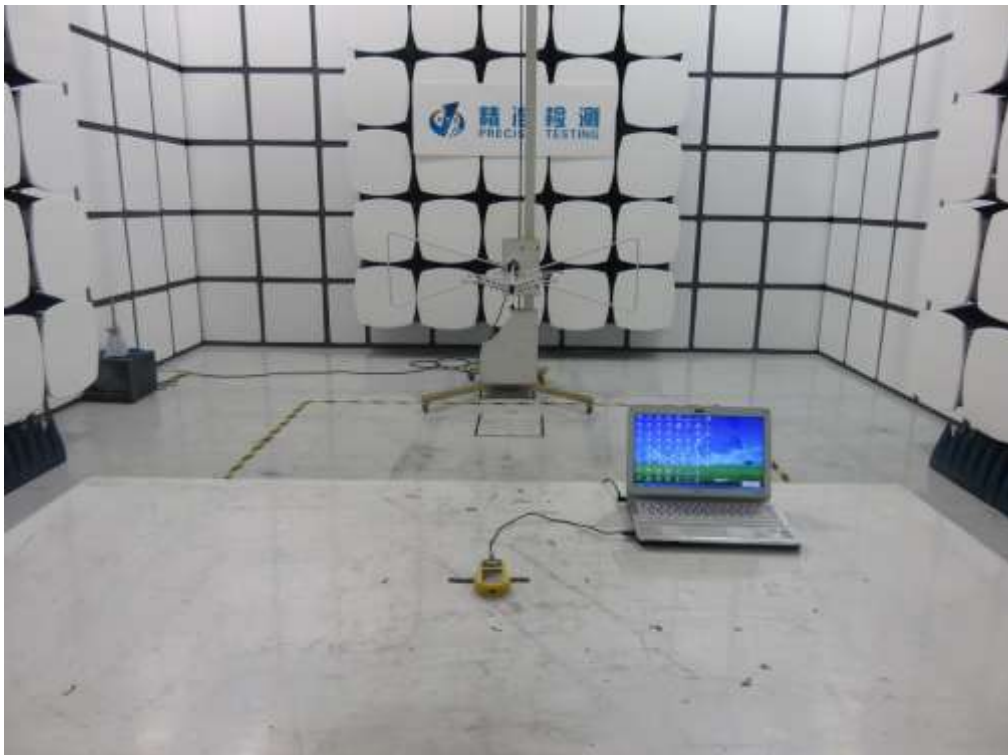
No.	Freq. (MHz)	Reading Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1940	38.84		25.09	10.21	49.05		35.30	63.86	53.86	-14.81	-18.56	P	
2	0.4820	33.17		14.74	10.39	43.56		25.13	56.30	46.30	-12.74	-21.17	P	
3	1.1580	31.33		16.44	10.37	41.70		26.81	56.00	46.00	-14.30	-19.19	P	
4	1.9380	29.94		14.47	10.24	40.18		24.71	56.00	46.00	-15.82	-21.29	P	
5	4.1340	25.48		12.00	10.37	35.85		22.37	56.00	46.00	-20.15	-23.63	P	
6	16.0660	26.87		14.46	10.11	36.98		24.57	60.00	50.00	-23.02	-25.43	P	

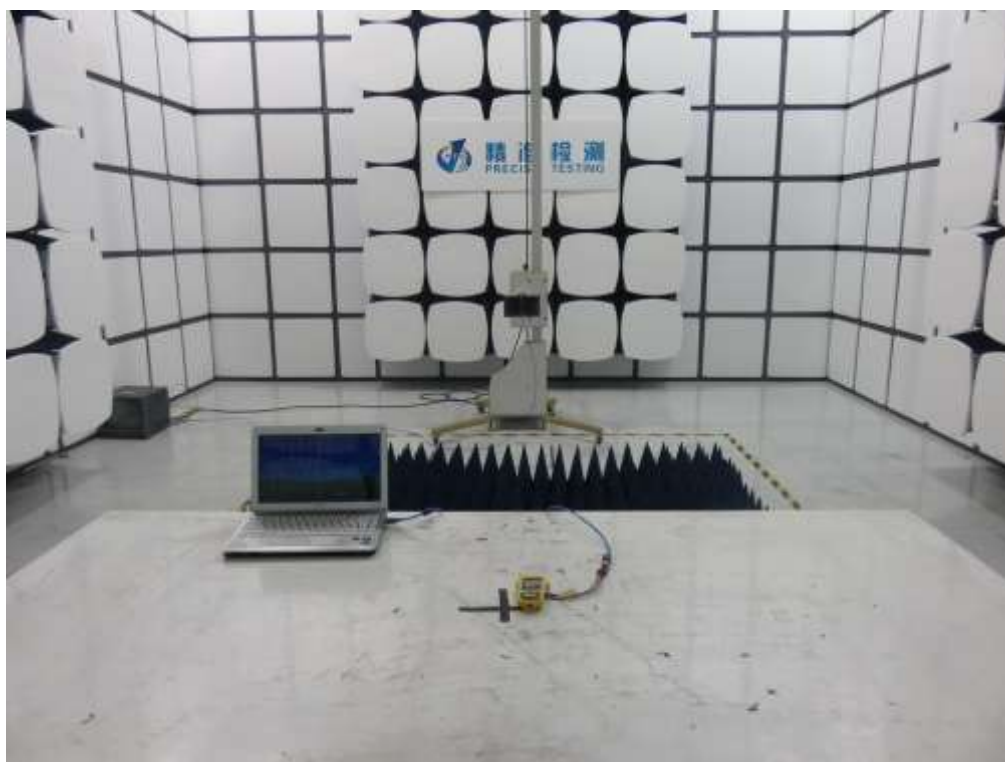
## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

### FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP





## APPENDIX B: PHOTOGRAPHS OF EUT

TOTAL VIEW OF EUT



TOP VIEW OF EUT





BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



BACK VIEW OF EUT



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



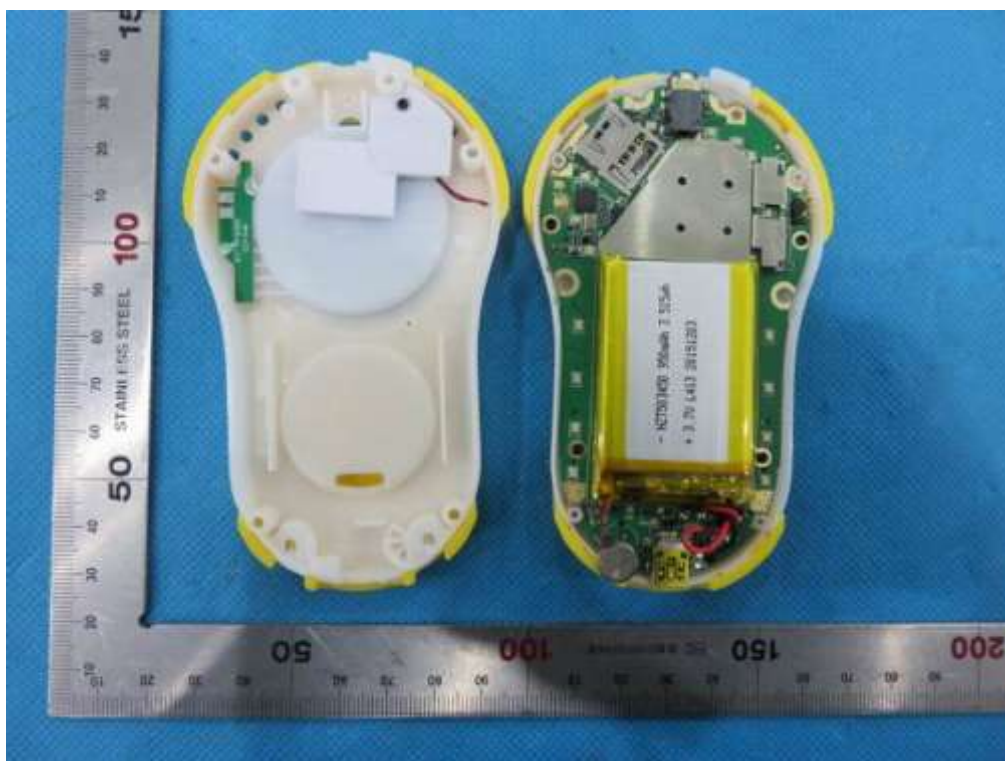
VIEW OF EUT (USB)



VIEW OF EUT (AUX)

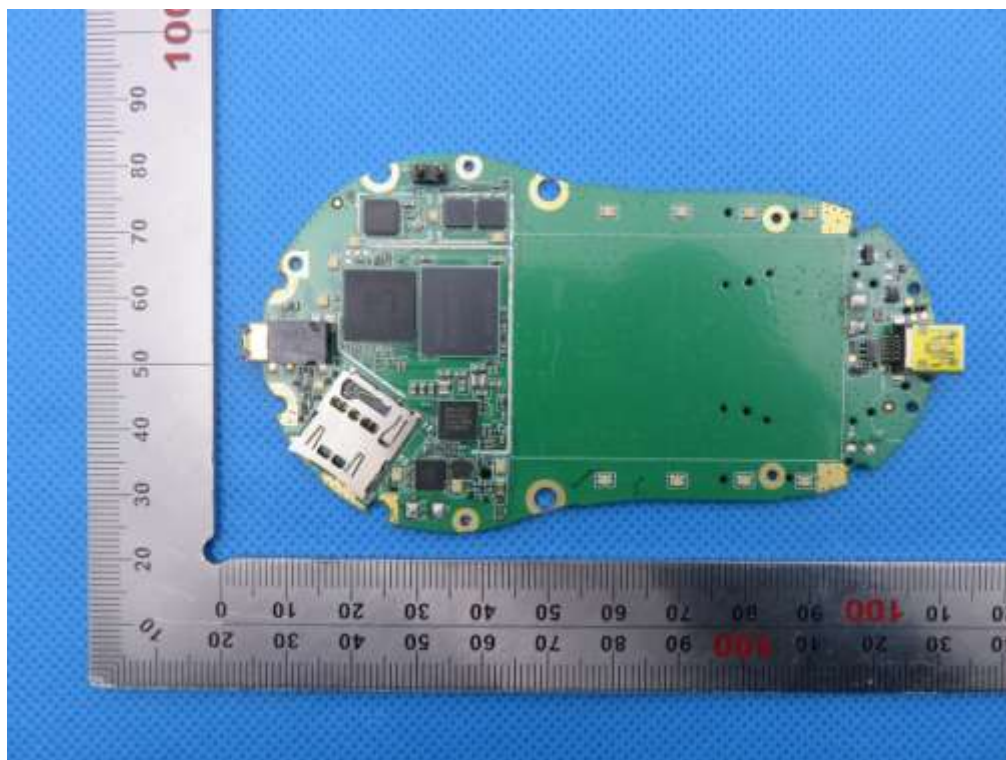


OPEN VIEW OF EUT

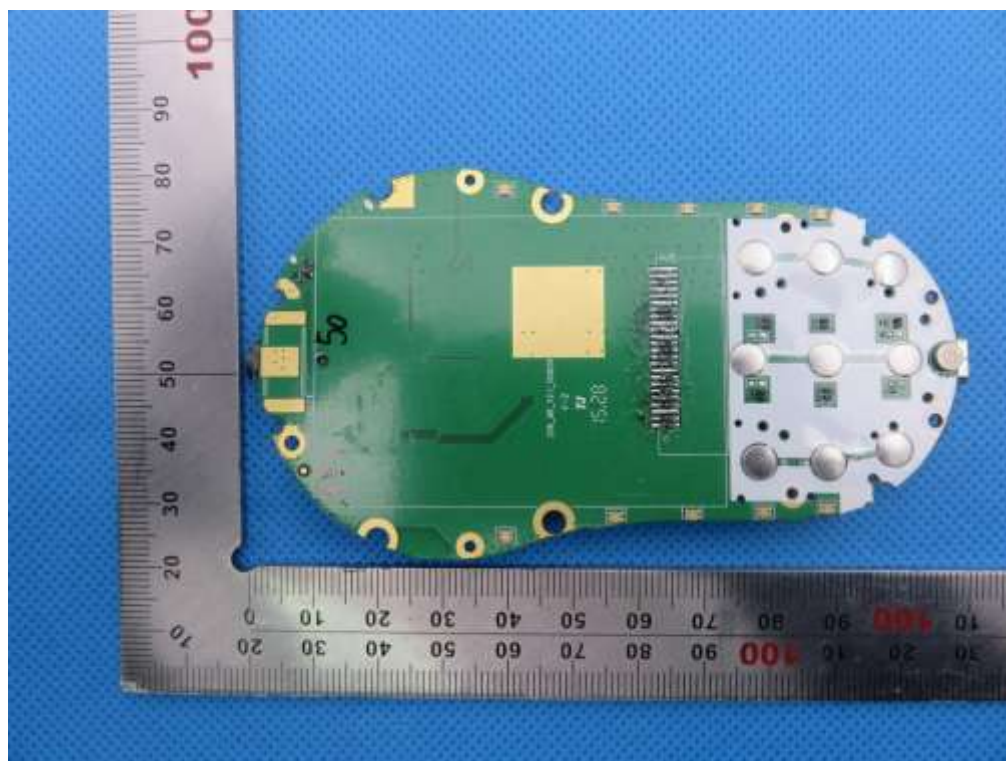




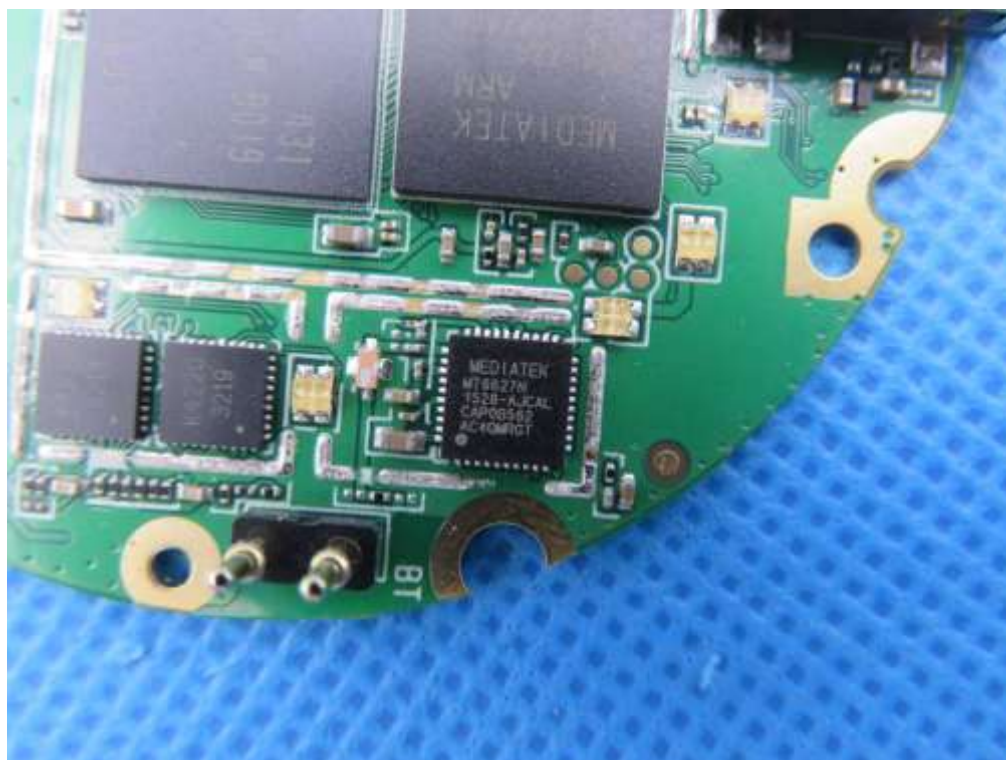
INTERNAL VIEW OF EUT-1



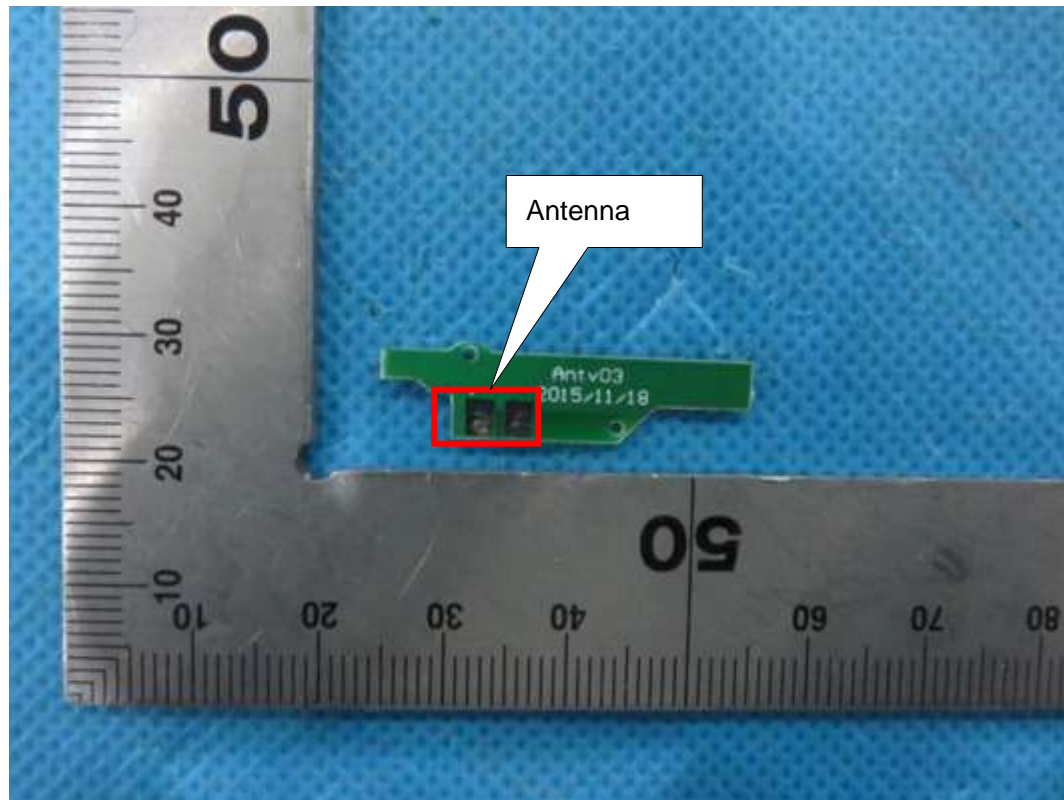
INTERNAL VIEW OF EUT-2



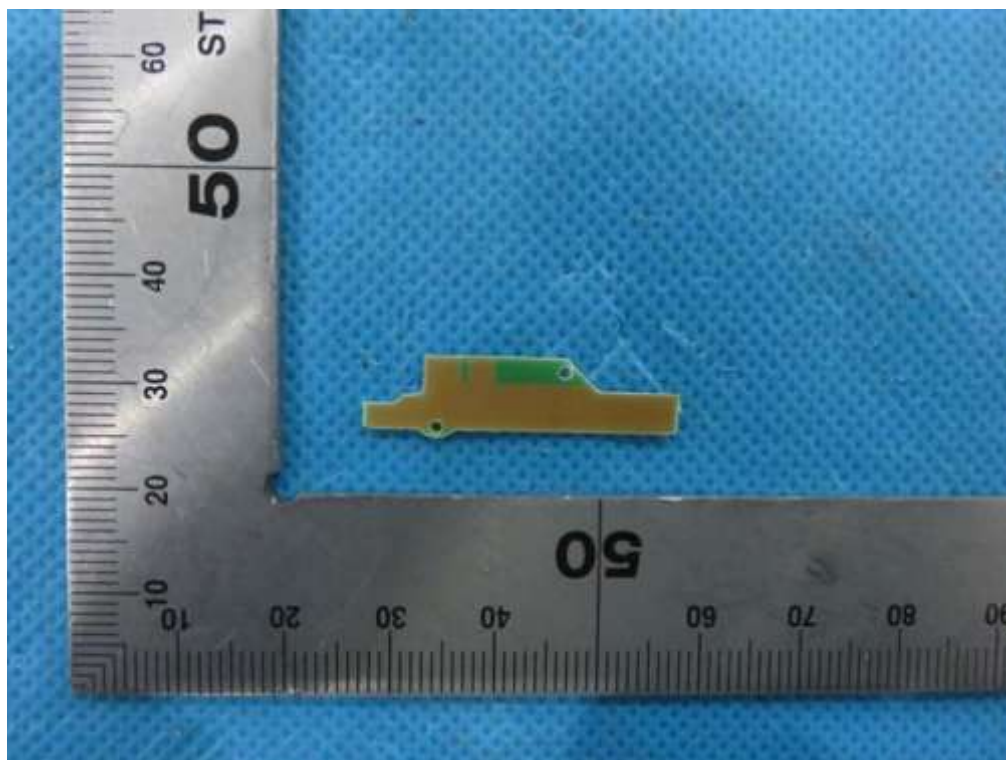
INTERNAL VIEW OF EUT-3



INTERNAL VIEW OF EUT-4



INTERNAL VIEW OF EUT-5



----END OF REPORT----