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# FCC Test Report

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Report No.: AGC05628151201FE03

**FCC ID** : 2AGZCE6

**APPLICATION PURPOSE** : Original Equipment

**PRODUCT DESIGNATION** : Bluetooth Headset

**BRAND NAME** : veva

**MODEL NAME** : E6, E7, V8, E5S, E2, V3, S550, E13, S260, S270, V13, V15,  
E17, E18, E19

**CLIENT** : Shenzhen Mingyang Technology Co., Ltd.

**DATE OF ISSUE** : Dec.16,2015

**STANDARD(S)** : FCC Part 15 Rules

**TEST PROCEDURE(S)**

**REPORT VERSION** : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec.16,2015	Valid	Original Report

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## 1. VERIFICATION OF CONFORMITY

<b>Applicant</b>	Shenzhen Mingyang Technology Co., Ltd.
<b>Address</b>	6/F, NO.23 Liuxian 3rd Road, Xinan Street, Baoan district, Shenzhen, China
<b>Manufacturer</b>	Shenzhen Mingyang Technology Co., Ltd.
<b>Address</b>	6/F, NO.23 Liuxian 3rd Road, Xinan Street, Baoan district, Shenzhen, China
<b>Product Designation</b>	Bluetooth Headset
<b>Brand Name</b>	veva
<b>Test Model</b>	E6
<b>Series Model</b>	E7, V8, E5S, E2, V3, S550, E13, S260, S270, V13, V15, E17, E18, E19
<b>Different Description</b>	All the same except for the model name and appearance color.
<b>Date of test</b>	Dec.14,2015 to Dec.15,2015
<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(Huang Nanhui) Dec.16,2015

Reviewed By   
Forrest Lei(Lei Yonggang) Dec.16,2015

Approved By   
Solger Zhang(Zhang Hongyi)  
Authorized Officer Dec.16,2015

## 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>	2.15dBm(Max)
<b>Bluetooth Version</b>	V4.1
<b>Modulation</b>	GFSK, $\pi/4$ -DQPSK, 8DPSK
<b>Number of channels</b>	79 for BR/EDR, 40 for BLE
<b>Hardware Version</b>	RD-C8-VEVA-E6 REV A5
<b>Software Version</b>	V03
<b>Antenna Designation</b>	PCB Antenna (Met 15.203 Antenna requirement)
<b>Antenna Gain</b>	0dBi
<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 EUT supports Bluetooth Low Energy Mode.	

### 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.

**Software Setting**

**BlueTest3**

Test Mode

PAUSE  
RADIO STATUS  
RADIO STATUS FULL  
-----  
TXSTART  
TXDATA1  
TXDATA2  
TXDATA3  
TXDATA4  
-----  
RXSTART1  
RXSTART2  
RXDATA1

Test Arguments

LO Freq. (MHz) 2402  
  
Power (Ext, Int) 255 50

Close

Execute

Cold Reset

Warm Reset

Test Results

☐ Save to file    Browse for file    Display :    ☒ Standard    ☐ Bit Error

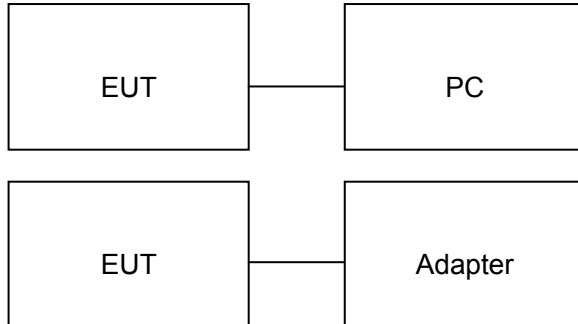
. \logfile.txt

Opening USB SPI (602250).  
Transport active.  
dal (Hardware ID 0x332) firmware version 8648.  
Sent Command Varid 5004, parameters: 0004 0962 FF32 0000 0000 0000  
Radio Test TXDATA1 successful

## 5. SYSTEM TEST CONFIGURATION

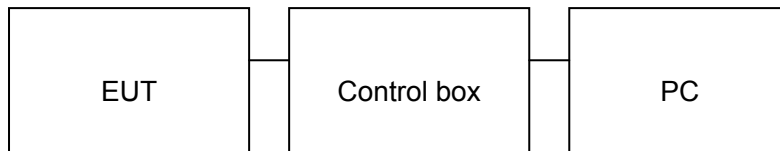
### 5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal hopping)



**Note:** Owing to the EUT has own battery, Testing will be performed while PC or adapter remove.

Configure 2: (Control continuous TX)



### 5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Bluetooth Headset	veva	E6	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	AC adapter	GPE0538	1.1m,unshielded	A.E
6	Temporary Antenna Connector	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
Radiation Cable 1	MXT	RS1	R005	June 6, 2015	June 5, 2016
Radiation Cable 2	MXT	RS1	R006	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
Radiation Cable 1	MXT	RS1	R005	June 6, 2015	June 5, 2016
Radiation Cable 2	MXT	RS1	R006	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
Conduction Cable	MXT	SE1	S003	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.

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

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.

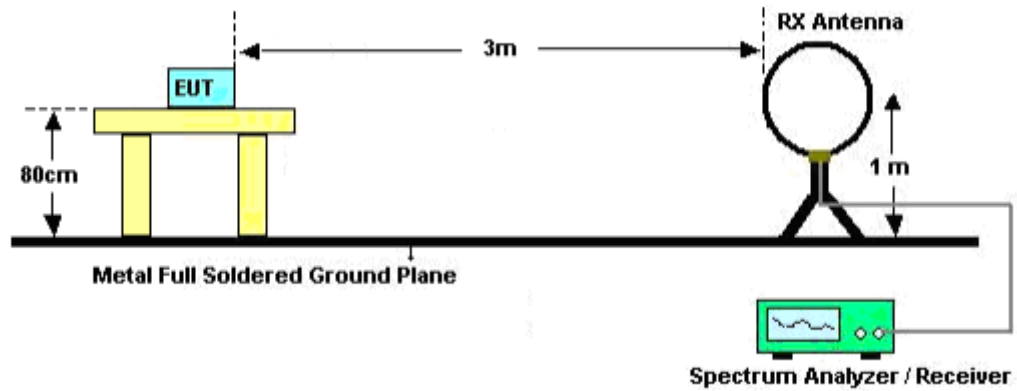
The following table is the setting of spectrum analyzer and receiver.

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

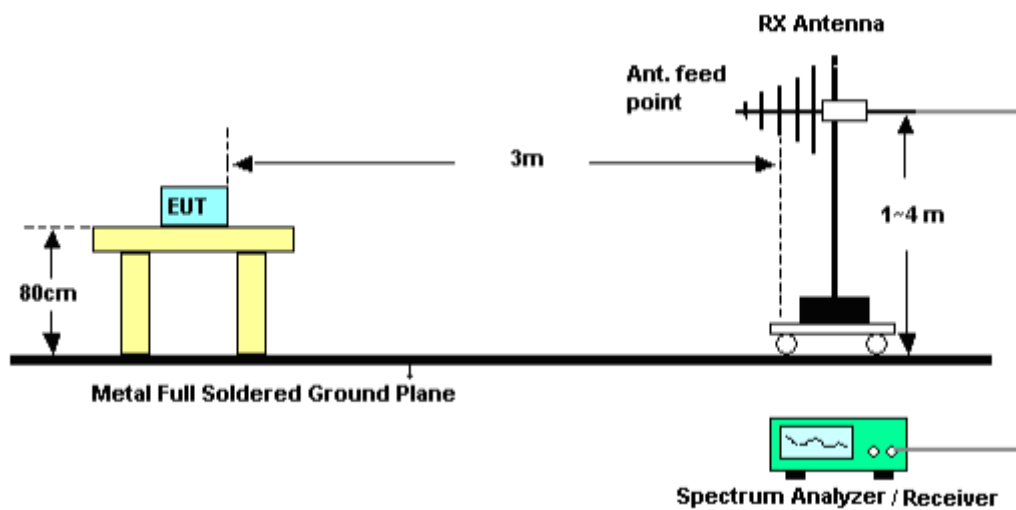
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

### 8.3. TEST SETUP

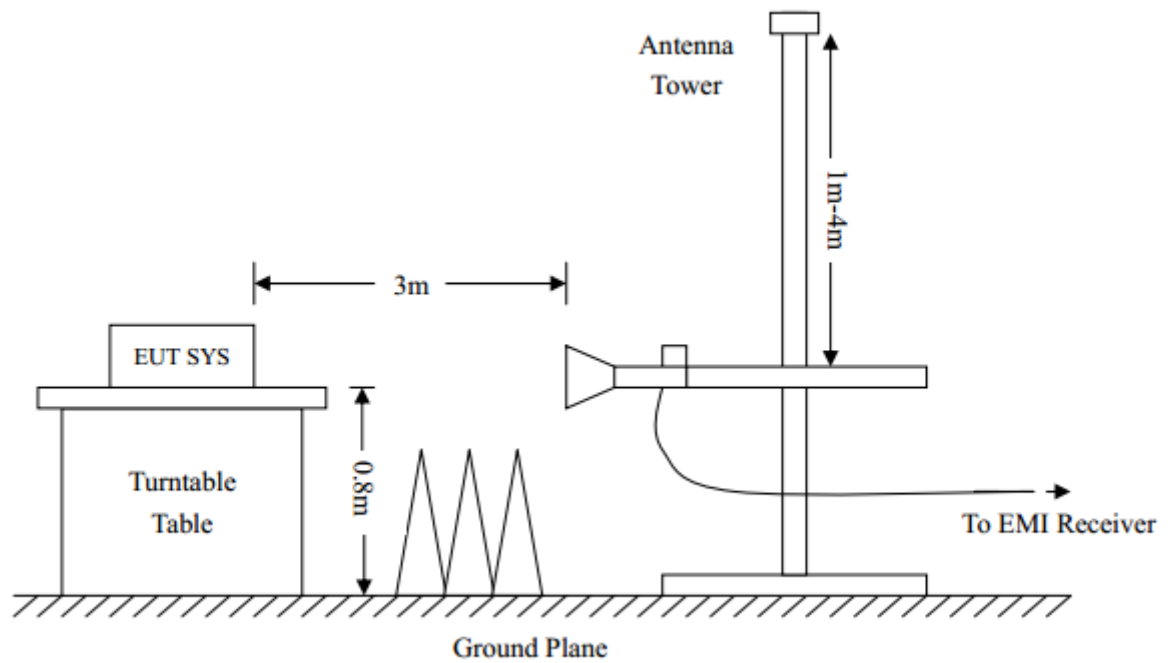
#### Radiated Emission Test-Setup Frequency Below 30MHz



#### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



# RADIATED EMISSION TEST SETUP ABOVE 1000MHz



8.4. TEST RESULT

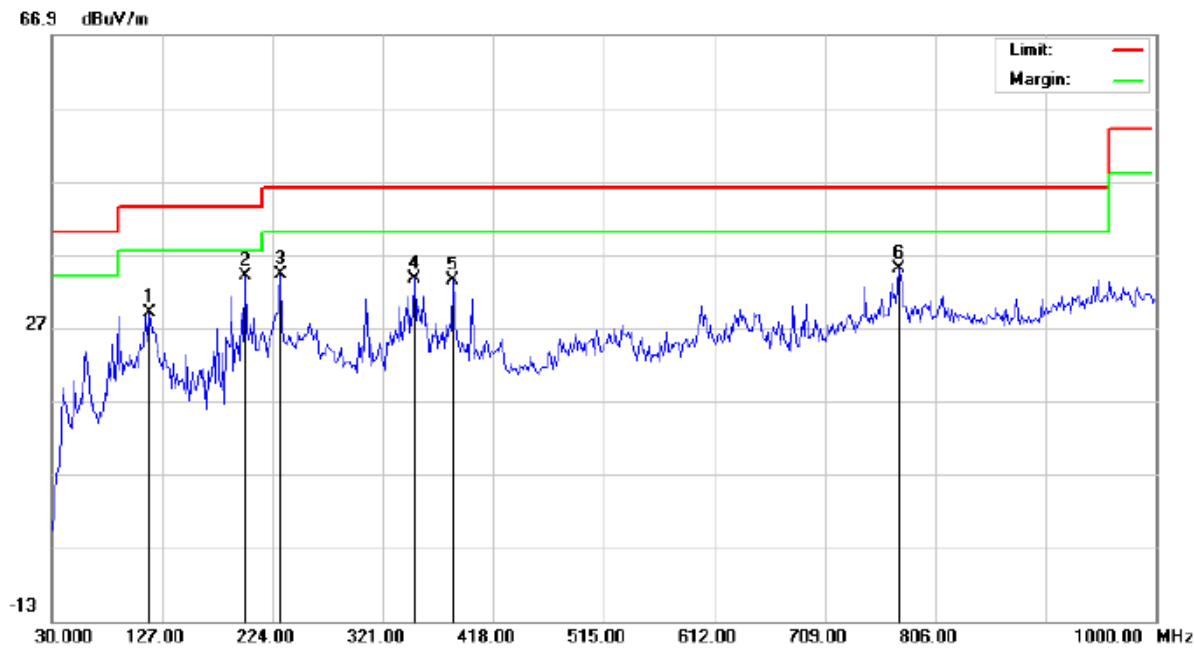
(Worst modulation:GFSK)  
FOR BR/EDR

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: Conduction  
Limit: FCC Class B 3M Radiation  
EUT: Bluetooth Headset  
M/N: E6  
Mode: Low Channel TX  
Note:

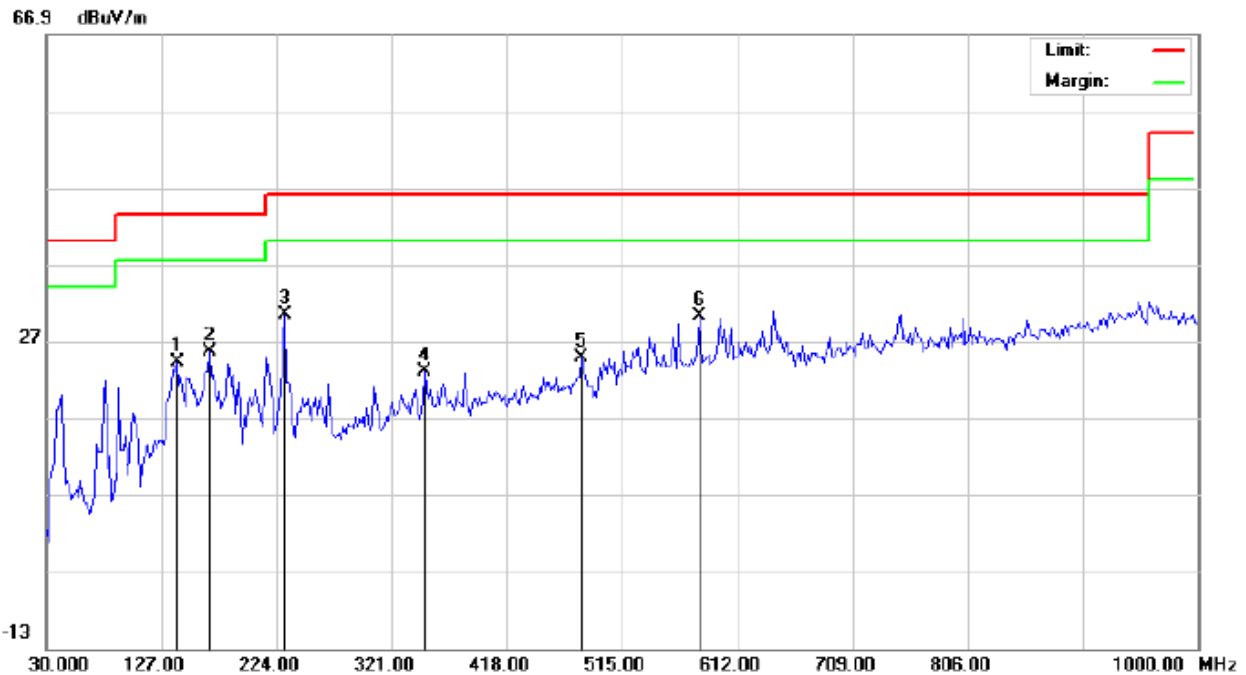
Polarization: *Horizontal*  
Power:  
Distance:

Temperature: 23.3  
Humidity: 56.9 %

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		115.6833	17.52	11.56	29.08	43.50	-14.42	peak			
2	*	199.7500	22.08	11.99	34.07	43.50	-9.43	peak			
3		230.4667	21.07	13.16	34.23	46.00	-11.77	peak			
4		348.4832	15.06	18.64	33.70	46.00	-12.30	peak			
5		382.4331	14.50	18.95	33.45	46.00	-12.55	peak			
6		773.6666	8.08	26.96	35.04	46.00	-10.96	peak			

RESULT: PASS

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



Site: Conduction

Polarization: **Vertical**

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

Mode: Low Channel TX

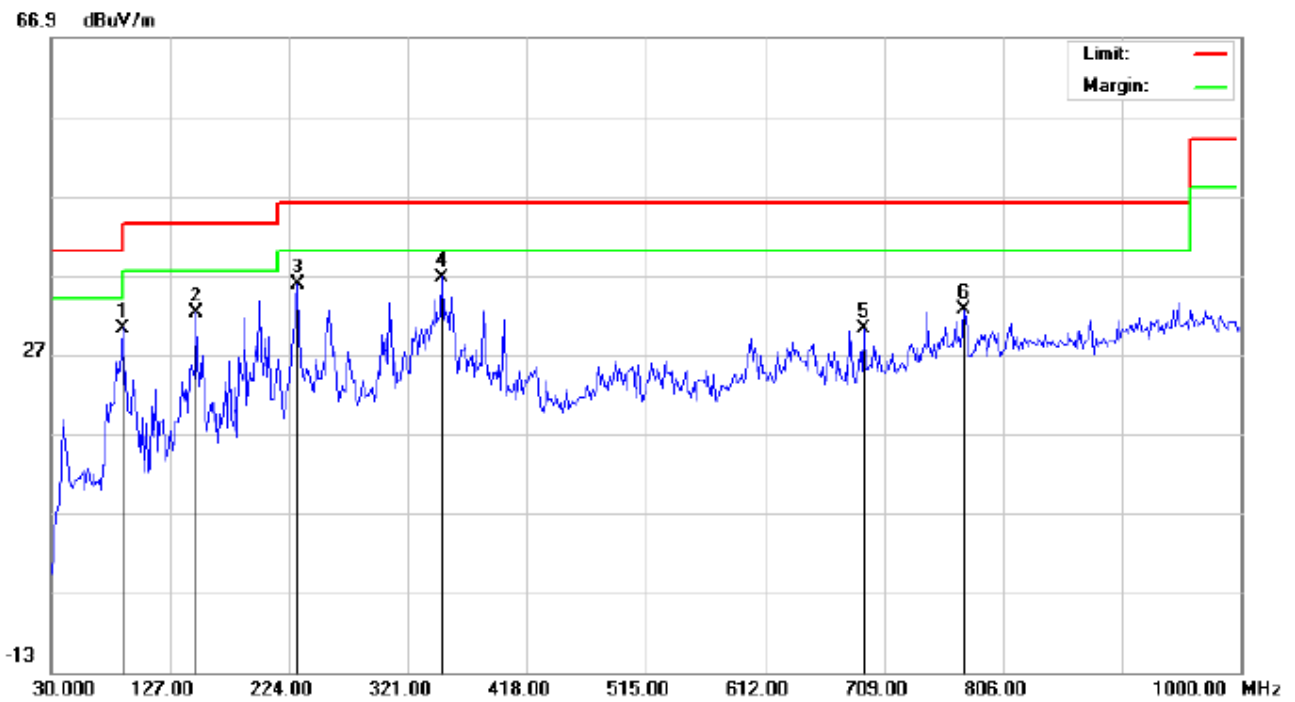
Note:

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		139.9333	9.07	15.17	24.24	43.50	-19.26	peak			
2		167.4166	10.79	14.86	25.65	43.50	-17.85	peak			
3	*	230.4667	18.49	11.99	30.48	46.00	-15.52	peak			
4		348.4832	4.28	18.64	22.92	46.00	-23.08	peak			
5		481.0500	3.85	20.92	24.77	46.00	-21.23	peak			
6		579.6666	7.59	22.63	30.22	46.00	-15.78	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: Conduction

Polarization: *Horizontal*

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

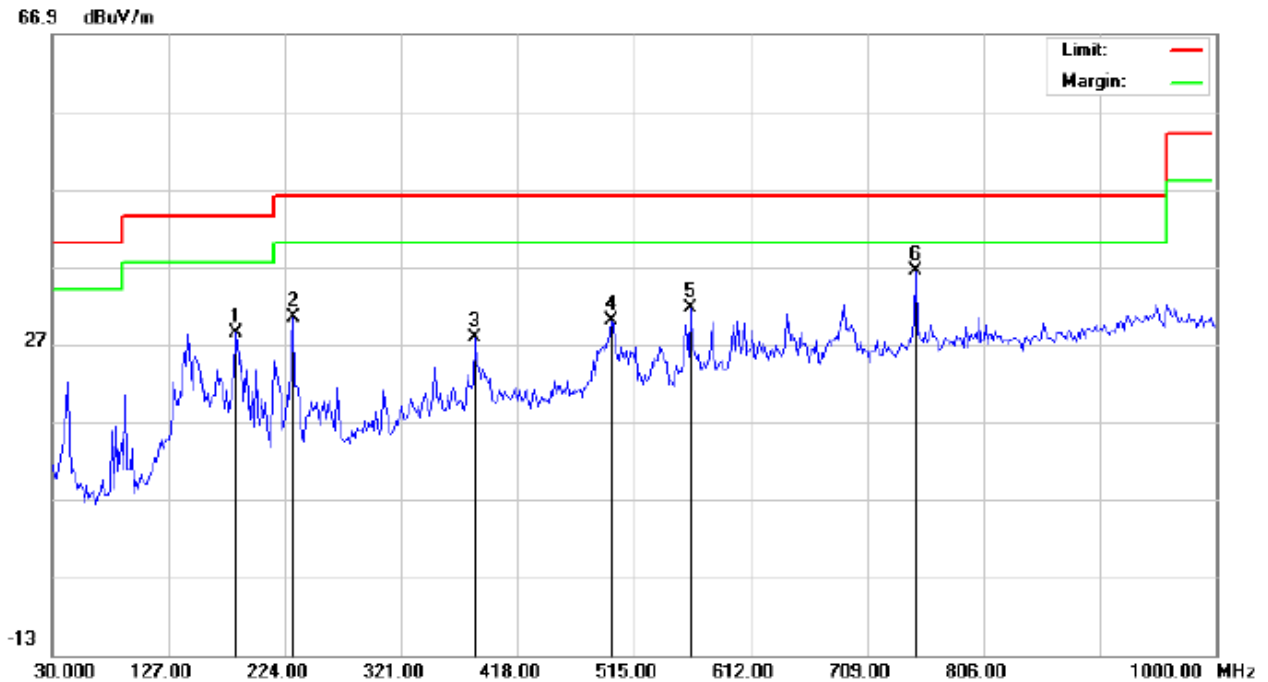
Mode: Middle Channel TX

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		88.2000	20.84	9.46	30.30	43.50	-13.20	peak			
2		148.0166	16.89	15.25	32.14	43.50	-11.36	peak			
3		230.4667	22.57	13.16	35.73	46.00	-10.27	peak			
4	*	348.4832	18.06	18.64	36.70	46.00	-9.30	peak			
5		692.8333	5.26	25.00	30.26	46.00	-15.74	peak			
6		773.6666	5.58	26.96	32.54	46.00	-13.46	peak			

**RESULT: PASS**

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



Site: Conduction

Polarization: **Vertical**

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

Mode: Middle Channel TX

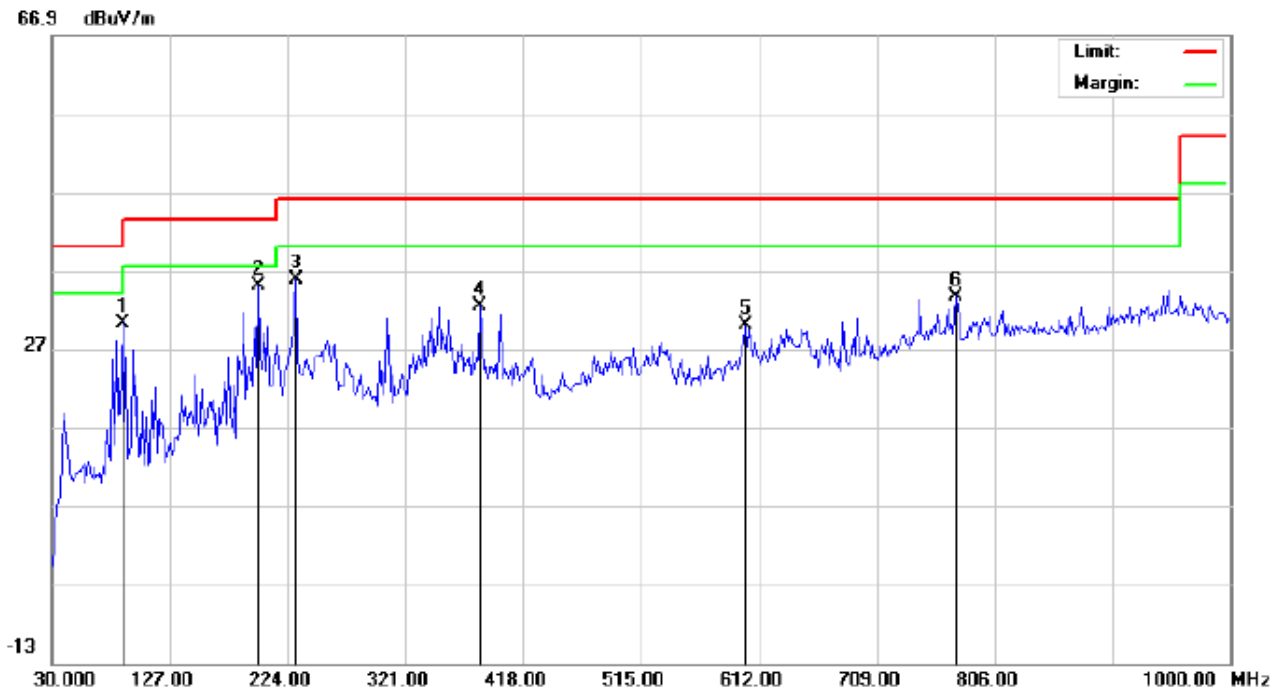
Note:

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		183.5833	15.29	13.16	28.45	43.50	-15.05	peak			
2		230.4667	18.49	11.99	30.48	46.00	-15.52	peak			
3		382.4331	8.94	18.95	27.89	46.00	-18.11	peak			
4		495.6000	8.85	21.08	29.93	46.00	-16.07	peak			
5		561.8831	9.16	22.54	31.70	46.00	-14.30	peak			
6	*	749.4166	9.72	26.61	36.33	46.00	-9.67	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: Conduction

Polarization: *Horizontal*

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

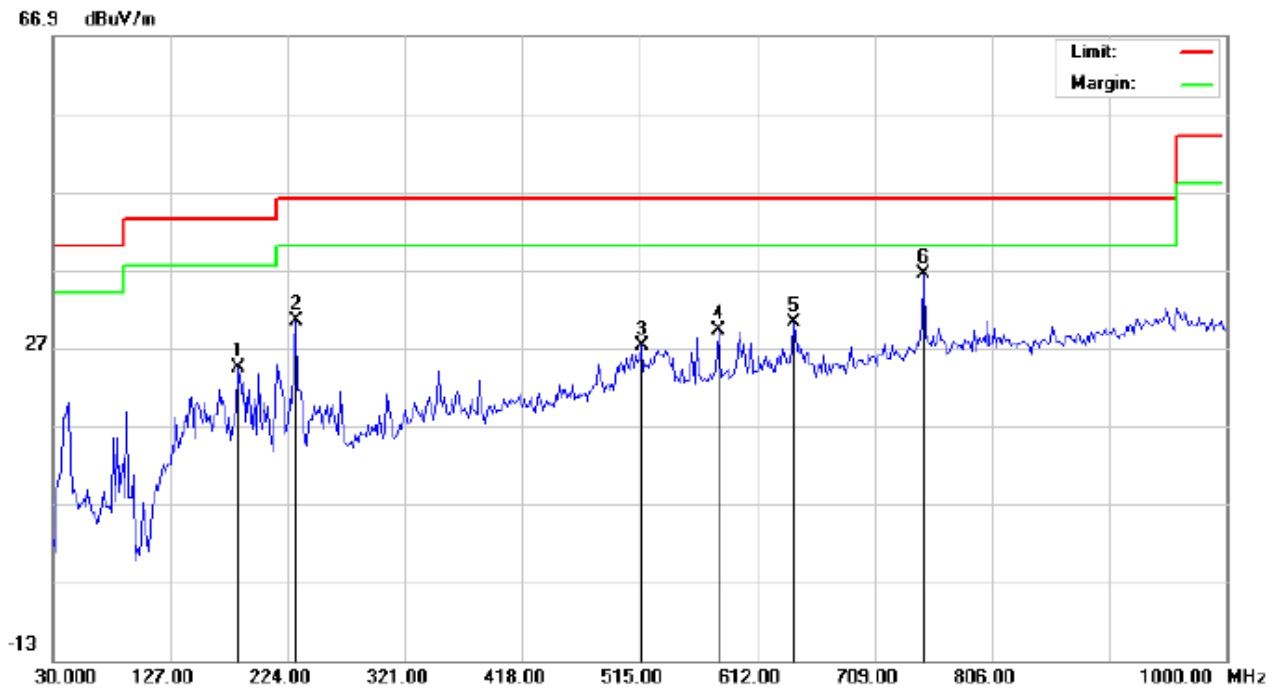
Mode: High Channel TX

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		88.2000	20.84	9.46	30.30	43.50	-13.20	peak			
2	*	199.7500	23.08	11.99	35.07	43.50	-8.43	peak			
3		230.4667	22.57	13.16	35.73	46.00	-10.27	peak			
4		382.4333	13.50	18.95	32.45	46.00	-13.55	peak			
5		600.6833	6.21	23.73	29.94	46.00	-16.06	peak			
6		773.6667	6.58	26.96	33.54	46.00	-12.46	peak			

**RESULT: PASS**

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



Site: Conduction

Polarization: **Vertical**

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

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		183.5833	11.29	13.16	24.45	43.50	-19.05	peak			
2		230.4667	18.49	11.99	30.48	46.00	-15.52	peak			
3		516.6167	5.61	21.58	27.19	46.00	-18.81	peak			
4		579.6667	6.59	22.63	29.22	46.00	-16.78	peak			
5		642.7167	6.58	23.69	30.27	46.00	-15.73	peak			
6	*	749.4167	9.72	26.61	36.33	46.00	-9.67	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.

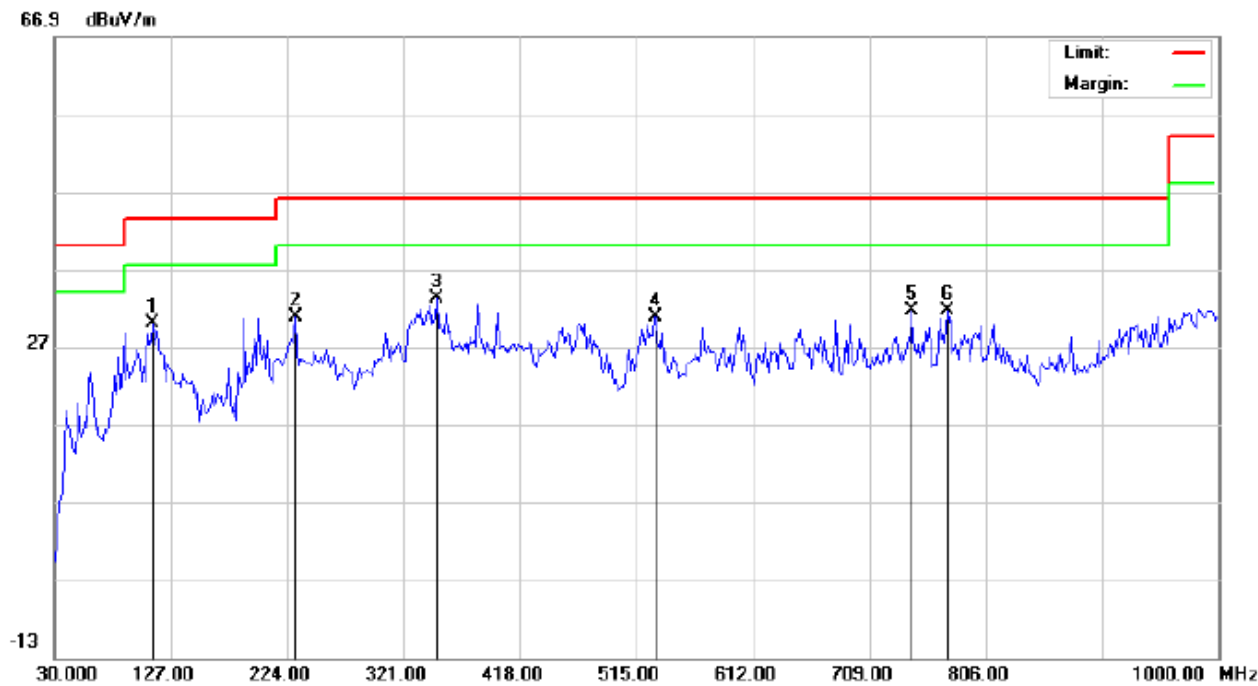
FOR BLE

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: Conduction  
Limit: FCC Class B 3M Radiation  
EUT: Bluetooth Headset  
M/N: E6  
Mode: Low Channel TX  
Note:

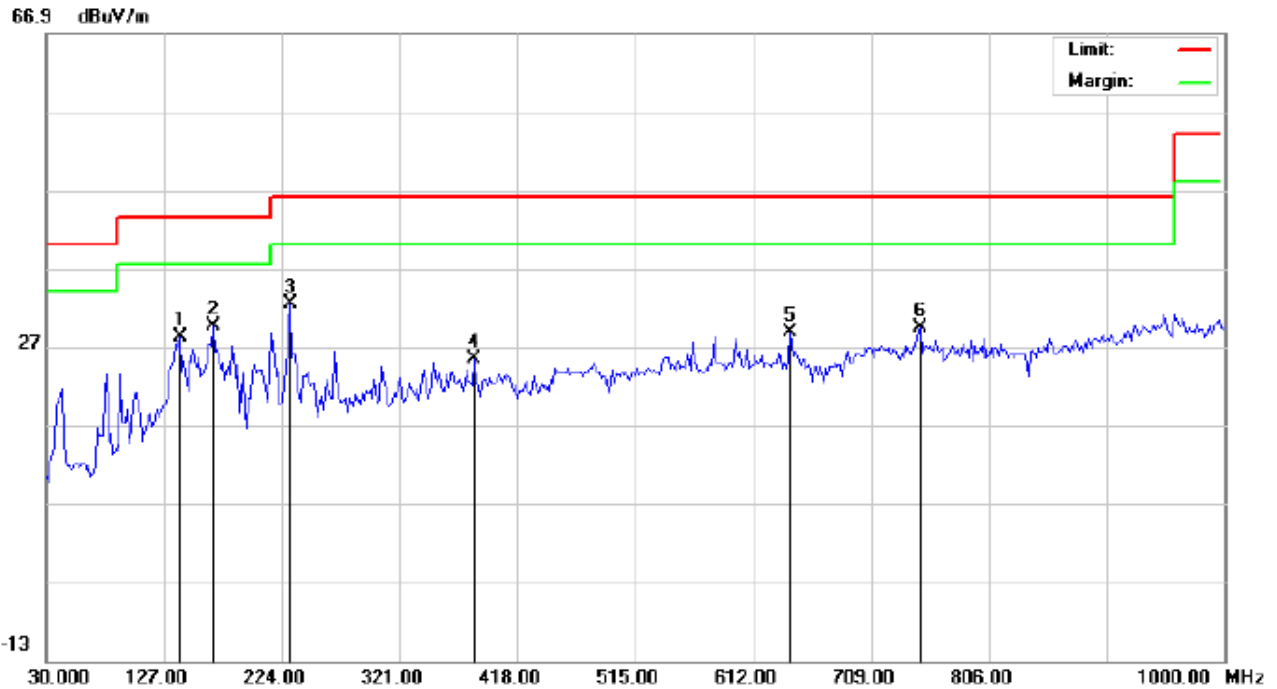
Polarization: *Horizontal*  
Power:  
Distance:

Temperature: 23.3  
Humidity: 56.9 %

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		112.4500	18.64	11.34	29.98	43.50	-13.52	peak			
2		230.4667	17.57	13.16	30.73	46.00	-15.27	peak			
3	*	348.4832	14.56	18.64	33.20	46.00	-12.80	peak			
4		531.1666	8.78	21.97	30.75	46.00	-15.25	peak			
5		744.5665	5.22	26.47	31.69	46.00	-14.31	peak			
6		773.6666	4.58	26.96	31.54	46.00	-14.46	peak			

RESULT: PASS

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



Site: Conduction

Polarization: **Vertical**

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

Mode: Low Channel TX

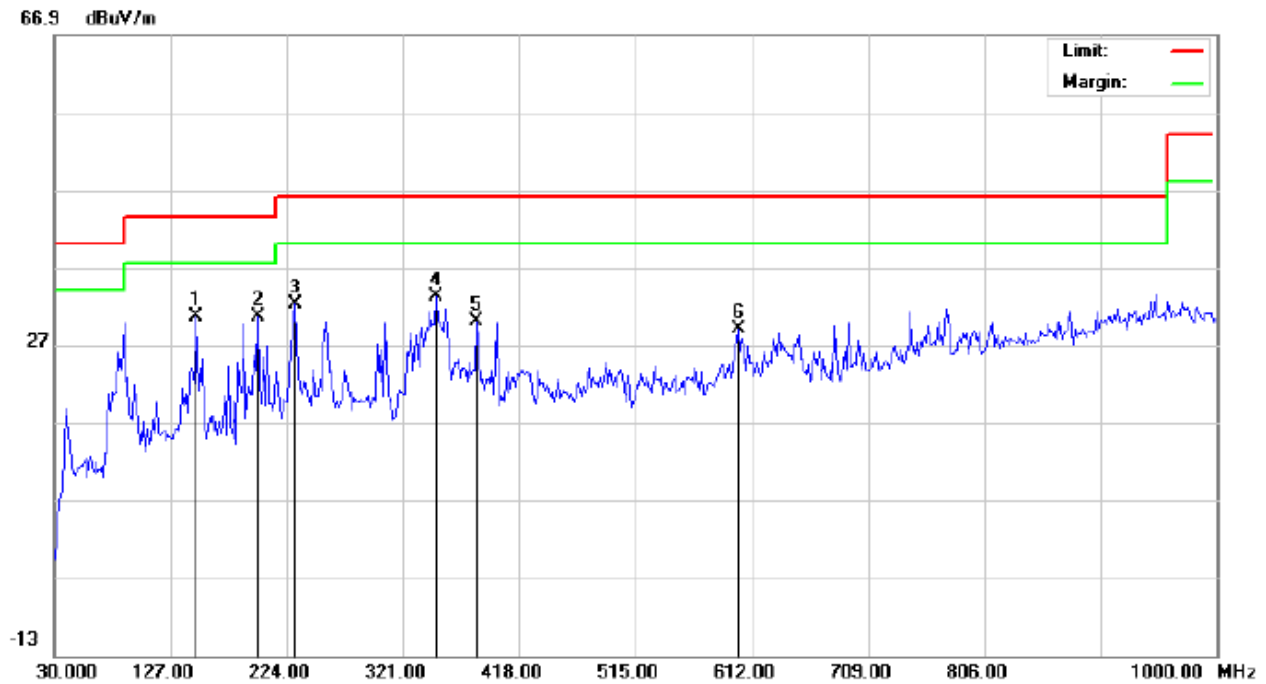
Note:

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		139.9333	13.07	15.17	28.24	43.50	-15.26	peak			
2		167.4166	14.79	14.86	29.65	43.50	-13.85	peak			
3	*	230.4667	20.49	11.99	32.48	46.00	-13.52	peak			
4		382.4331	6.44	18.95	25.39	46.00	-20.61	peak			
5		642.7166	5.08	23.69	28.77	46.00	-17.23	peak			
6		749.4166	2.72	26.61	29.33	46.00	-16.67	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: Conduction

Polarization: *Horizontal*

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

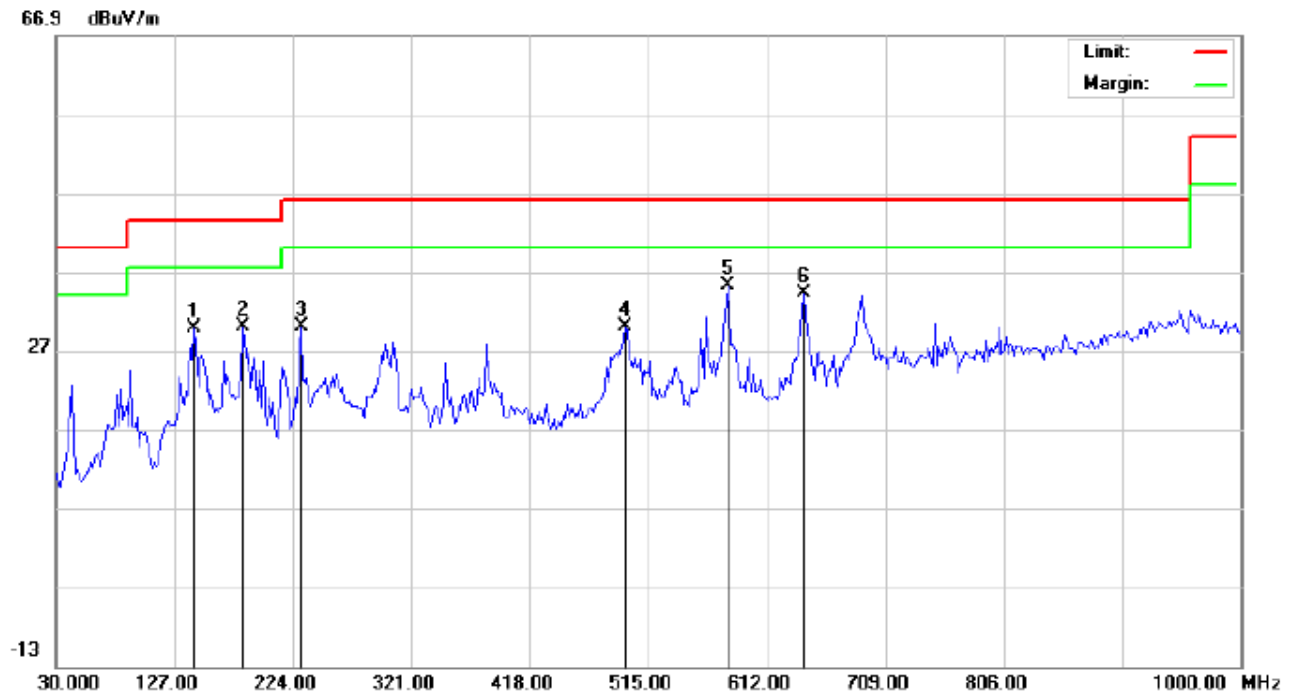
Mode: Middle Channel TX

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		148.0166	15.39	15.25	30.64	43.50	-12.86	peak			
2		199.7500	18.58	11.99	30.57	43.50	-12.93	peak			
3		230.4667	19.07	13.16	32.23	46.00	-13.77	peak			
4	*	348.4832	14.56	18.64	33.20	46.00	-12.80	peak			
5		382.4331	11.00	18.95	29.95	46.00	-16.05	peak			
6		600.6833	5.21	23.73	28.94	46.00	-17.06	peak			

**RESULT: PASS**

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



Site: Conduction

Polarization: Vertical

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

Mode: Middle Channel TX

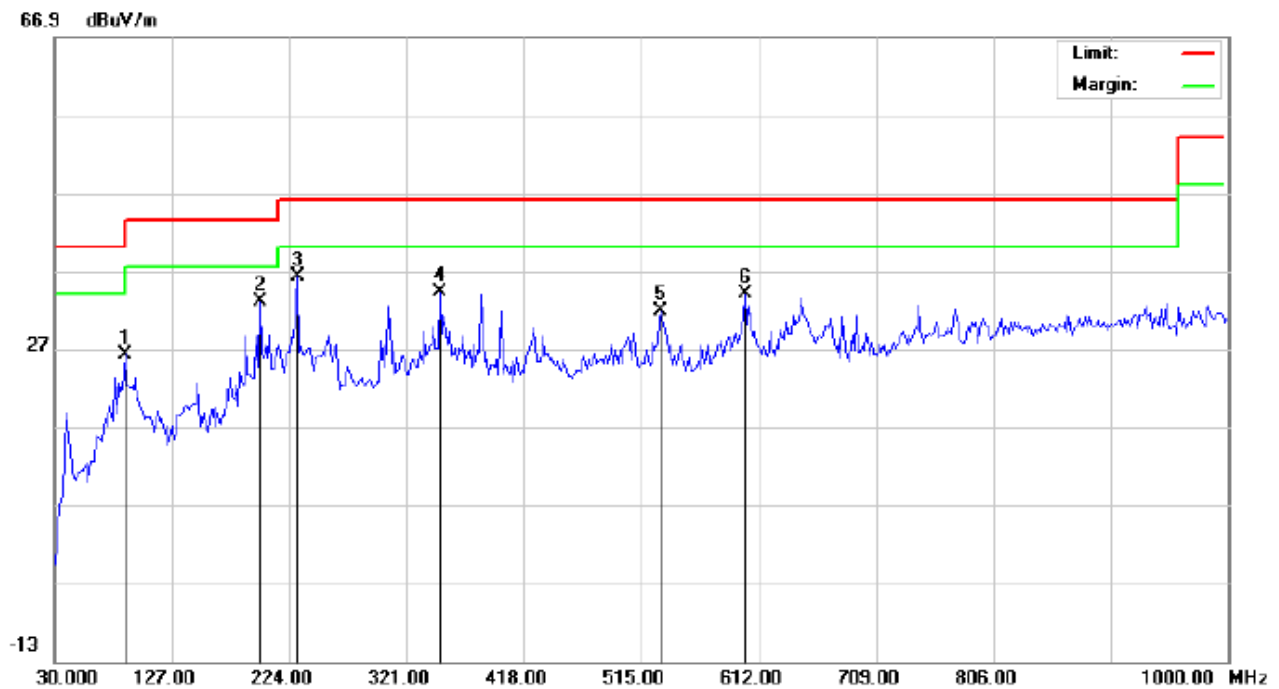
Note:

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		143.1666	14.49	15.22	29.71	43.50	-13.79	peak			
2		183.5833	16.79	13.16	29.95	43.50	-13.55	peak			
3		230.4667	17.99	11.99	29.98	46.00	-16.02	peak			
4		495.6000	8.85	21.08	29.93	46.00	-16.07	peak			
5	*	579.6666	12.59	22.63	35.22	46.00	-10.78	peak			
6		642.7166	10.58	23.69	34.27	46.00	-11.73	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: Conduction

Polarization: Horizontal

Temperature: 23.3

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.9 %

EUT: Bluetooth Headset

Distance:

M/N: E6

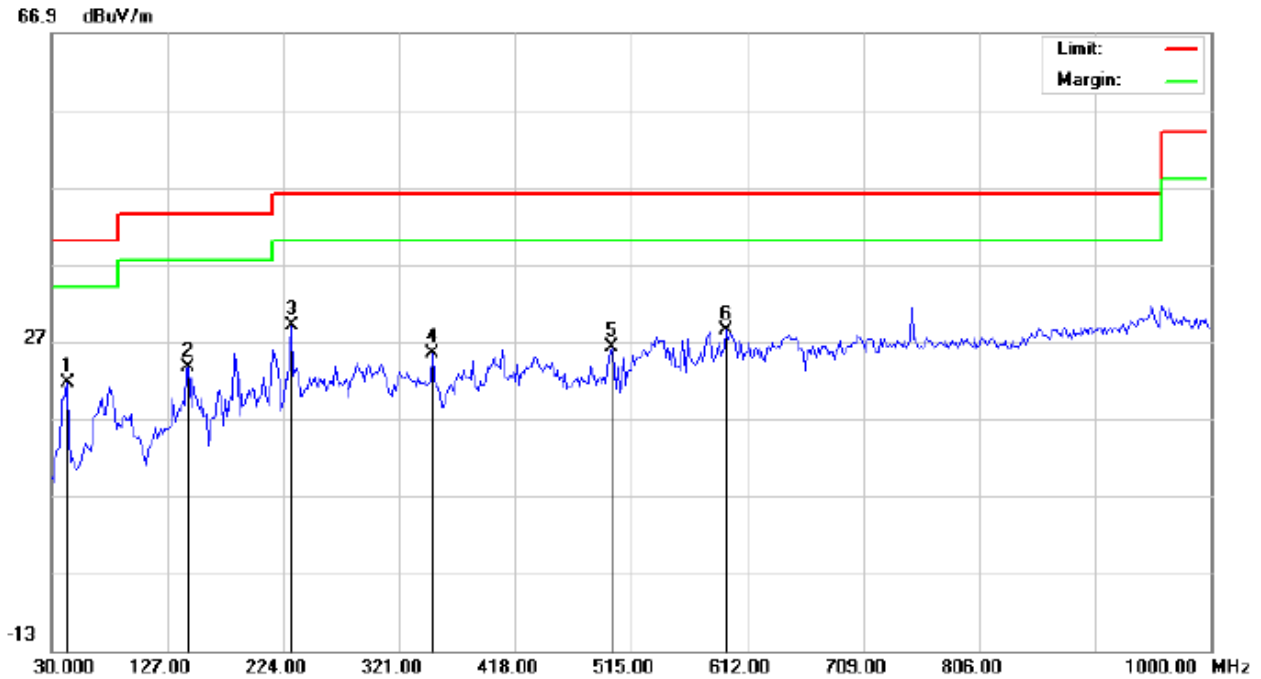
Mode: High Channel TX

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		88.2000	16.84	9.46	26.30	43.50	-17.20	peak			
2		199.7500	21.08	11.99	33.07	43.50	-10.43	peak			
3	*	230.4667	23.07	13.16	36.23	46.00	-9.77	peak			
4		348.4832	15.56	18.64	34.20	46.00	-11.80	peak			
5		531.1666	9.78	21.97	31.75	46.00	-14.25	peak			
6		600.6833	10.21	23.73	33.94	46.00	-12.06	peak			

**RESULT: PASS**

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



Site: Conduction Polarization: **Vertical** Temperature: 23.3  
Limit: FCC Class B 3M Radiation Power: Humidity: 56.9 %  
EUT: Bluetooth Headset Distance:  
M/N: E6  
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		42.9333	12.82	8.71	21.53	40.00	-18.47	peak			
2		144.7831	8.35	15.23	23.58	43.50	-19.92	peak			
3	*	230.4667	16.99	11.99	28.98	46.00	-17.02	peak			
4		348.4832	6.78	18.64	25.42	46.00	-20.58	peak			
5		498.8333	4.99	21.12	26.11	46.00	-19.89	peak			
6		594.2166	5.68	22.70	28.38	46.00	-17.62	peak			

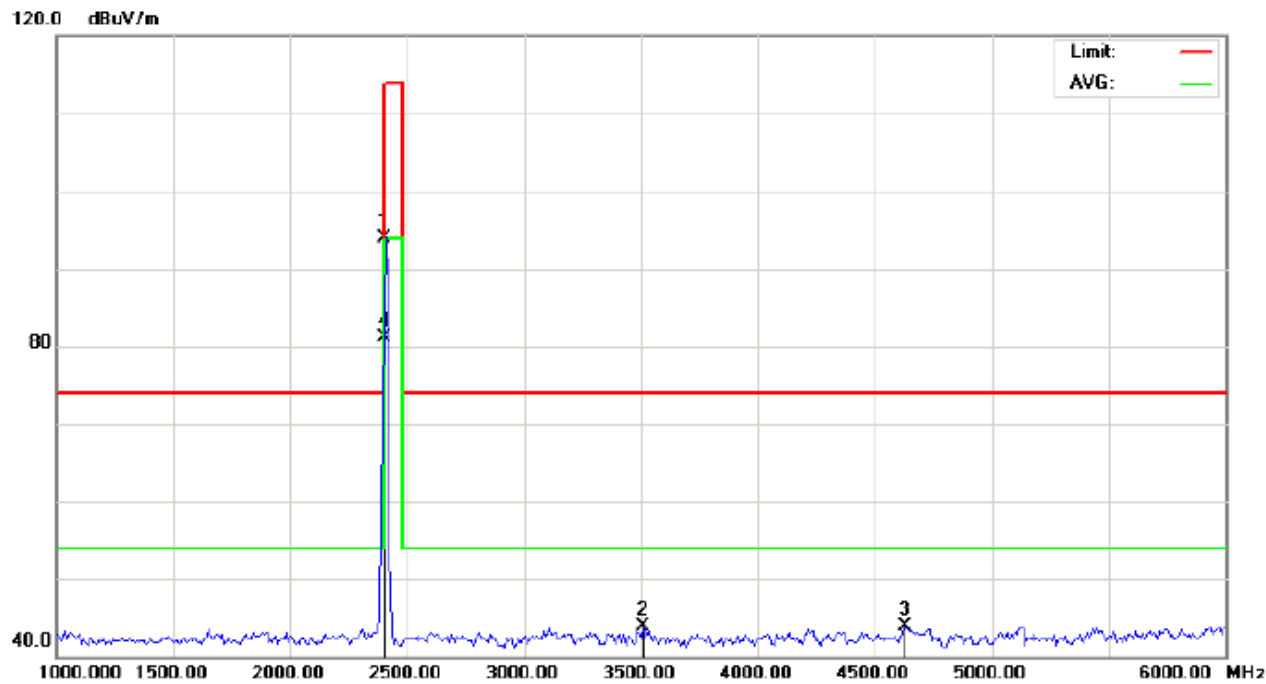
**RESULT: PASS**

**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**

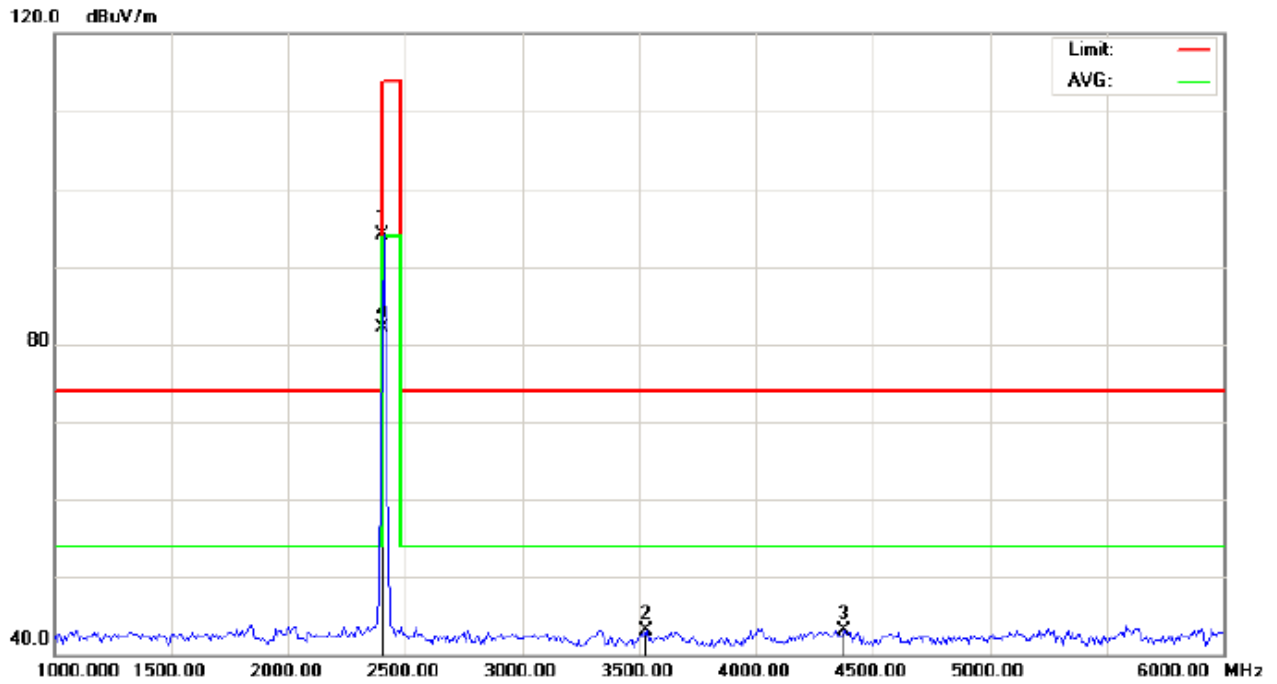


Site: site #1	Polarization: <i>Horizontal</i>	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)-	Power:	Humidity: 60 %
EUT: Bluetooth Headset	Distance: 3m	
M/N: E6		
Mode: Low Channel TX		
Note:		

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		2402.000	103.67	-9.68	93.99	114.00	-20.01	peak			
2		3508.333	51.77	-7.84	43.93	74.00	-30.07	peak			
3		4633.333	46.57	-2.76	43.81	74.00	-30.19	peak			
4	*	2402.000	90.71	-9.68	81.03	94.00	-12.97	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 Headset

Distance: 3m

M/N: E6

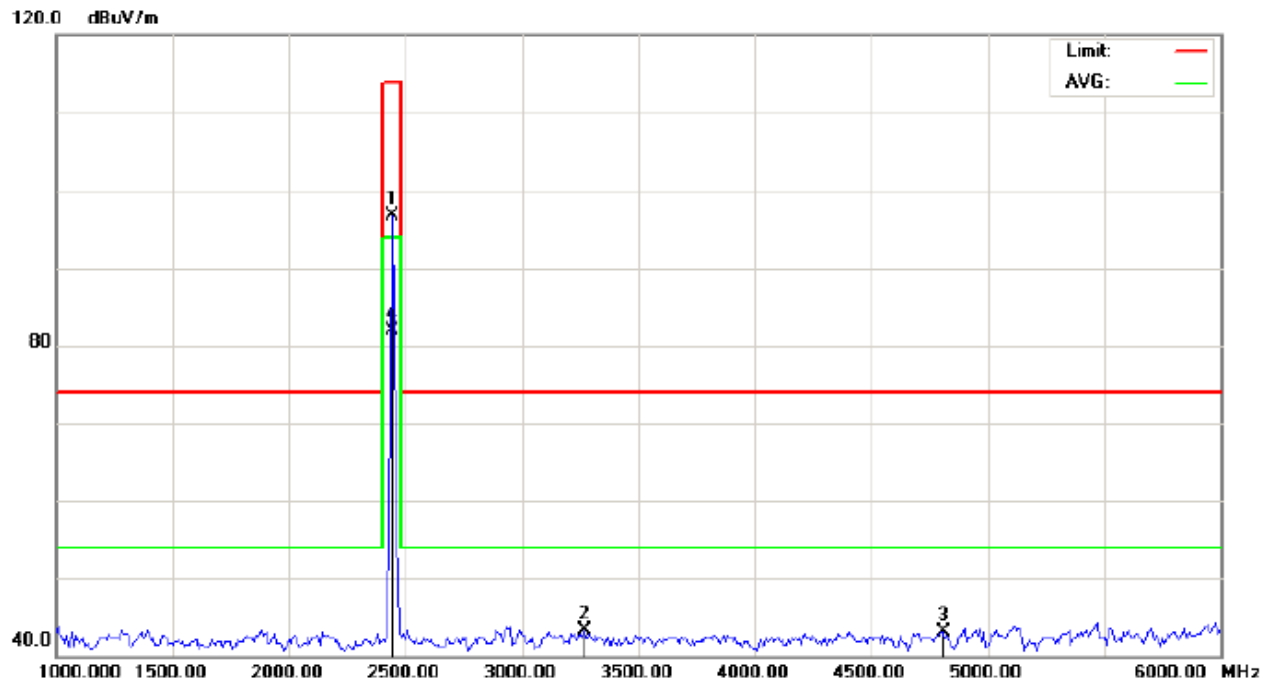
Mode: Low Channel TX

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		2402.000	103.79	-9.68	94.11	114.00	-19.89	peak			
2		3533.333	50.81	-7.68	43.13	74.00	-30.87	peak			
3		4375.000	46.70	-3.53	43.17	74.00	-30.83	peak			
4	*	2402.000	91.79	-9.68	82.11	94.00	-11.89	AVG	100	103	

**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 Headset

Distance: 3m

M/N: E6

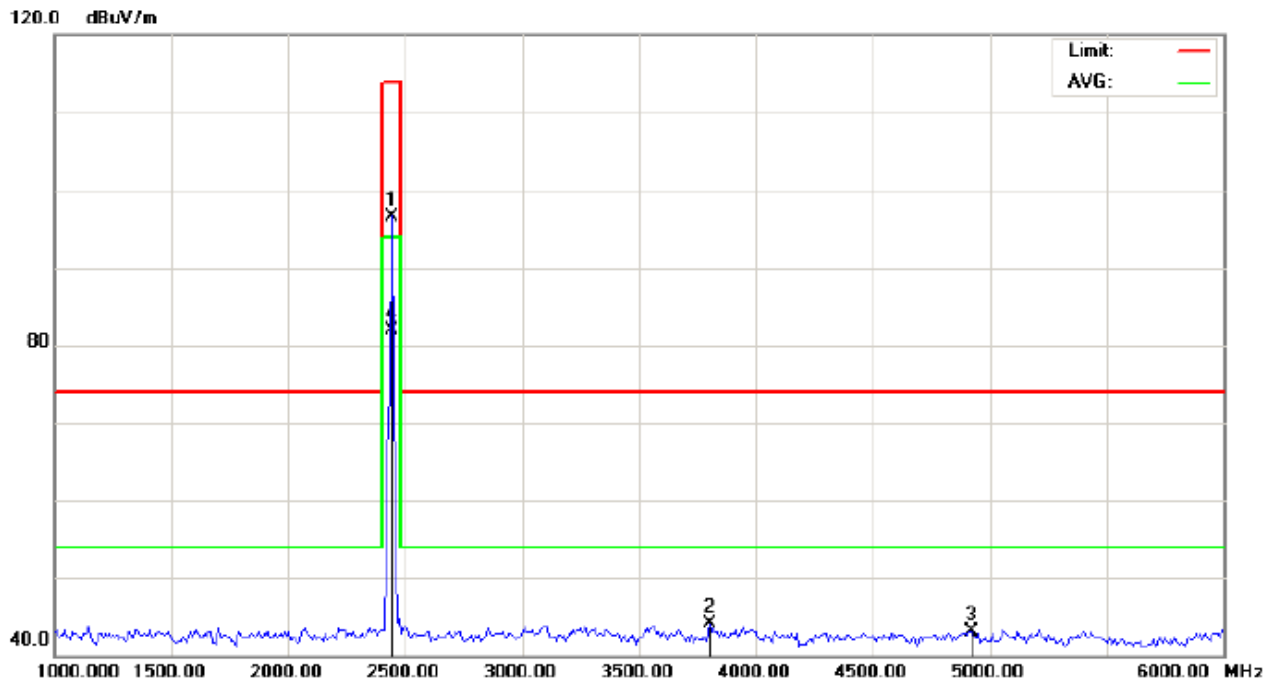
Mode: Middle Channel TX

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		2441.000	106.30	-9.63	96.67	114.00	-17.33	peak			
2		3266.667	51.48	-8.11	43.37	74.00	-30.63	peak			
3		4808.333	45.36	-2.30	43.06	74.00	-30.94	peak			
4	*	2441.000	91.52	-9.63	81.89	94.00	-12.11	AVG	100	209	

**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 Headset

Distance: 3m

M/N: E6

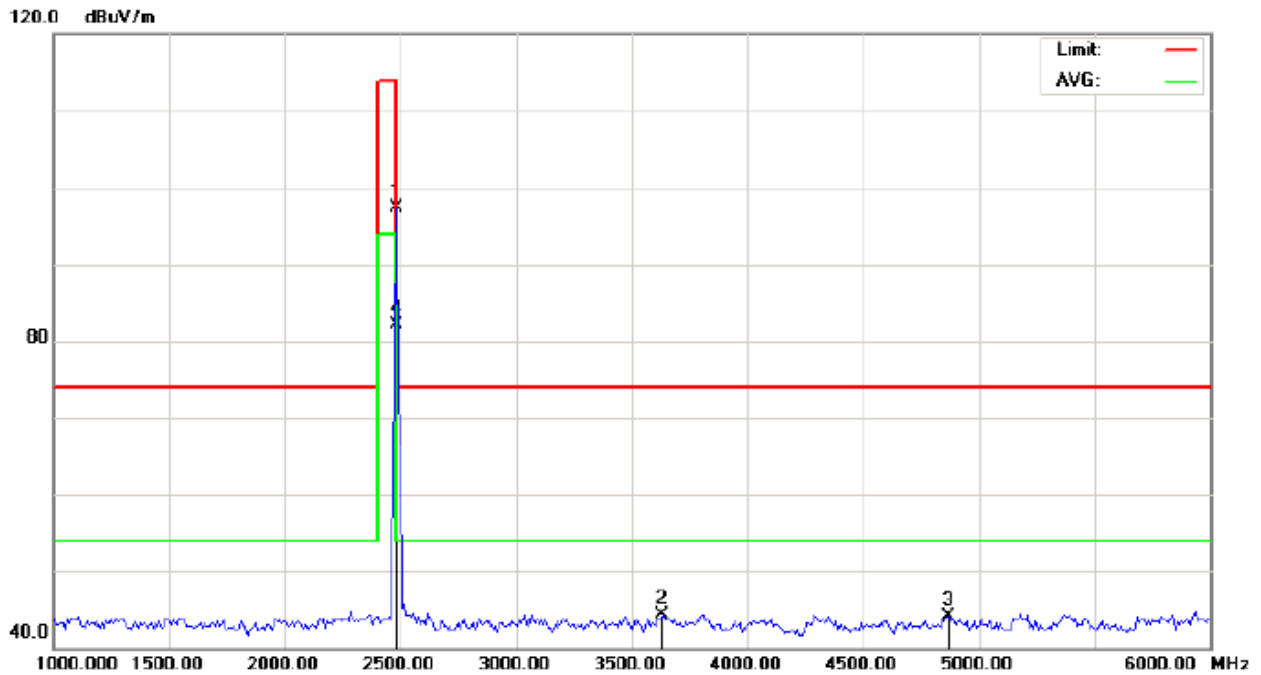
Mode: Middle Channel TX

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		2441.000	106.21	-9.63	96.58	114.00	-17.42	peak			
2		3800.000	50.19	-6.04	44.15	74.00	-29.85	peak			
3		4925.000	45.05	-2.00	43.05	74.00	-30.95	peak			
4	*	2441.000	91.62	-9.63	81.99	94.00	-12.01	AVG	100	107	

**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 Headset

Distance: 3m

M/N: E6

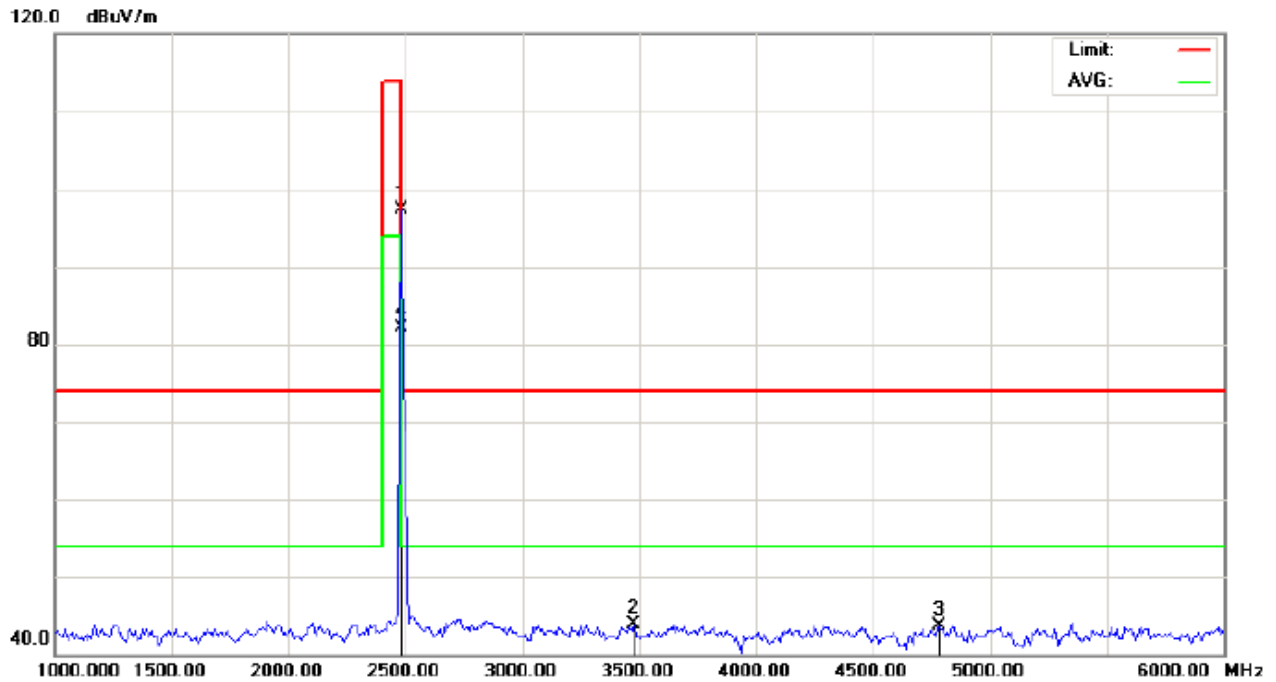
Mode: High Channel TX

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		2480.000	106.92	-9.59	97.33	114.00	-16.67	peak			
2		3633.333	51.39	-7.07	44.32	74.00	-29.68	peak			
3		4866.667	46.19	-2.15	44.04	74.00	-29.96	peak			
4	*	2480.000	91.60	-9.59	82.01	94.00	-11.99	AVG	100	207	

**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 Headset

Distance: 3m

M/N: E6

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		2480.000	106.86	-9.59	97.27	114.00	-16.73	peak			
2		3475.000	51.87	-7.91	43.96	74.00	-30.04	peak			
3		4783.333	46.08	-2.37	43.71	74.00	-30.29	peak			
4	*	2480.000	91.76	-9.59	82.17	94.00	-11.83	AVG	100	101	

**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.

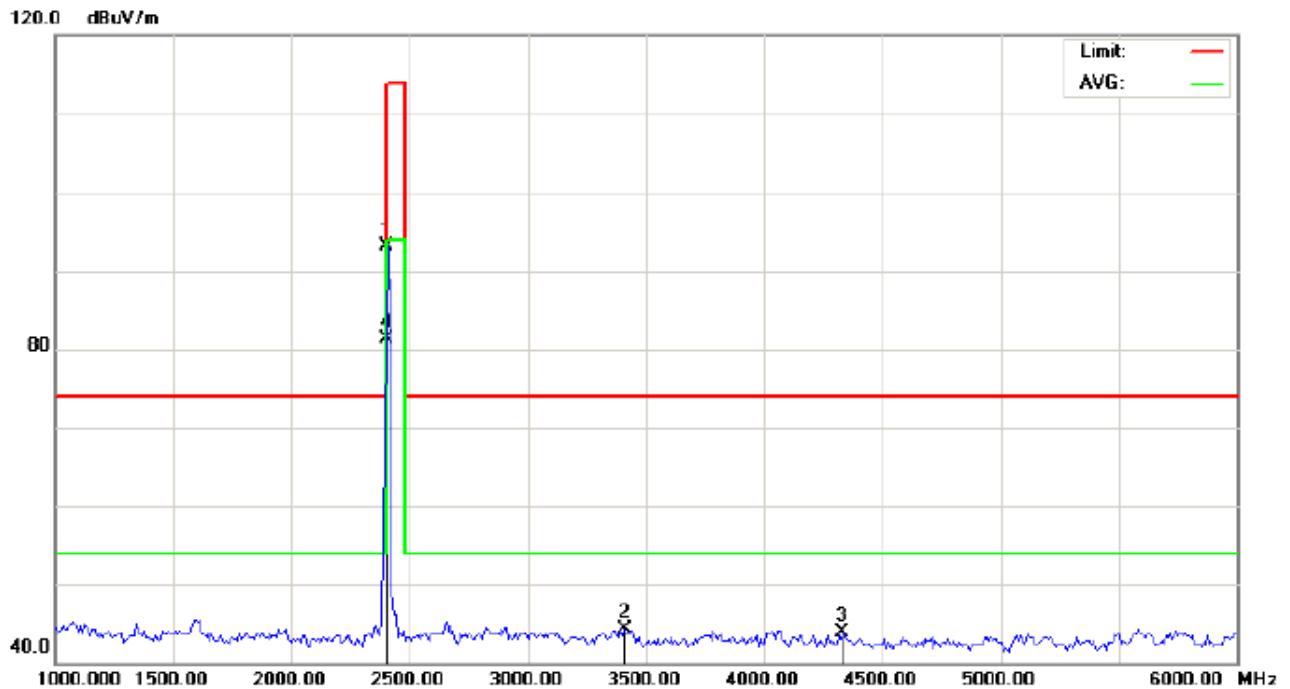
### Field strength of the fundamental signal

#### Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	103.67	-9.68	93.99	114	-20.01	Horizontal
2402	103.79	-9.68	94.11	114	-19.89	Vertical
2441	106.30	-9.63	96.67	114	-17.33	Horizontal
2441	106.21	-9.63	96.58	114	-17.42	Vertical
2480	106.92	-9.59	97.33	114	-16.67	Horizontal
2480	106.86	-9.59	97.27	114	-16.73	Vertical

#### Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	90.71	-9.68	81.03	94	-12.97	Horizontal
2402	91.79	-9.68	82.11	94	-11.89	Vertical
2441	91.52	-9.63	81.89	94	-12.11	Horizontal
2441	91.62	-9.63	81.99	94	-12.01	Vertical
2480	91.60	-9.59	82.01	94	-11.99	Horizontal
2480	91.76	-9.59	81.17	94	-11.83	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 Headset

Distance: 3m

M/N: E6

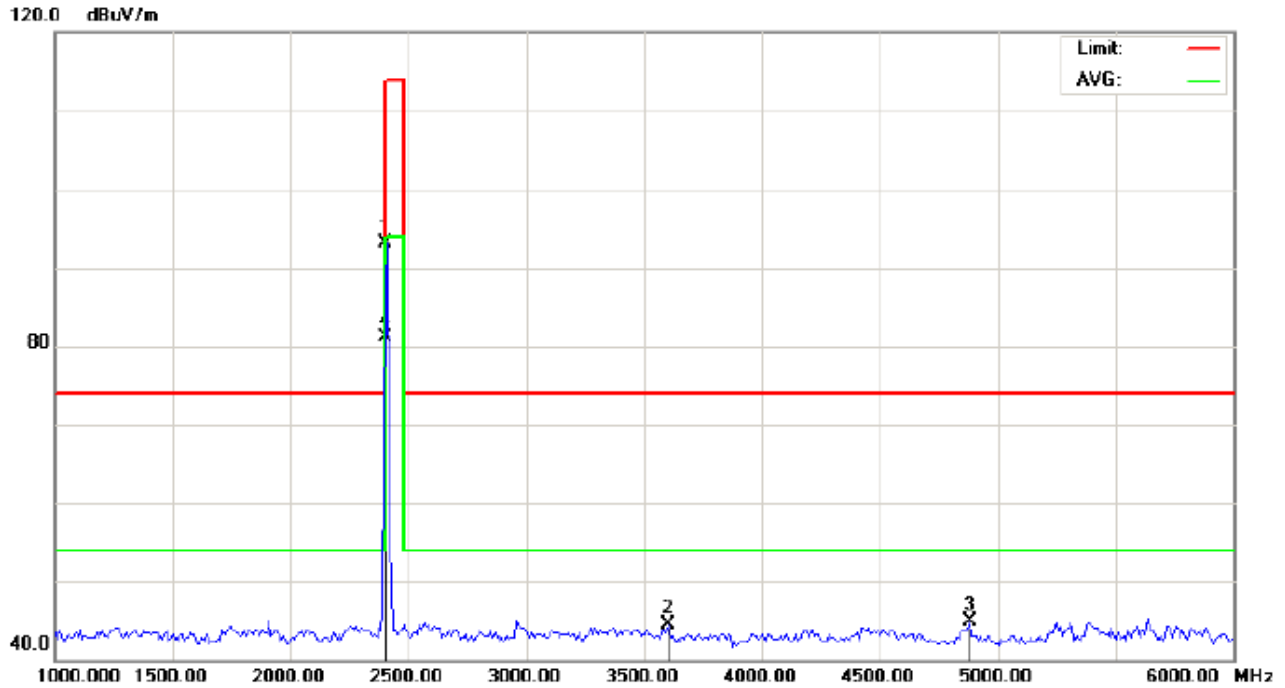
Mode: Low Channel TX

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		2402.000	102.75	-9.68	93.07	114.00	-20.93	peak			
2		3408.333	52.36	-7.98	44.38	74.00	-29.62	peak			
3		4333.333	47.54	-3.68	43.86	74.00	-30.14	peak			
4	*	2402.000	90.89	-9.68	81.21	94.00	-12.79	AVG	100	18	

**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 Headset

Distance: 3m

M/N: E6

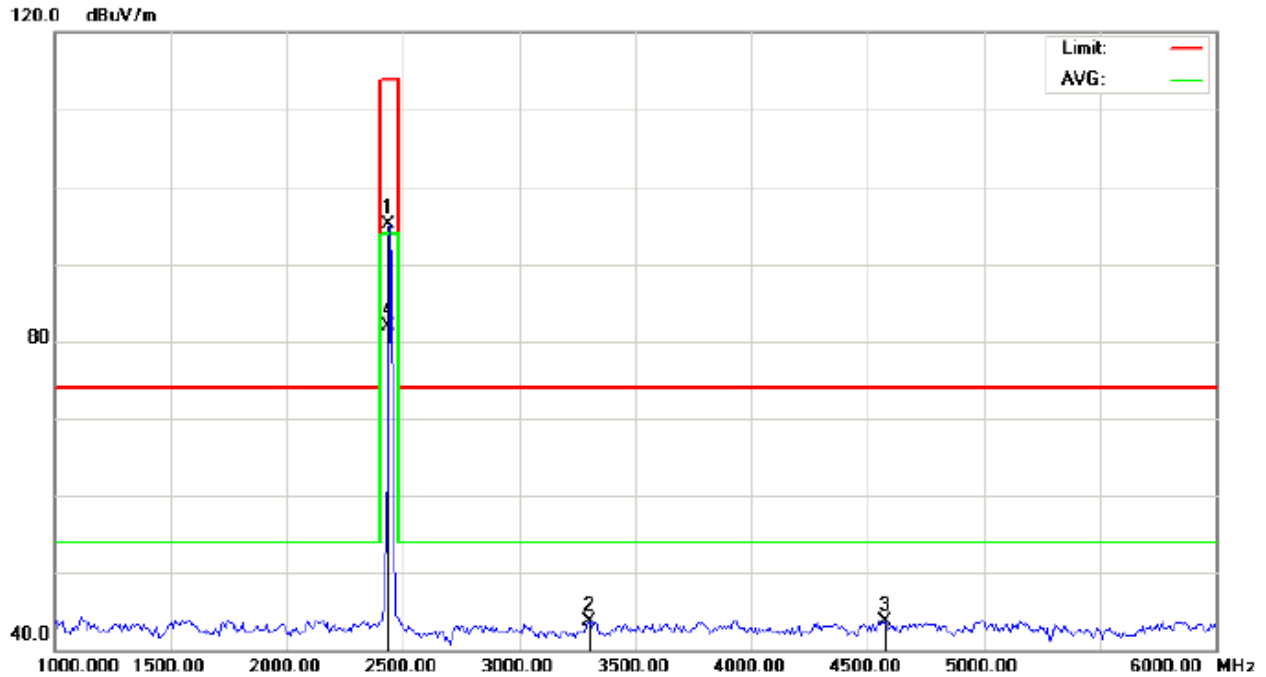
Mode: Low Channel TX

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		2402.000	102.76	-9.68	93.08	114.00	-20.92	peak			
2		3600.000	51.71	-7.27	44.44	74.00	-29.56	peak			
3		4883.333	46.96	-2.11	44.85	74.00	-29.15	peak			
4	*	2402.000	90.79	-9.68	81.11	94.00	-12.89	AVG	100	235	

**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 Headset

Distance: 3m

M/N: E6

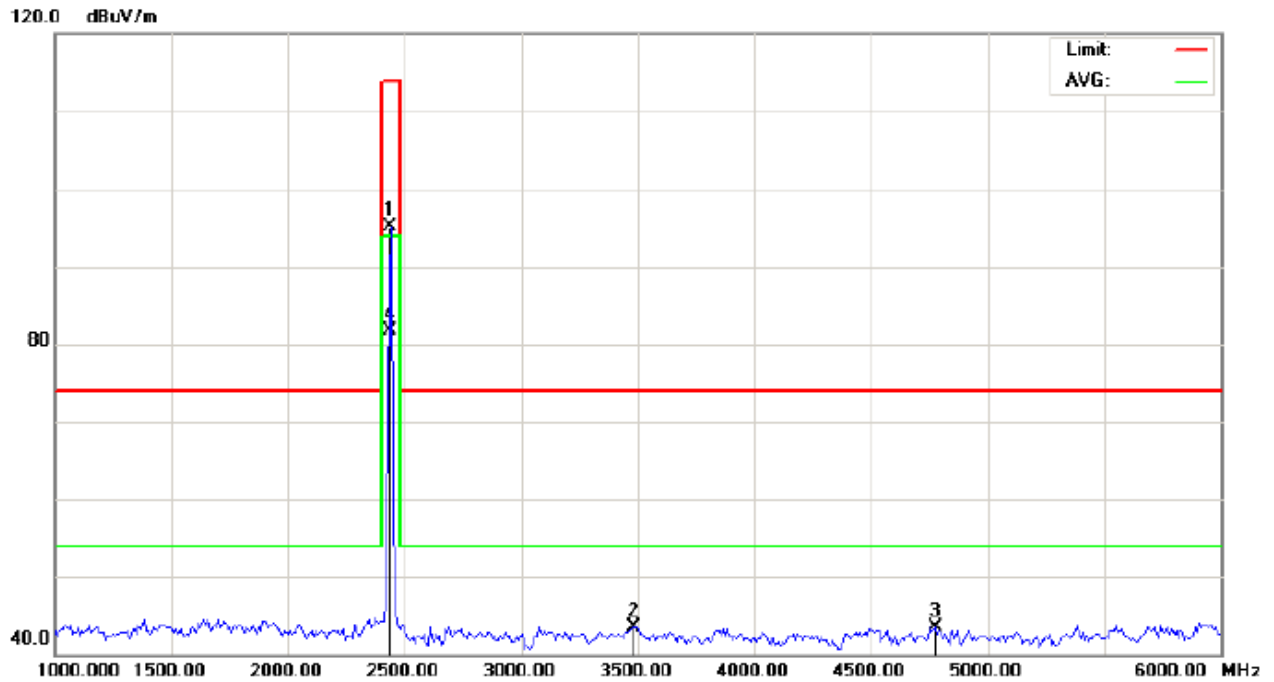
Mode: Middle Channel TX

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		2440.000	104.76	-9.64	95.12	114.00	-18.88	peak			
2		3300.000	51.73	-8.08	43.65	74.00	-30.35	peak			
3		4575.000	46.52	-2.91	43.61	74.00	-30.39	peak			
4	*	2440.000	91.50	-9.64	81.86	94.00	-12.14	AVG	100	18	

**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 Headset

Distance: 3m

M/N: E6

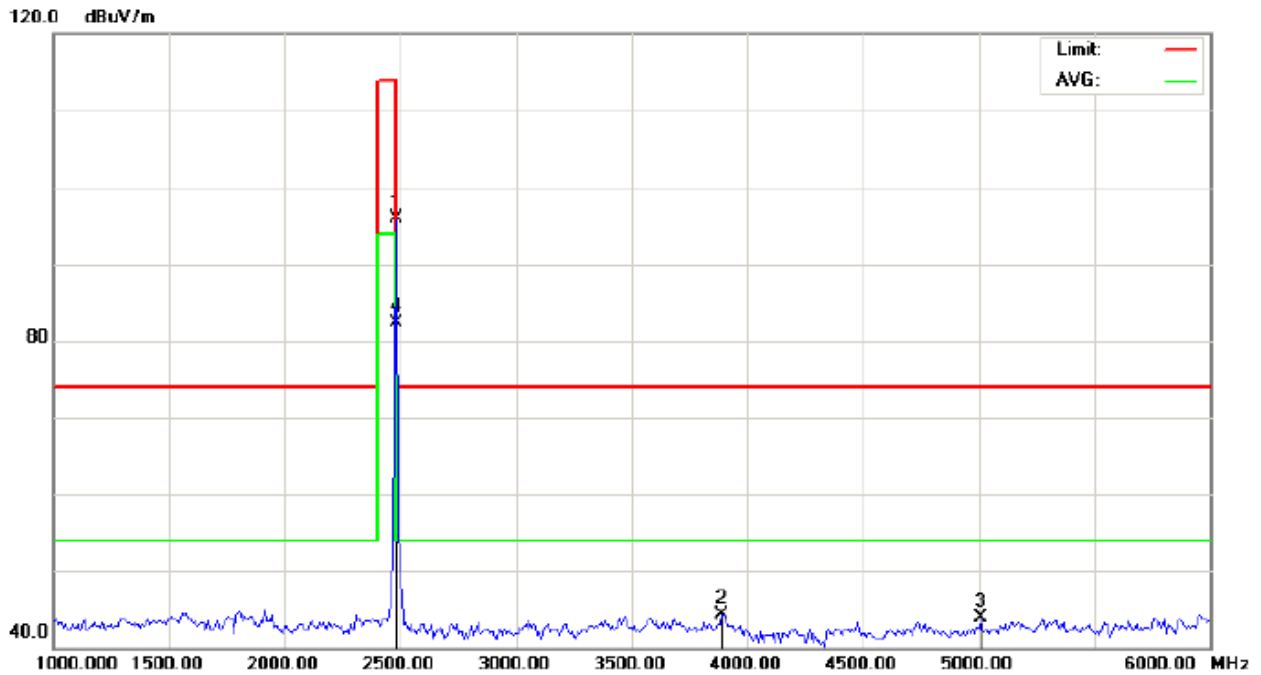
Mode: Middle Channel TX

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		2440.000	104.70	-9.64	95.06	114.00	-18.94	peak			
2		3483.333	51.49	-7.91	43.58	74.00	-30.42	peak			
3		4775.000	45.92	-2.39	43.53	74.00	-30.47	peak			
4	*	2440.000	91.41	-9.64	81.77	94.00	-12.23	AVG	100	233	

**RESULT: PASS**

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

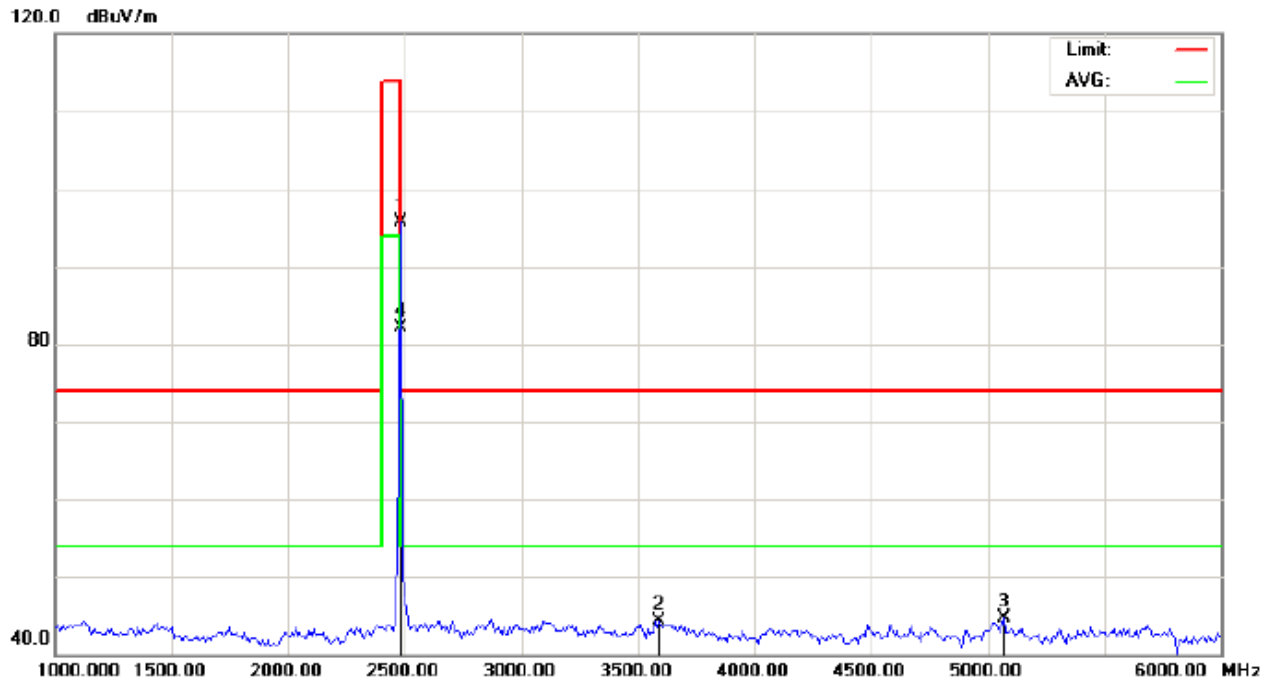


Site: site #1 Polarization: *Horizontal* Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %  
EUT: Bluetooth Headset Distance: 3m  
M/N: E6  
Mode: High Channel TX  
Note:

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		2480.000	105.40	-9.59	95.81	114.00	-18.19	peak			
2		3891.667	49.71	-5.48	44.23	74.00	-29.77	peak			
3		5008.333	45.64	-1.80	43.84	74.00	-30.16	peak			
4	*	2480.000	91.92	-9.59	82.33	94.00	-11.67	AVG	100	17	

**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 Headset

Distance: 3m

M/N: E6

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		2480.000	105.30	-9.59	95.71	114.00	-18.29	peak			
2		3591.667	51.62	-7.33	44.29	74.00	-29.71	peak			
3		5066.667	46.50	-1.80	44.70	74.00	-29.30	peak			
4	*	2480.000	91.78	-9.59	82.19	94.00	-11.81	AVG	100	231	

**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	102.75	-9.68	93.07	114	-20.93	Horizontal
2402	102.76	-9.68	93.08	114	-20.92	Vertical
2440	104.76	-9.64	95.12	114	-18.88	Horizontal
2440	104.70	-9.64	95.06	114	-18.94	Vertical
2480	105.40	-9.59	95.81	114	-18.19	Horizontal
2480	105.30	-9.59	95.71	114	-18.29	Vertical

#### Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	90.89	-9.68	81.21	94	-12.79	Horizontal
2402	90.79	-9.68	81.11	94	-12.89	Vertical
2440	91.50	-9.64	81.86	94	-12.14	Horizontal
2440	91.41	-9.64	81.77	94	-12.23	Vertical
2480	91.92	-9.59	82.33	94	-11.67	Horizontal
2480	91.78	-9.59	82.19	94	-11.81	Vertical

## 9. BAND EDGE EMISSION

### 9.1. MEASUREMENT PROCEDURE

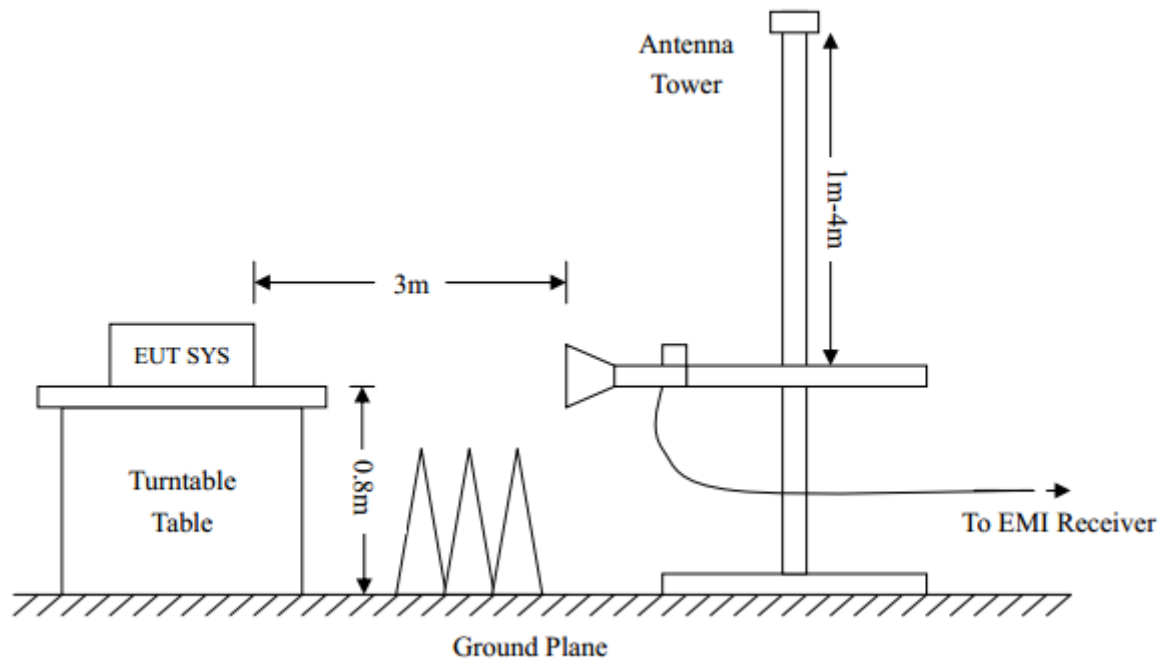
1The EUT operates at hopping-off test mode. The lowest or highest channels are tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.

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

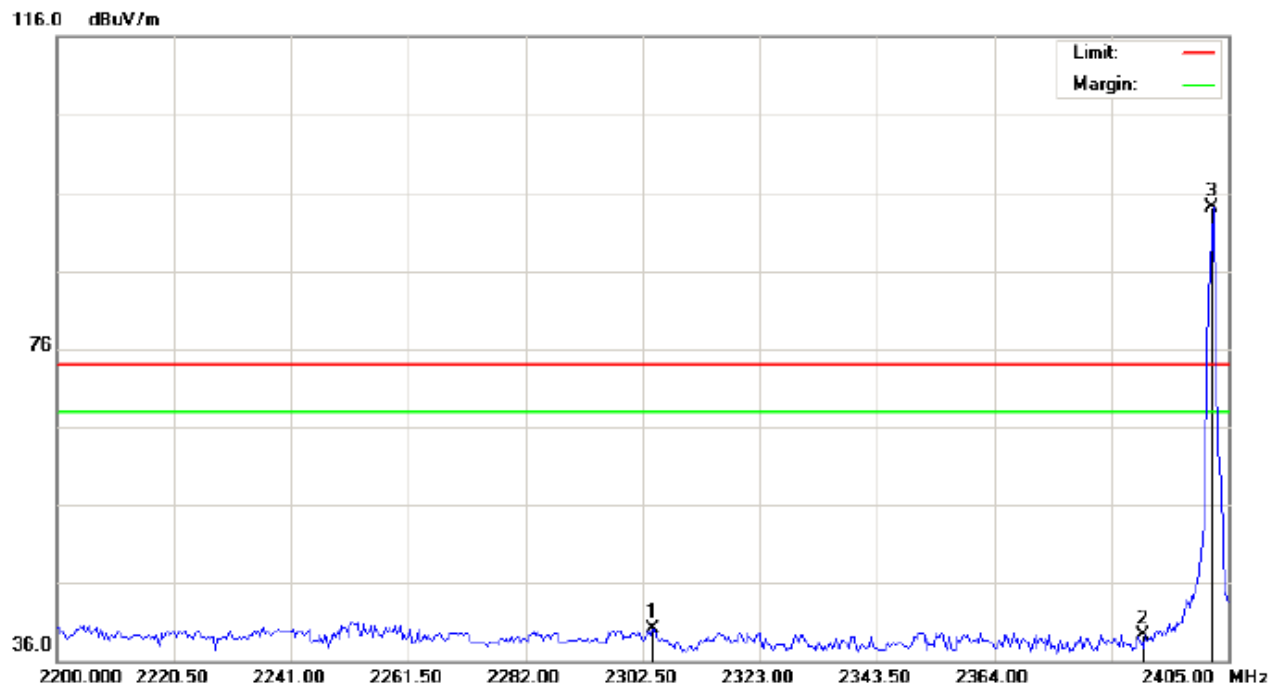


9.3 RADIATED TEST RESULT

(Worst modulation:GFSK)

FOR BR/EDR

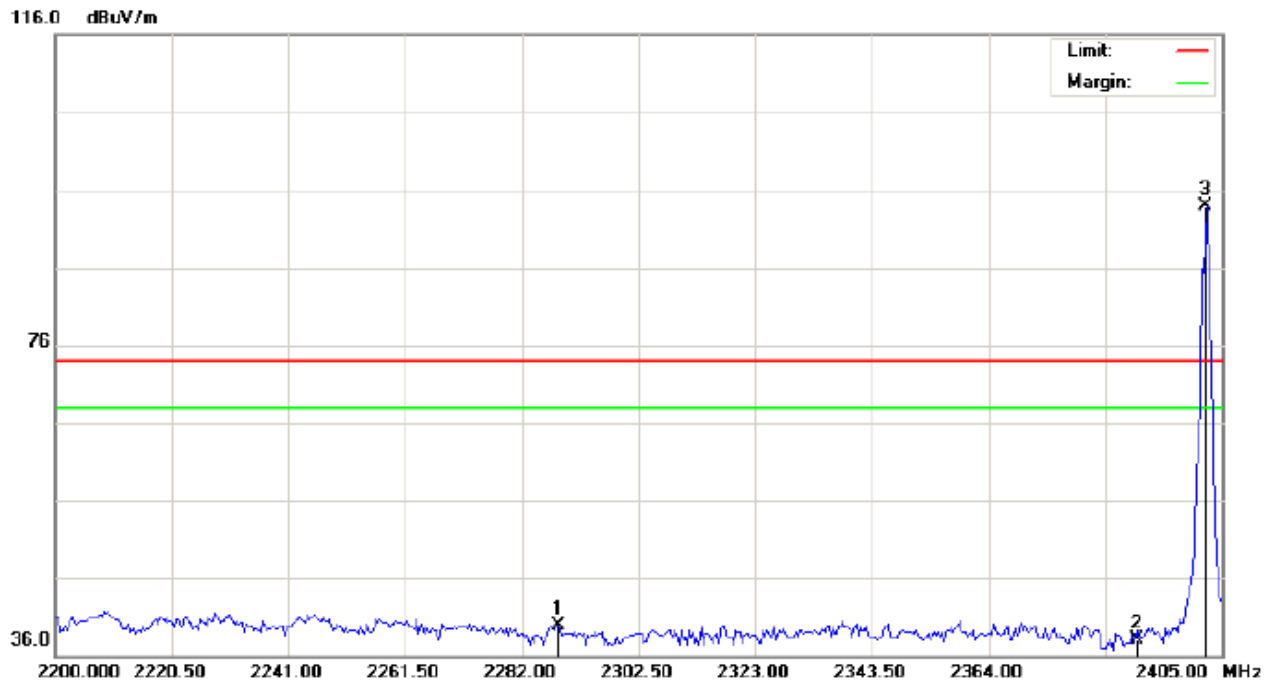
TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal



Site: site #1	Polarization: <i>Horizontal</i>	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)	Power:	Humidity: 60 %
EUT: Bluetooth headset	Distance:	
M/N: E6		
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		2304.208	29.94	10.21	40.15	74.00	-33.85	peak			
2		2390.000	29.00	10.31	39.31	74.00	-34.69	peak			
3	*	2402.000	83.72	10.32	94.04	74.00	20.04	peak			

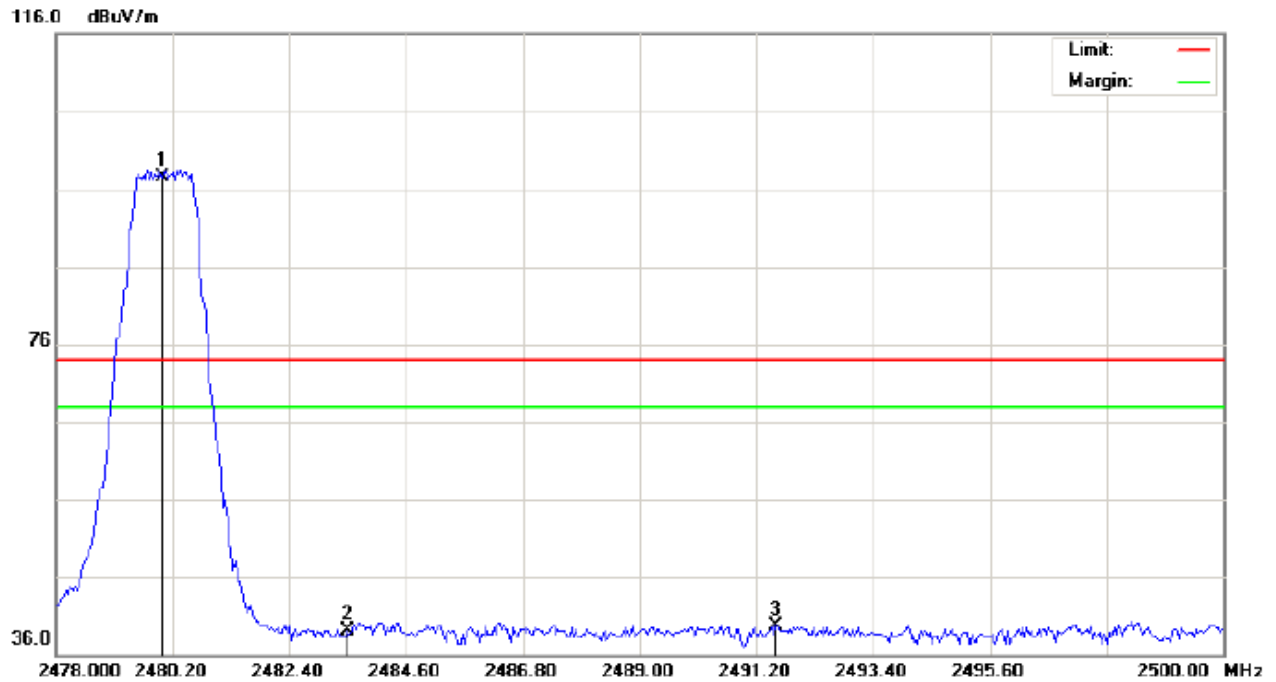
# TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical



Site: site #1 Polarization: *Vertical* Temperature: 26  
Limit: FCC Class B 3M Radiation above 1GHZ(PK) Power: Humidity: 60 %  
EUT: Bluetooth headset Distance:  
M/N: E6  
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		2288.492	29.63	10.20	39.83	74.00	-34.17	peak			
2		2390.000	27.71	10.31	38.02	74.00	-35.98	peak			
3	*	2402.000	83.59	10.32	93.91	74.00	19.91	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 headset

Distance:

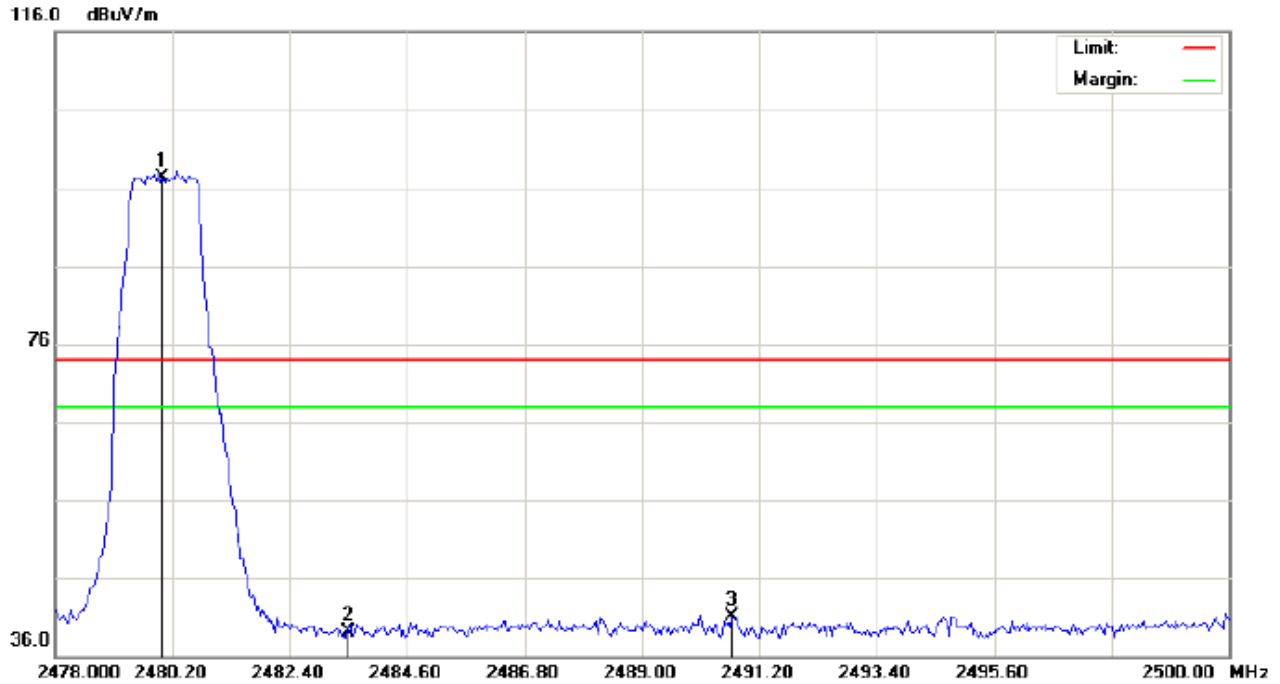
M/N: E6

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	*	2480.000	87.05	10.41	97.46	74.00	23.46	peak			
2		2483.500	28.69	10.41	39.10	74.00	-34.90	peak			
3		2491.567	29.36	10.42	39.78	74.00	-34.22	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 headset

Distance:

M/N: E6

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	*	2480.000	86.84	10.41	97.25	74.00	23.25	peak			
2		2483.500	28.76	10.41	39.17	74.00	-34.83	peak			
3		2490.687	30.70	10.42	41.12	74.00	-32.88	peak			

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

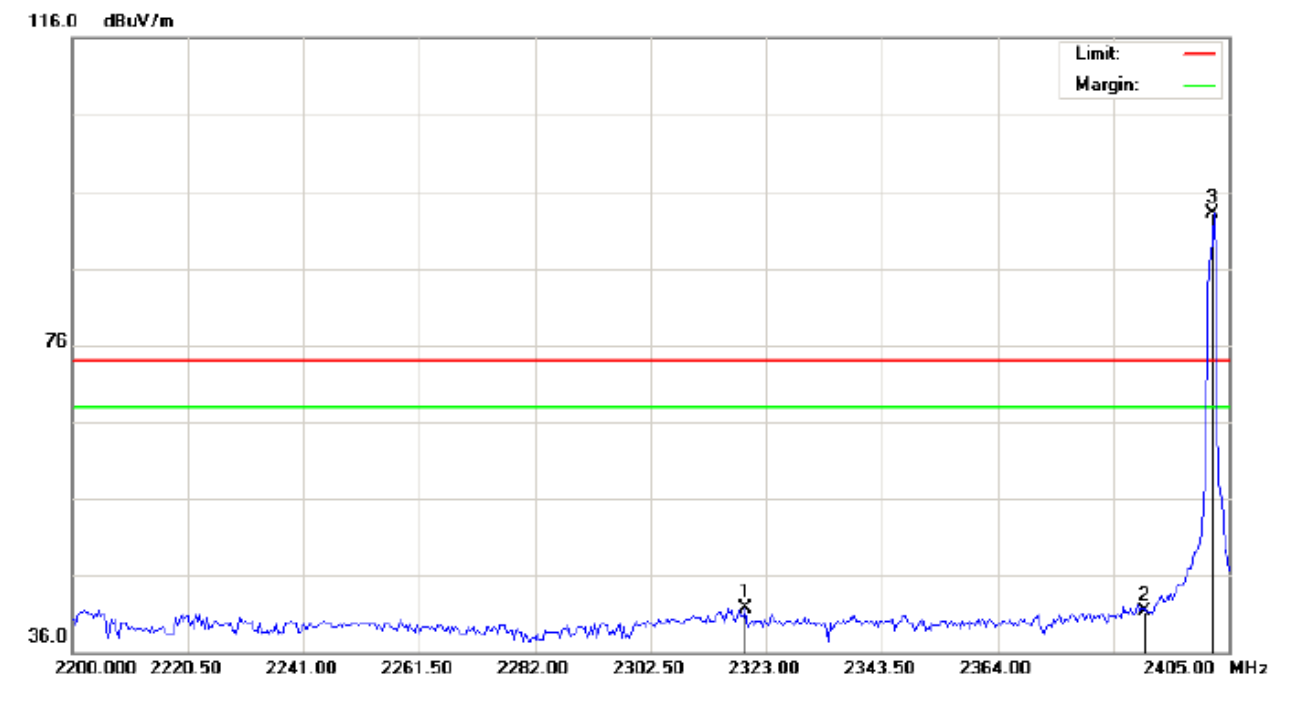
Factor=Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

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

Hopping on mode and Hopping off mode have been tested, but only worst case reported.

FOR BLE

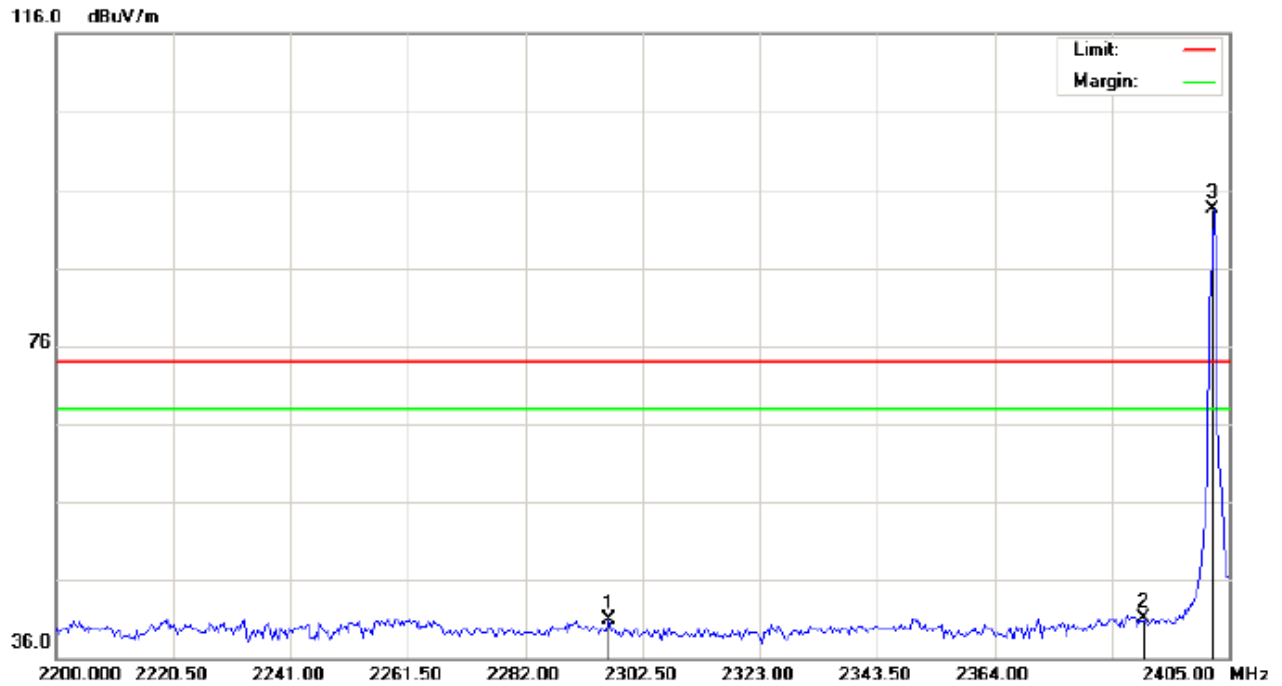
TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal



Site: site #1	Polarization: <b>Horizontal</b>	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)	Power:	Humidity: 60 %
EUT: Bluetooth Headset	Distance:	
M/N: E6		
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		2319.242	31.55	10.23	41.78	74.00	-32.22	peak			
2		2390.000	31.00	10.31	41.31	74.00	-32.69	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: *Vertical*

Temperature: 26

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

Power:

Humidity: 60 %

EUT: Bluetooth Headset

Distance:

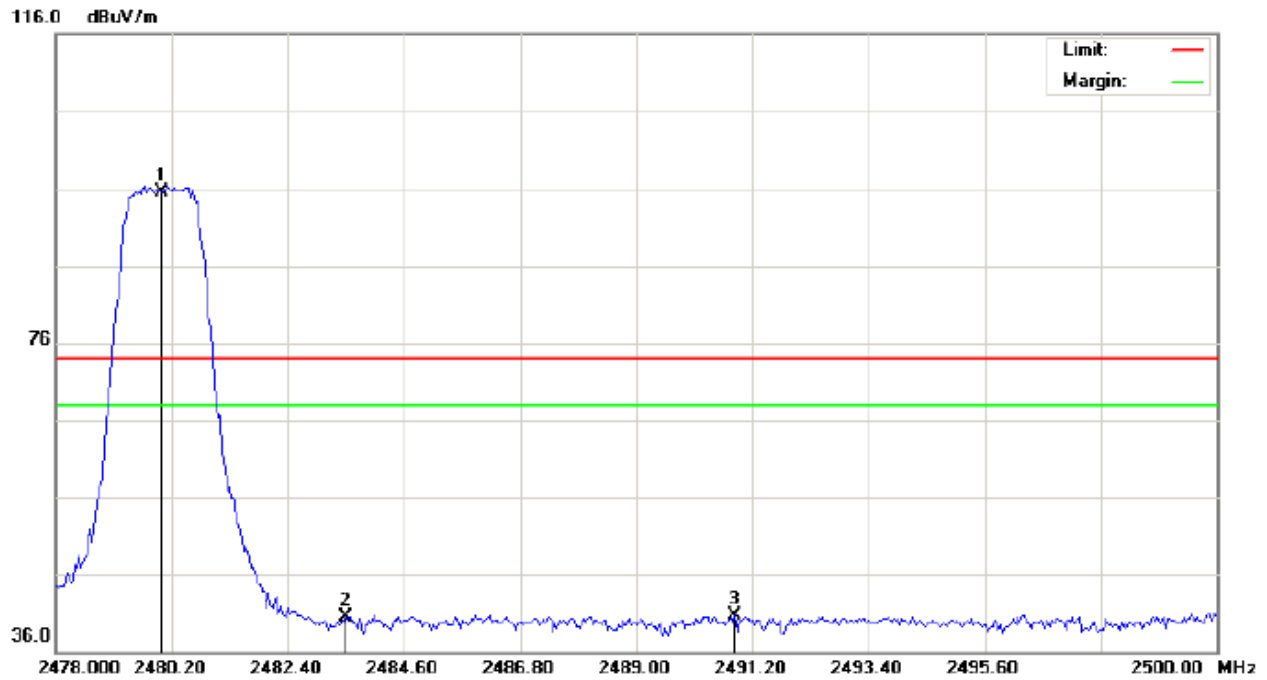
M/N: E6

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		2296.692	30.72	10.21	40.93	74.00	-33.07	peak			
2		2390.000	30.71	10.31	41.02	74.00	-32.98	peak			
3	*	2402.000	83.09	10.32	93.41	74.00	19.41	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 Headset

Distance:

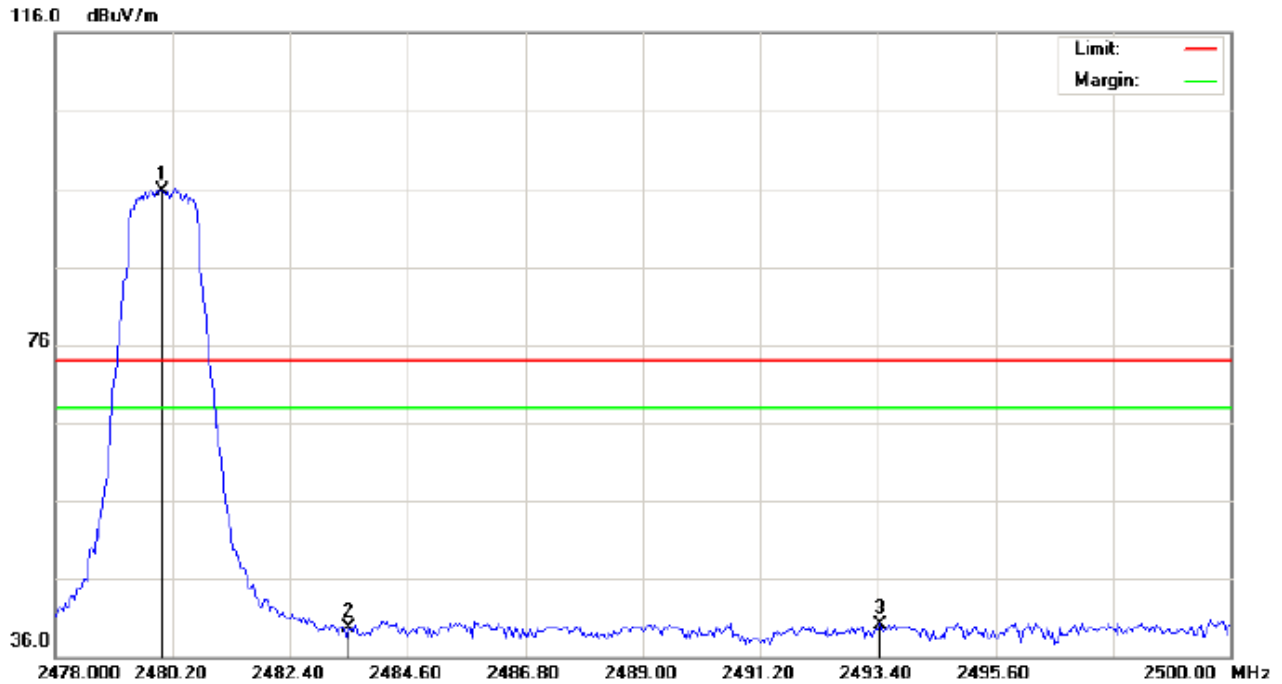
M/N: E6

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	*	2480.000	85.05	10.41	95.46	74.00	21.46	peak			
2		2483.500	30.19	10.41	40.60	74.00	-33.40	peak			
3		2490.870	30.28	10.42	40.70	74.00	-33.30	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 Headset

Distance:

M/N: E6

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	*	2480.000	85.32	10.41	95.73	74.00	21.73	peak			
2		2483.500	29.26	10.41	39.67	74.00	-34.33	peak			
3		2493.437	29.78	10.42	40.20	74.00	-33.80	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.

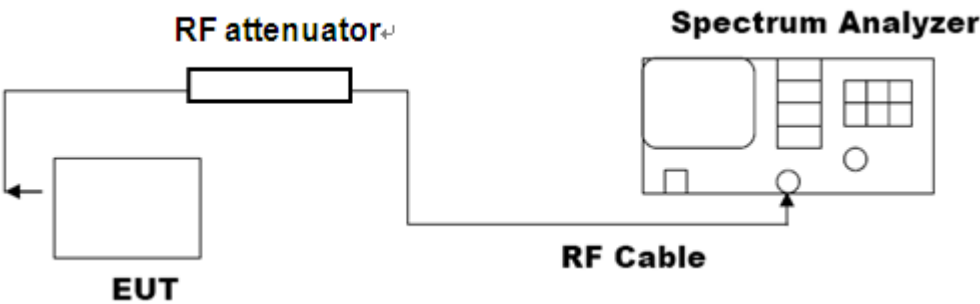
10. 20DB BANDWIDTH

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 hopping channel  
RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

10.2. TEST SET-UP

(BLOCK DIAGRAM OF CONFIGURATION)



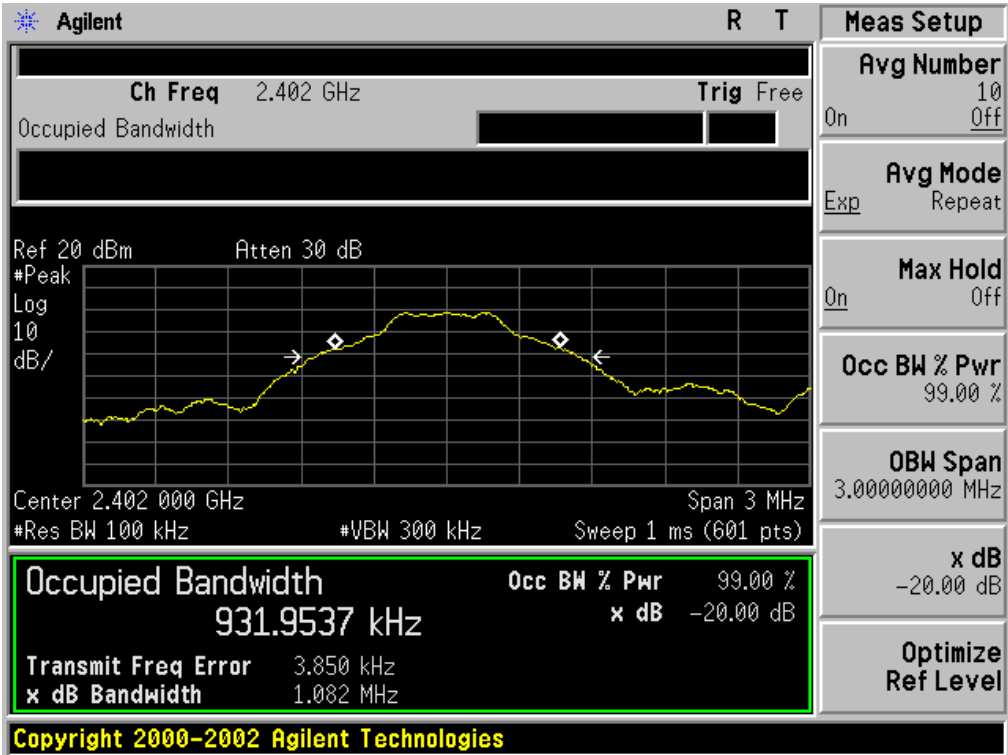
Note: The EUT has been used temporary antenna connector for testing.

10.3. LIMITS AND MEASUREMENT RESULTS

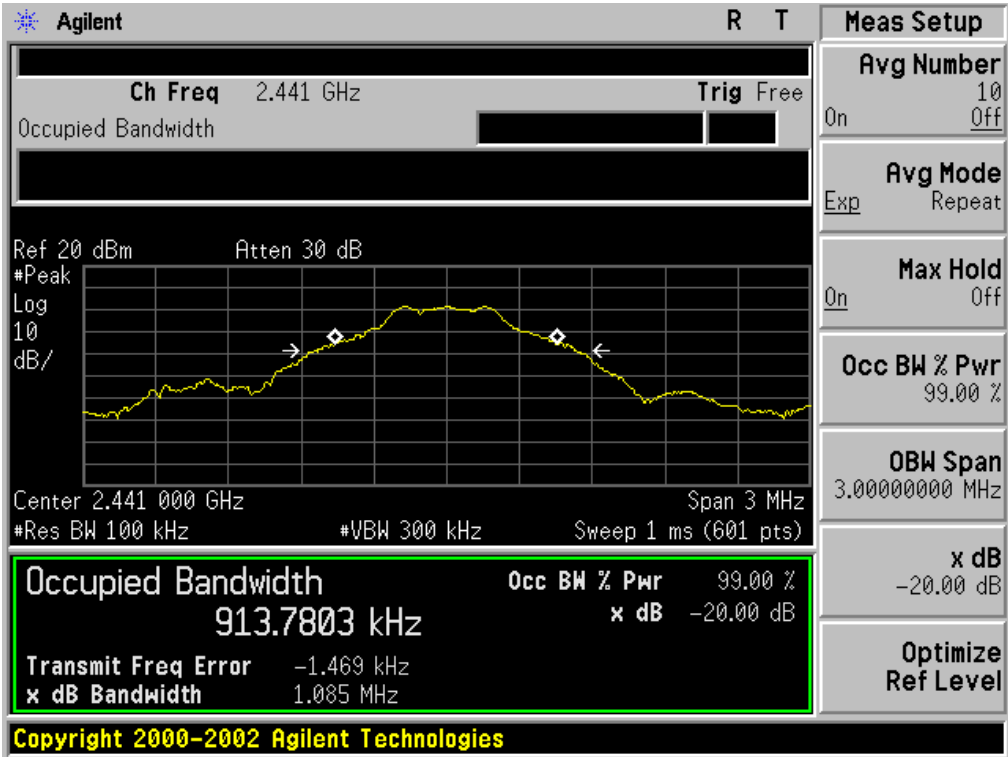
FOR BR/EDR

BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESUL			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.082	PASS
	Middle Channel	1.085	PASS
	High Channel	1.095	PASS

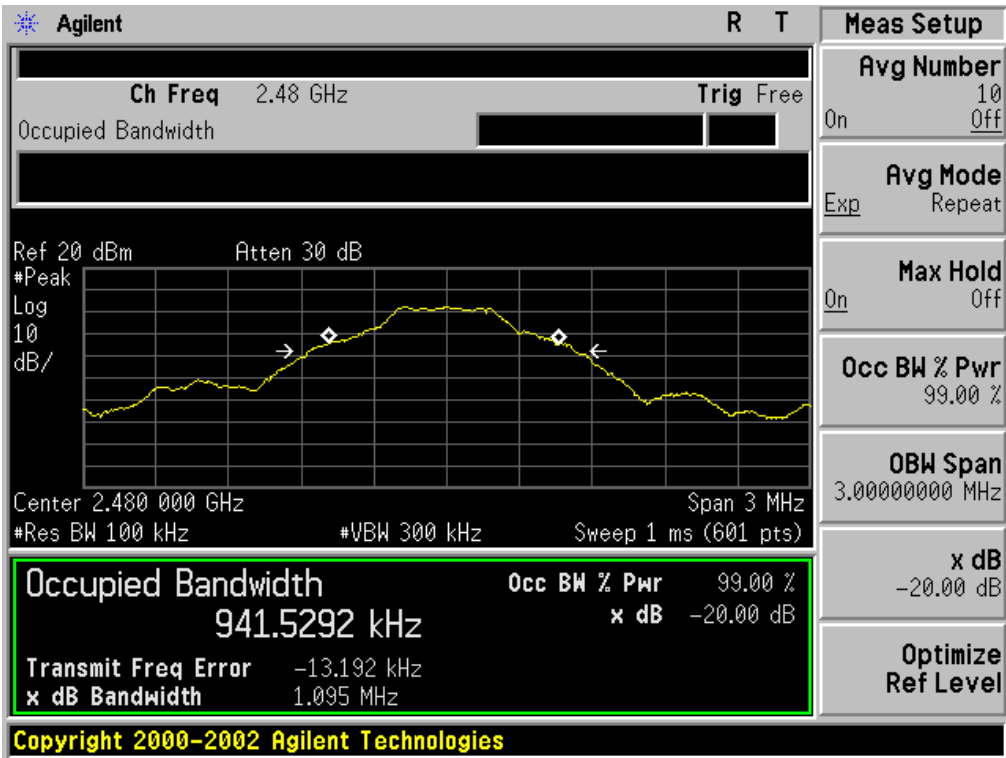
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

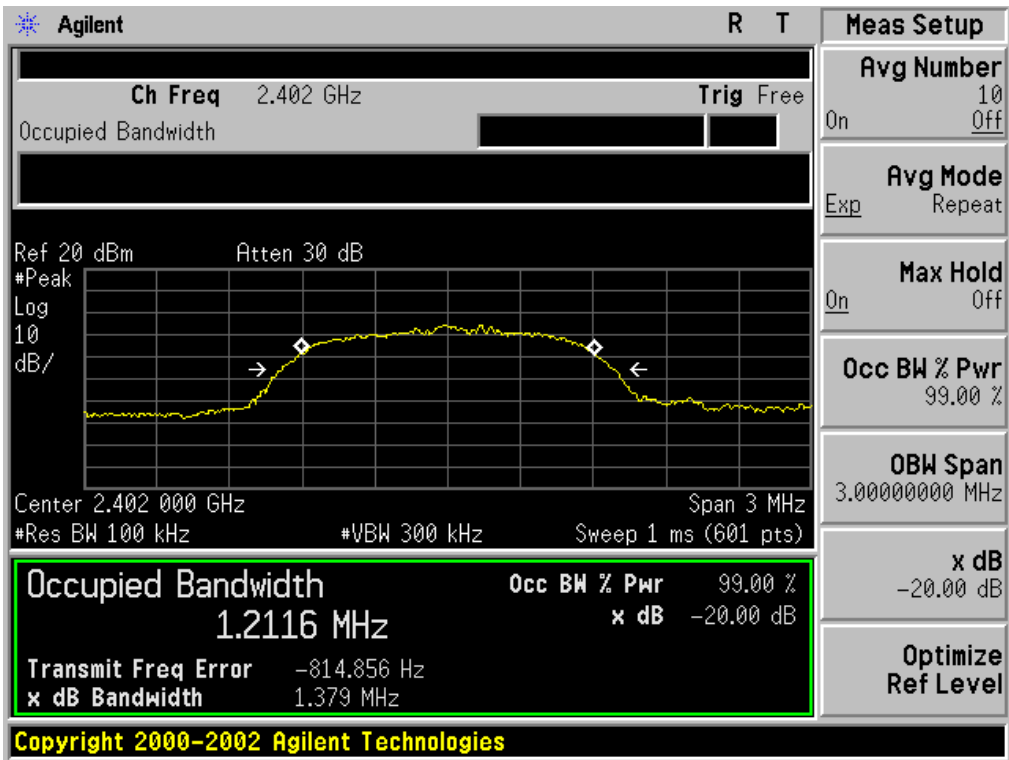


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

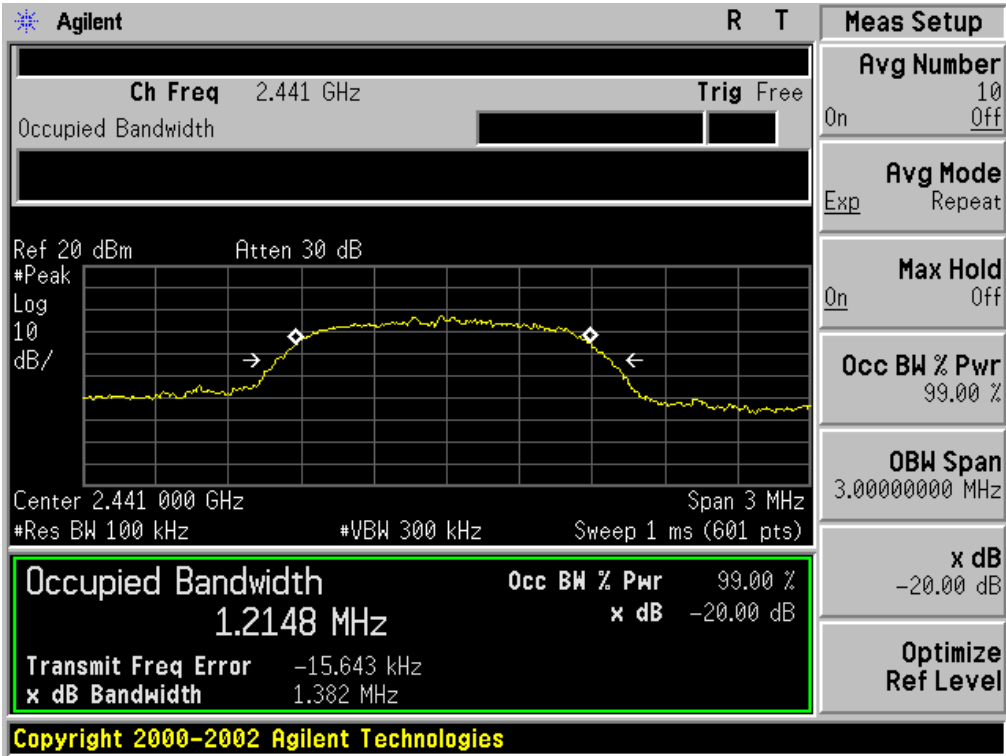


BLUETOOTH 2Mbps LIMITS AND MEASUREMENT RESUL			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.379	PASS
	Middle Channel	1.382	PASS
	High Channel	1.358	PASS

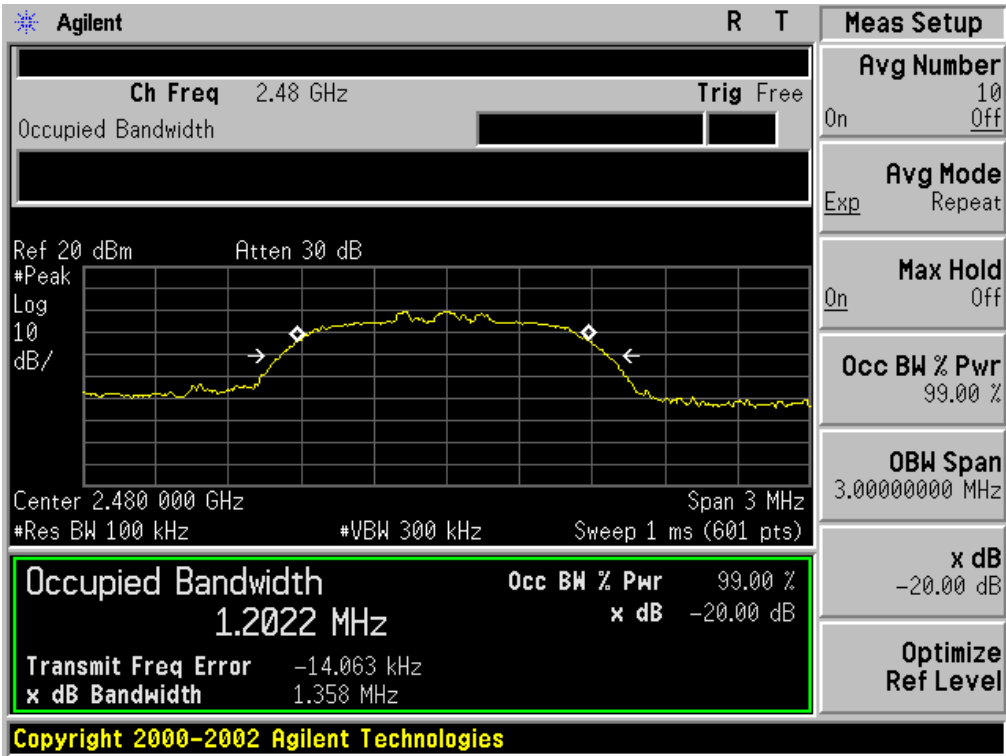
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

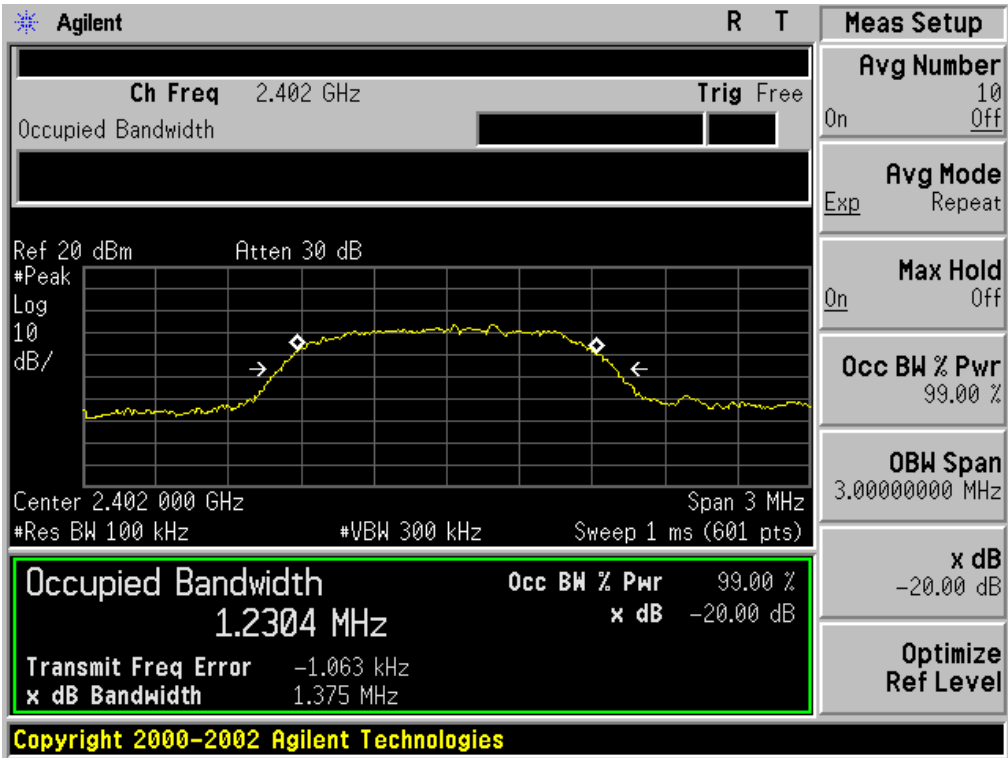


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

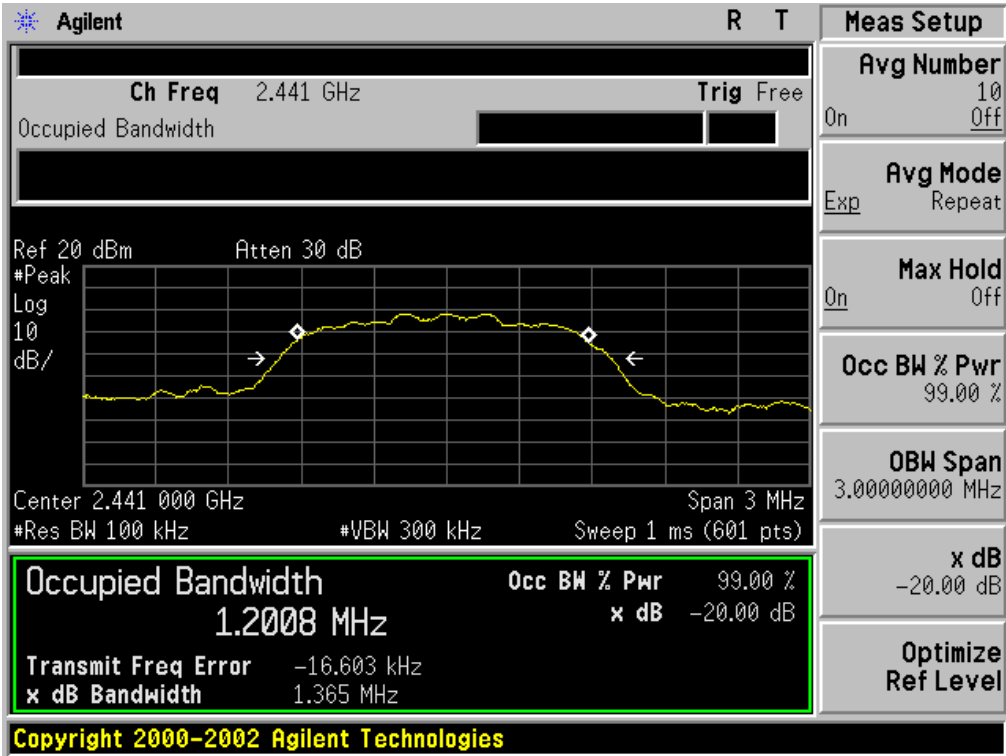


BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESUL			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.375	PASS
	Middle Channel	1.365	PASS
	High Channel	1.357	PASS

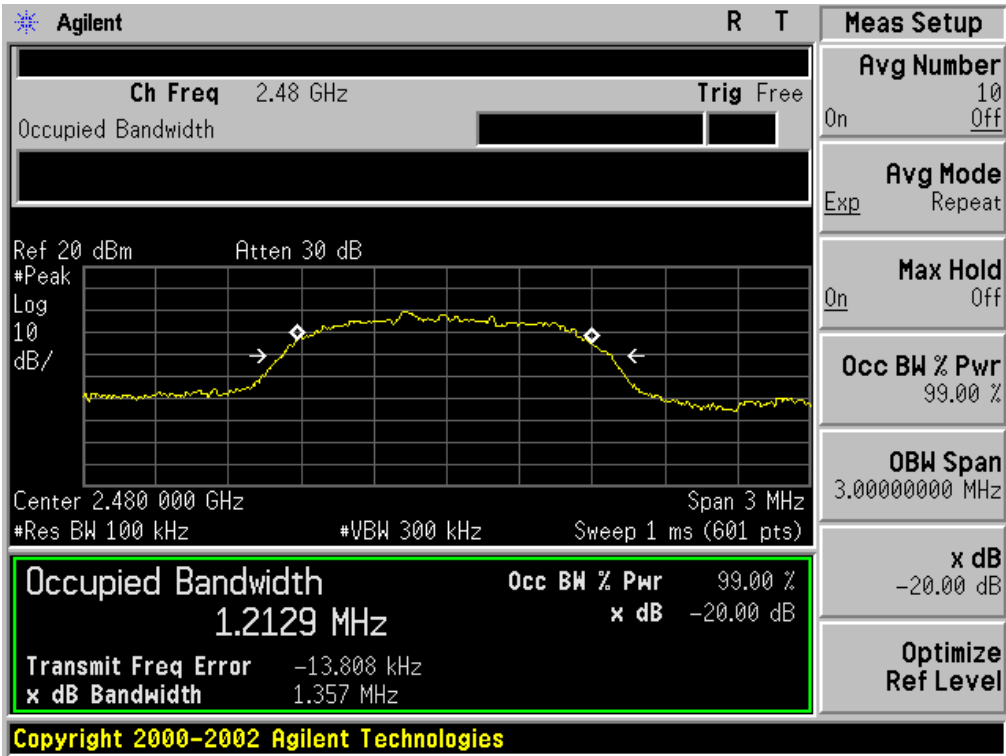
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



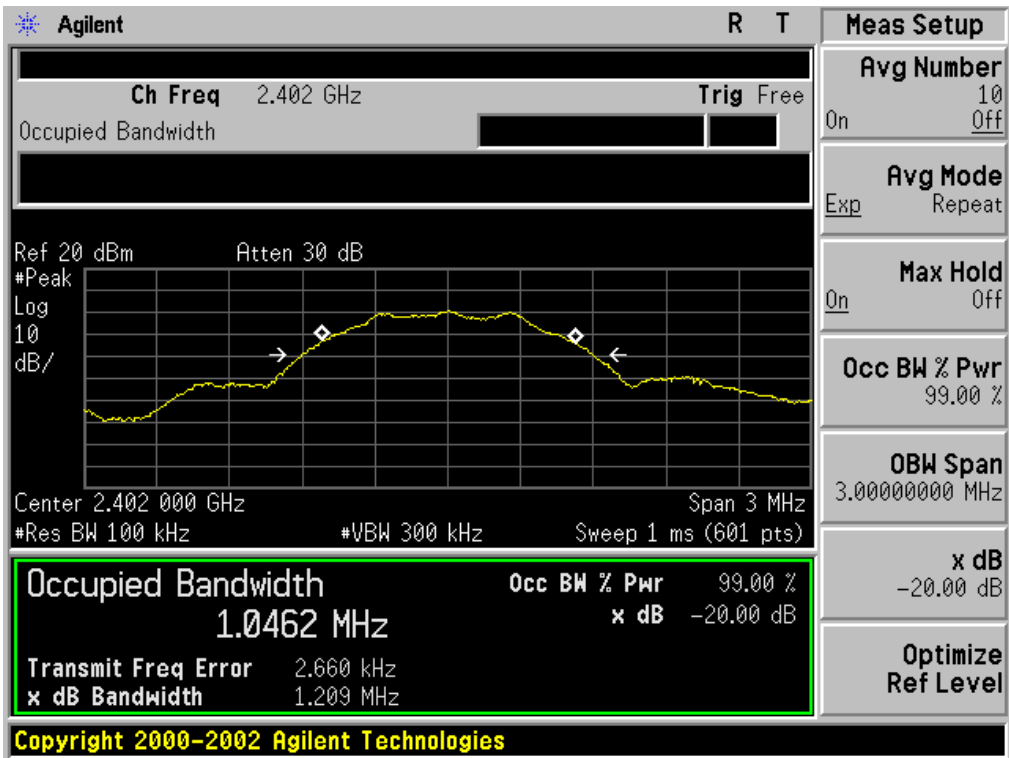
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



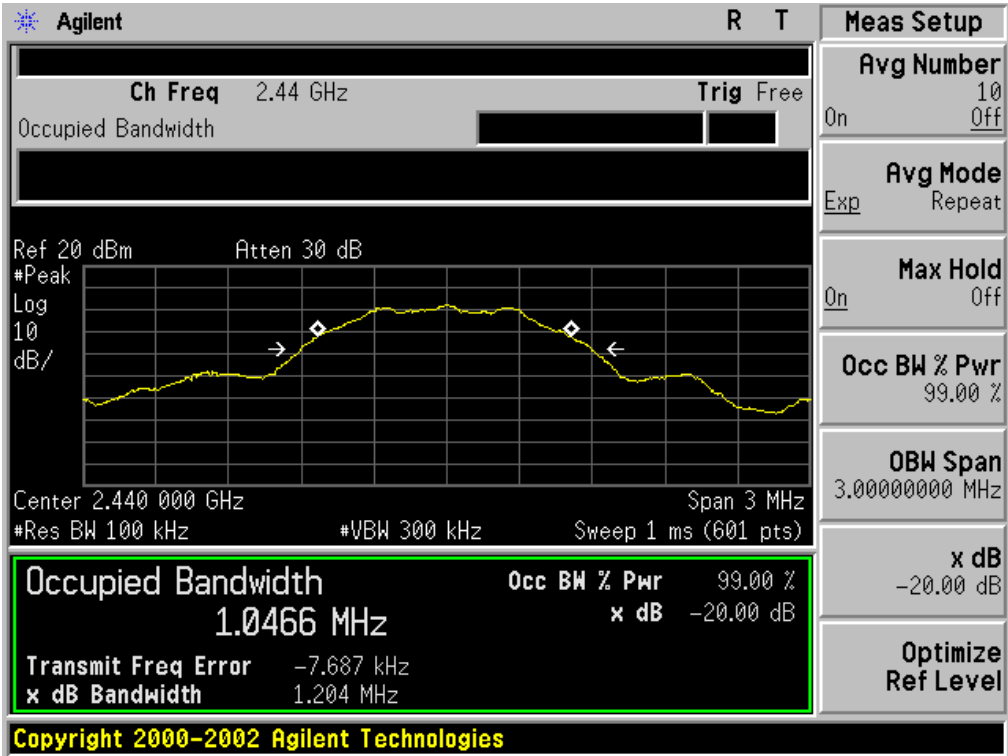
FOR BLE

BLUETOOTH 1Mbps LIMITS AND MEASUREMENT RESUL			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.209	PASS
	Middle Channel	1.204	PASS
	High Channel	1.204	PASS

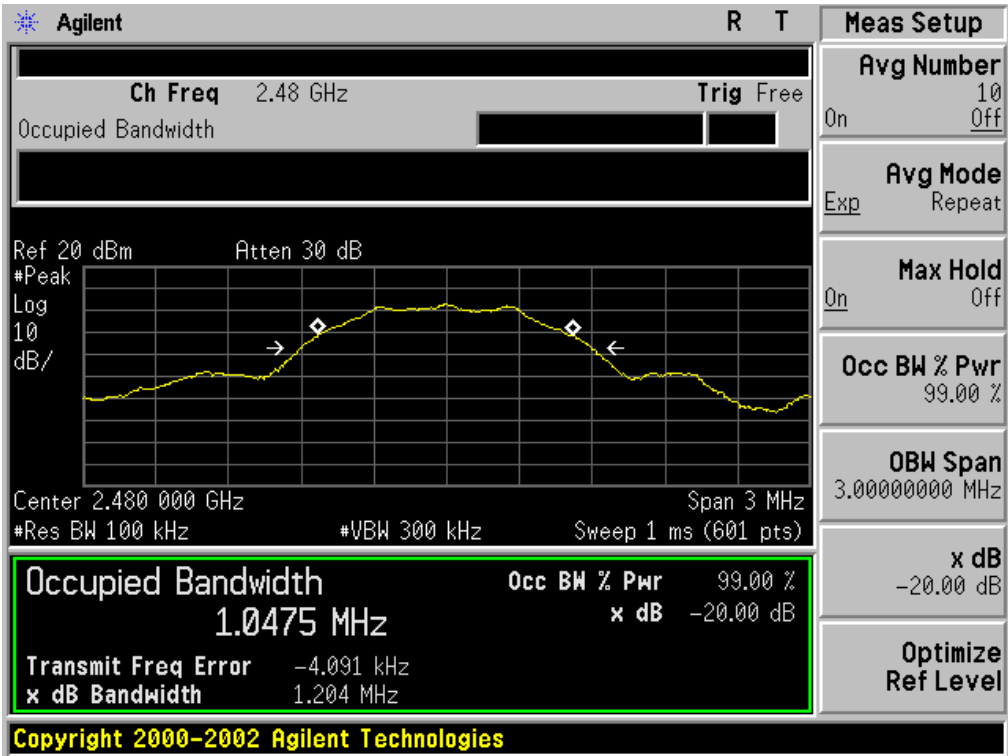
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



## 11. FCC LINE CONDUCTED EMISSION TEST

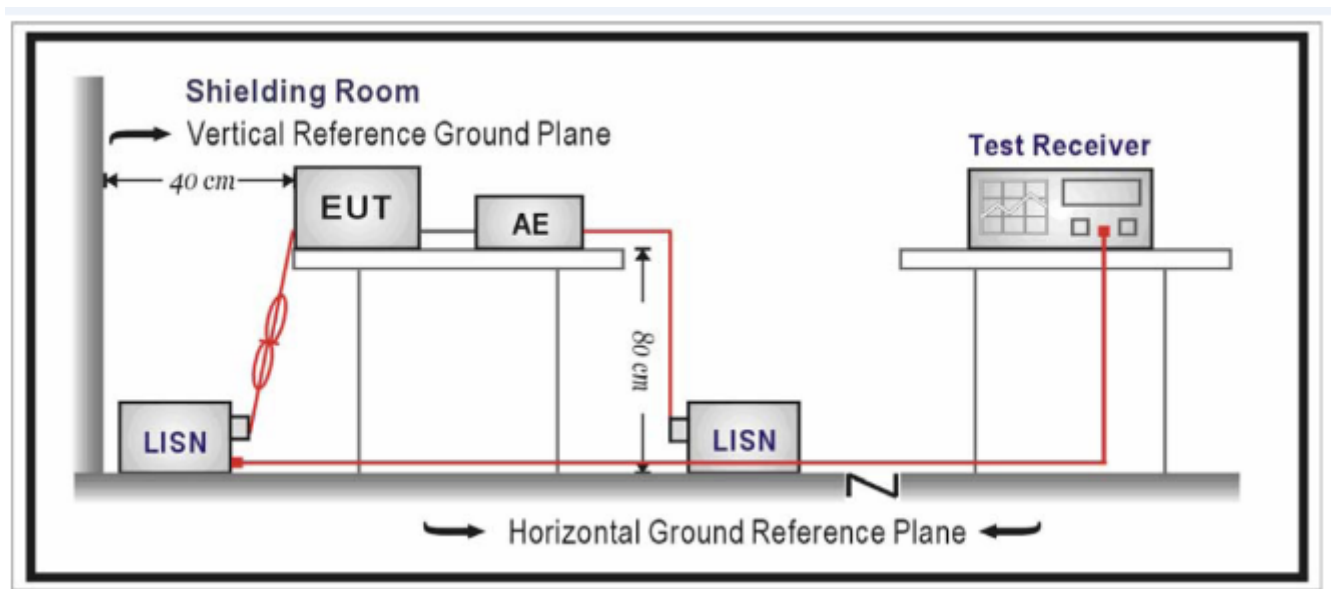
### 11.1. LIMITS OF LINE CONDUCTED EMISSION TEST

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 or by adapter 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.

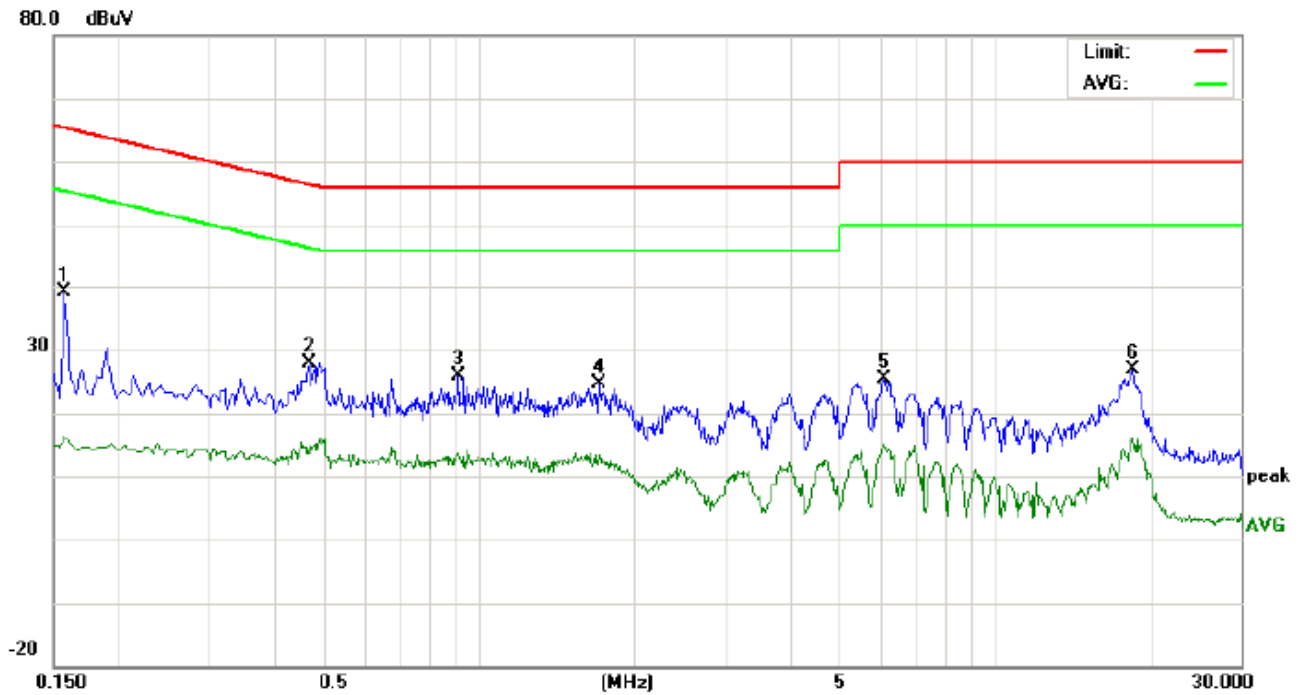
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### **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

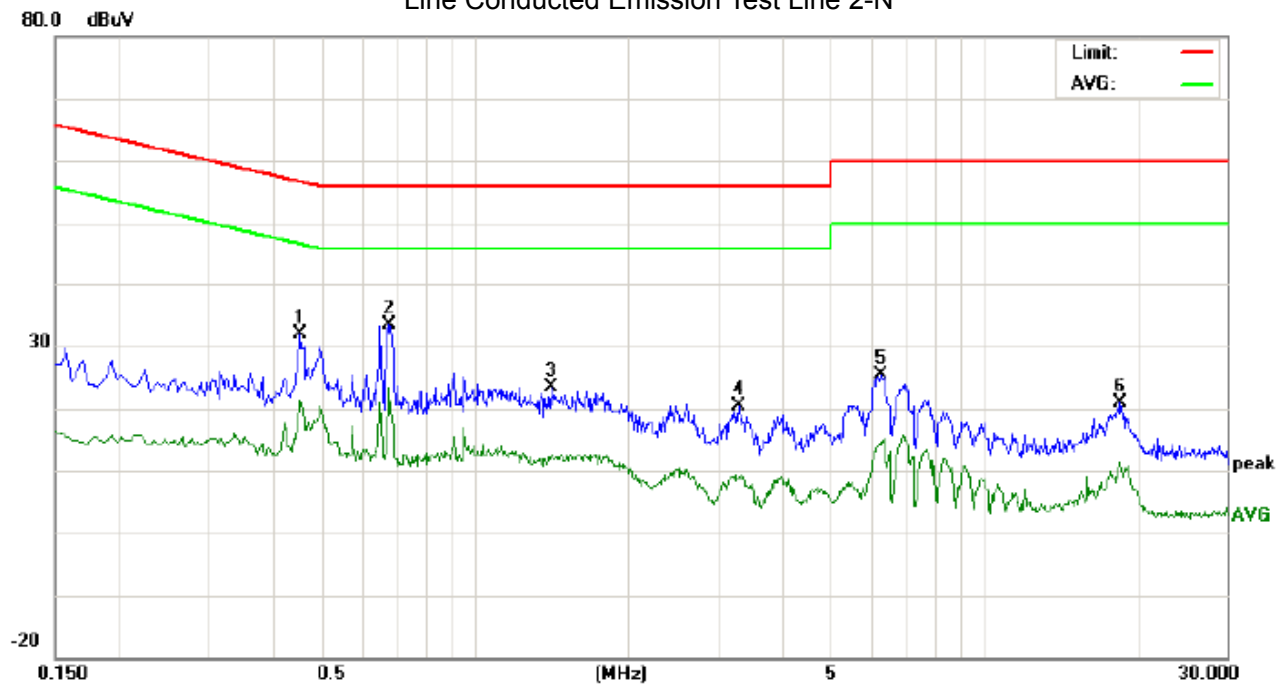
Line Conducted Emission Test Line 1-L



Site: Conduction Phase: **L1** Temperature: 22.5  
Limit: FCC Class B Conduction(QP) Power: Humidity: 56.4 %  
EUT: Bluetooth Headset  
M/N: E6  
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	0.1580	28.89		6.11	10.17	39.06		16.28	65.56	55.56	-26.50	-39.28	P	
2	0.4700	17.40		4.44	10.38	27.78		14.82	56.51	46.51	-28.73	-31.69	P	
3	0.9140	15.37		3.23	10.40	25.77		13.63	56.00	46.00	-30.23	-32.37	P	
4	1.7140	14.28		3.14	10.31	24.59		13.45	56.00	46.00	-31.41	-32.55	P	
5	6.0939	15.00		4.95	10.28	25.28		15.23	60.00	50.00	-34.72	-34.77	P	
6	18.5660	16.71		5.63	10.12	26.83		15.75	60.00	50.00	-33.17	-34.25	P	

### Line Conducted Emission Test Line 2-N

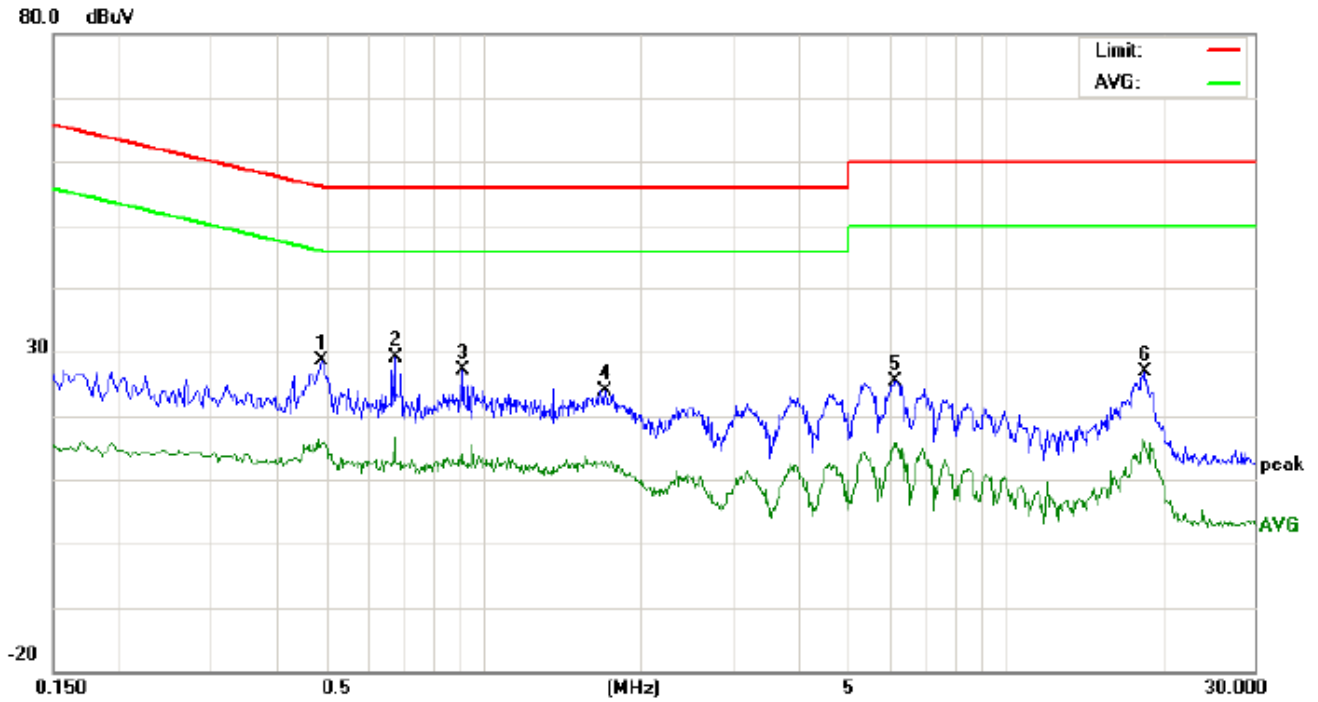


Site: Conduction Phase: **N** Temperature: 22.5  
Limit: FCC Class B Conduction(QP) Power: Humidity: 56.4 %  
EUT: Bluetooth Headset  
M/N: E6  
Mode: BT Link with charging  
Note:

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	0.4540	21.62		10.97	10.37	31.99		21.34	56.80	46.80	-24.81	-25.46	P	
2	0.6780	22.93		10.87	10.34	33.27		21.21	56.00	46.00	-22.73	-24.79	P	
3	1.4140	16.84		6.03	10.38	27.22		16.41	56.00	46.00	-28.78	-29.59	P	
4	3.3100	9.73		-1.43	10.53	20.26		9.10	56.00	46.00	-35.74	-36.90	P	
5	6.2619	15.03		4.40	10.29	25.32		14.69	60.00	50.00	-34.68	-35.31	P	
6	18.5419	10.69		1.21	10.12	20.81		11.33	60.00	50.00	-39.19	-38.67	P	

FOR BLE

Line Conducted Emission Test Line 1-L



Site: Conduction

Phase: L1

Temperature: 22.5

Limit: FCC Class B Conduction(QP)

Power:

Humidity: 56.4 %

EUT: Bluetooth Headset

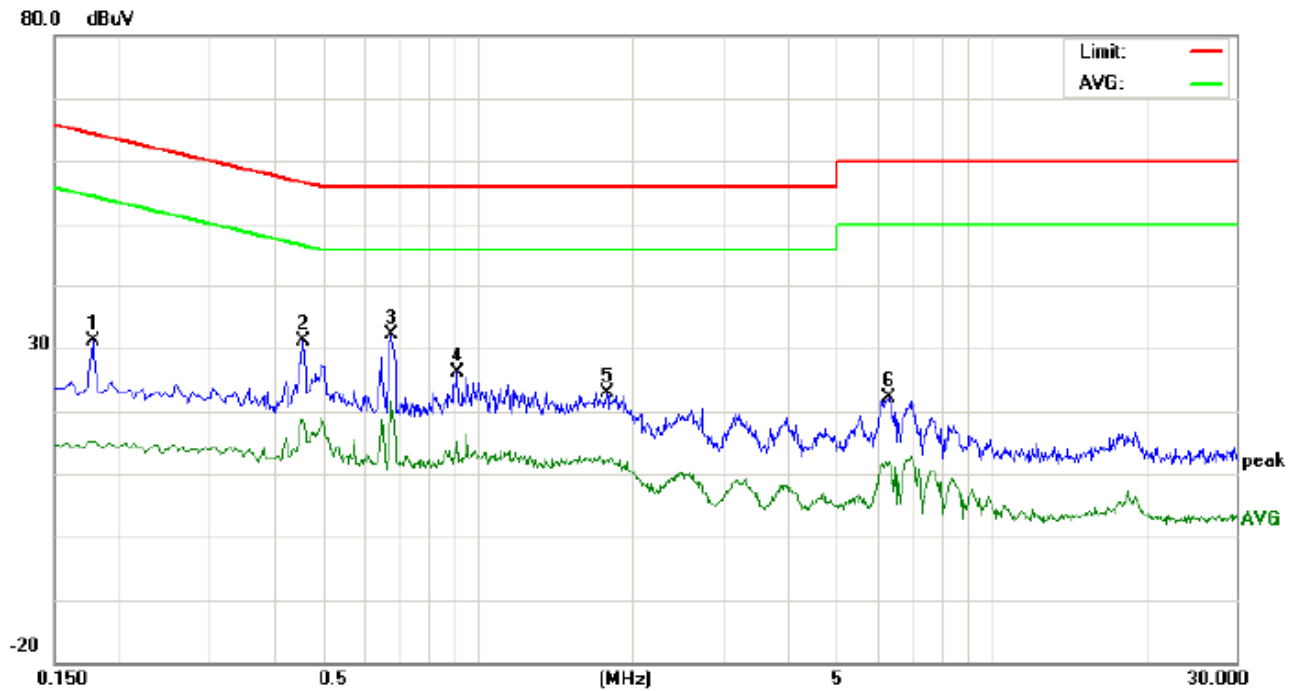
M/N: E6

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	0.4900	18.24		5.14	10.39	28.63		15.53	56.17	46.17	-27.54	-30.64	P	
2	0.6780	18.90		6.25	10.34	29.24		16.59	56.00	46.00	-26.76	-29.41	P	
3	0.9140	16.73		3.52	10.40	27.13		13.92	56.00	46.00	-28.87	-32.08	P	
4	1.7140	13.60		2.65	10.31	23.91		12.96	56.00	46.00	-32.09	-33.04	P	
5	6.1220	15.02		5.22	10.28	25.30		15.50	60.00	50.00	-34.70	-34.50	P	
6	18.4860	16.70		5.72	10.12	26.82		15.84	60.00	50.00	-33.18	-34.16	P	

# Line Conducted Emission Test Line 2-N



Site: Conduction Phase: **N** Temperature: 22.5  
Limit: FCC Class B Conduction(QP) Power: Humidity: 56.4 %  
EUT: Bluetooth Headset  
M/N: E6  
Mode: BT Link with charging  
Note:

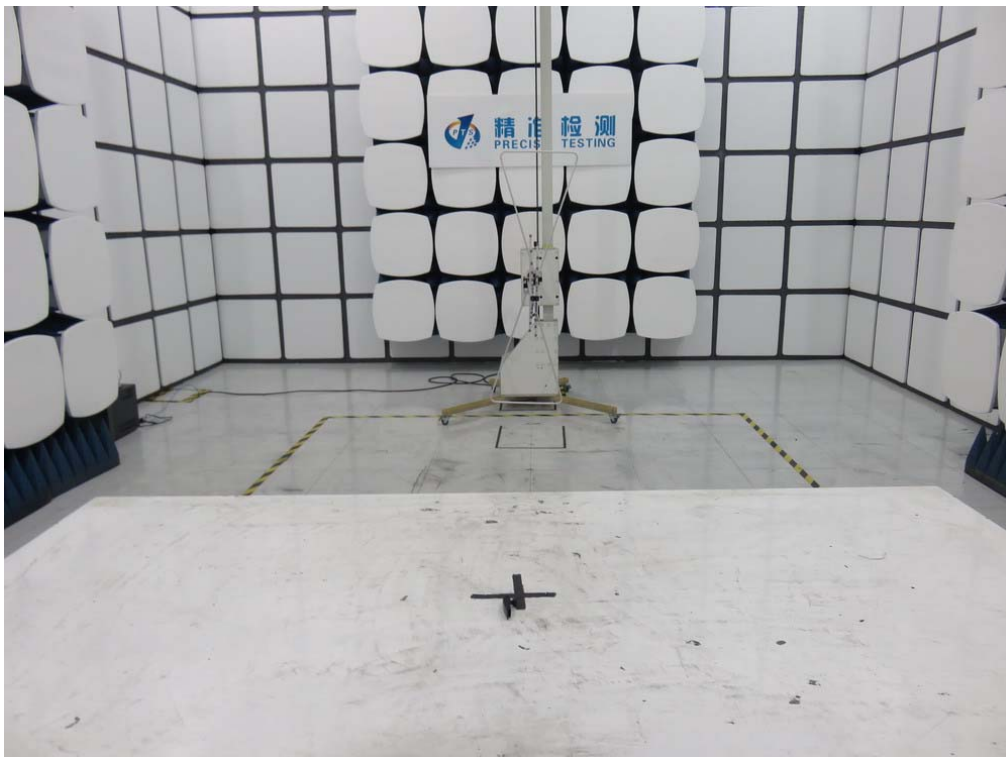
No.	Freq. (MHz)	Reading Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1780	20.86		4.97	10.19	31.05		15.16	64.57	54.57	-33.52	-39.41	P	
2	0.4580	20.68		8.34	10.37	31.05		18.71	56.73	46.73	-25.68	-28.02	P	
3	0.6780	21.88		9.75	10.34	32.22		20.09	56.00	46.00	-23.78	-25.91	P	
4	0.9140	15.83		4.63	10.40	26.23		15.03	56.00	46.00	-29.77	-30.97	P	
5	1.7820	12.67		1.76	10.29	22.96		12.05	56.00	46.00	-33.04	-33.95	P	
6	6.3380	11.91		1.67	10.29	22.20		11.96	60.00	50.00	-37.80	-38.04	P	

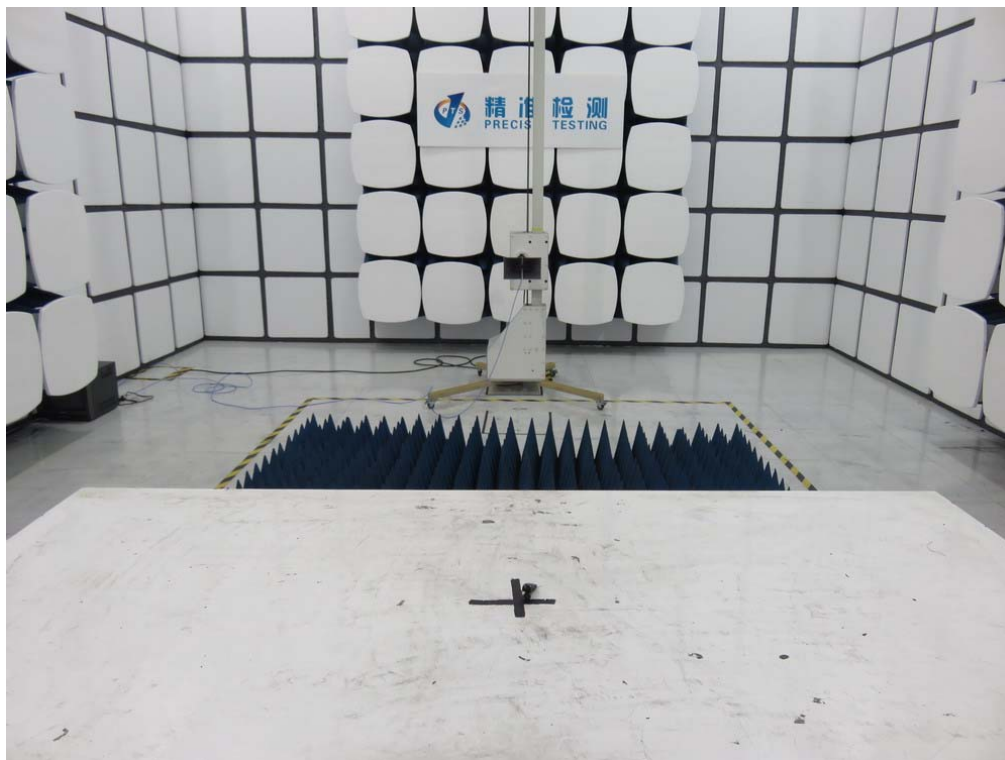
## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

### FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP





## APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



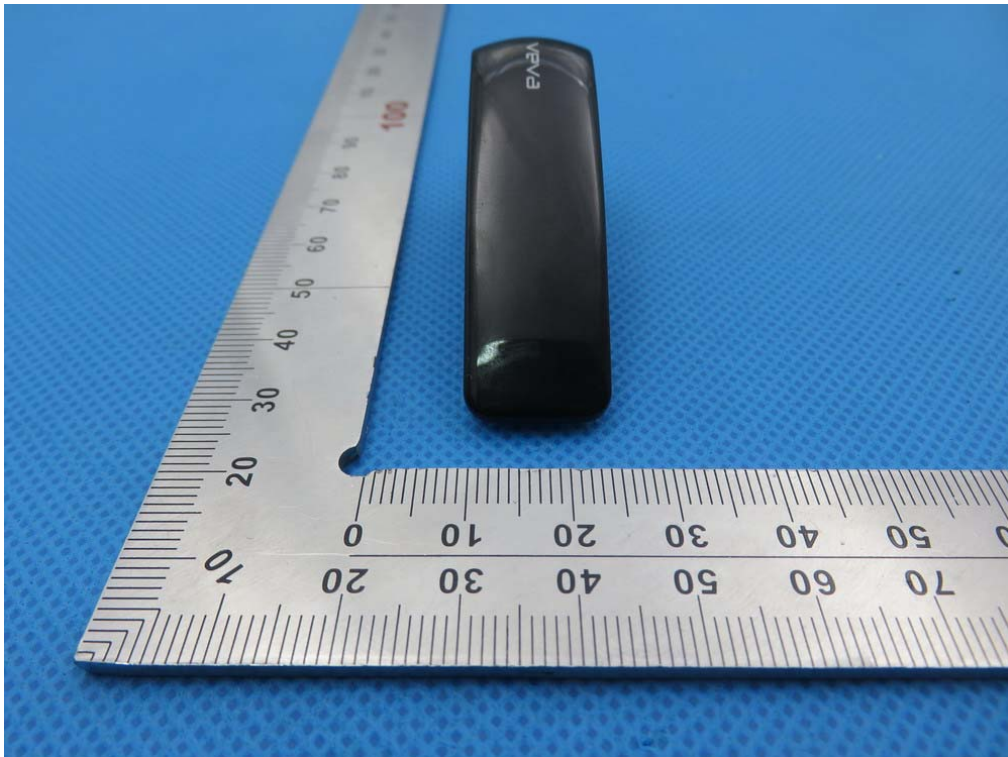
BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



BACK VIEW OF EUT



LEFT VIEW OF EUT



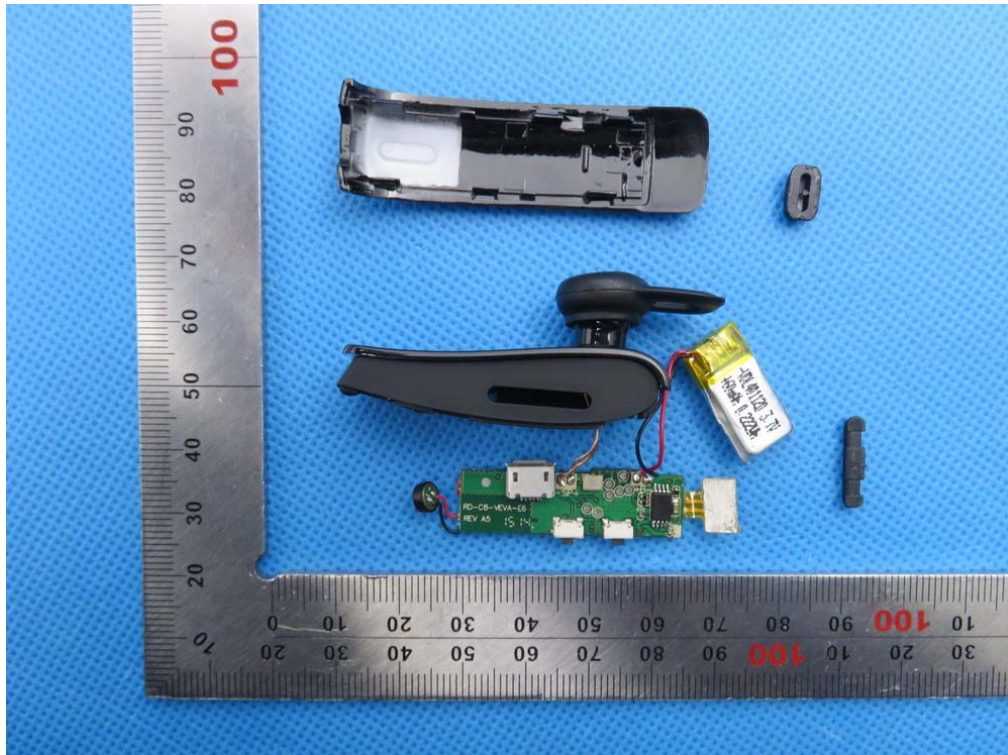
RIGHT VIEW OF EUT



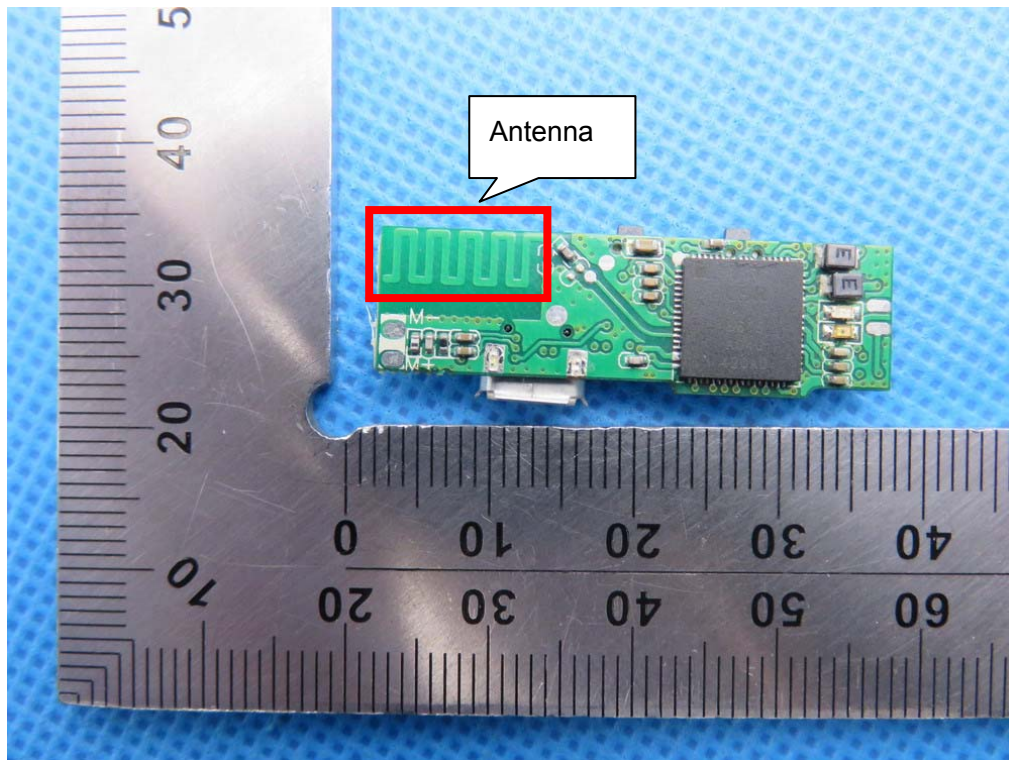
VIEW OF EUT (PORT)



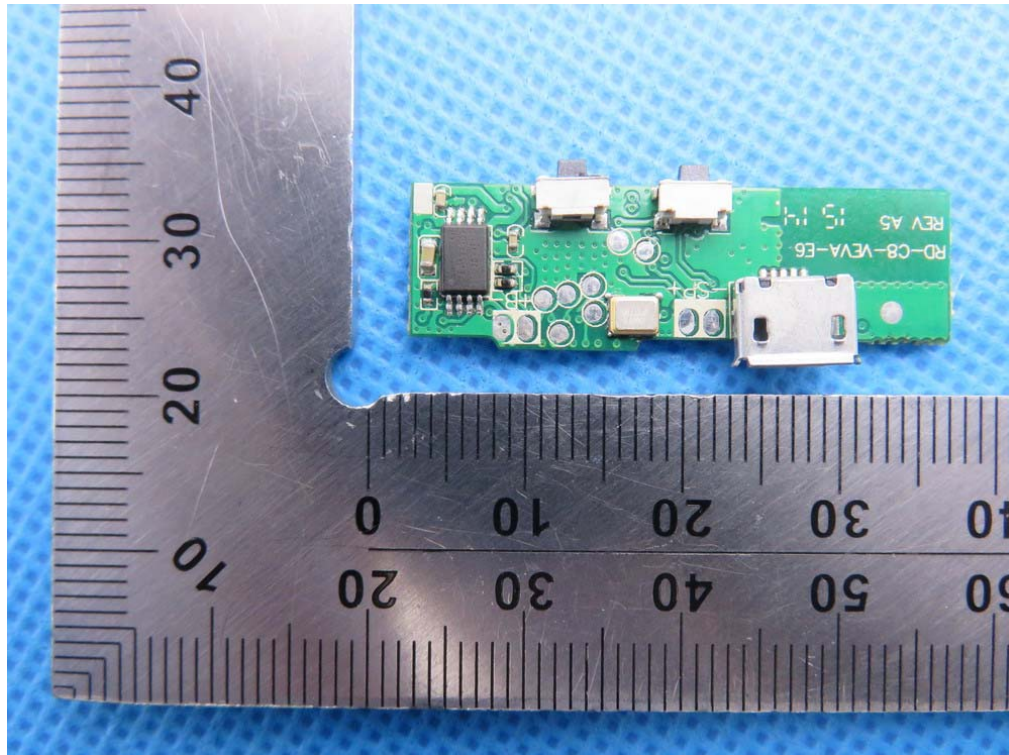
OPEN VIEW OF EUT



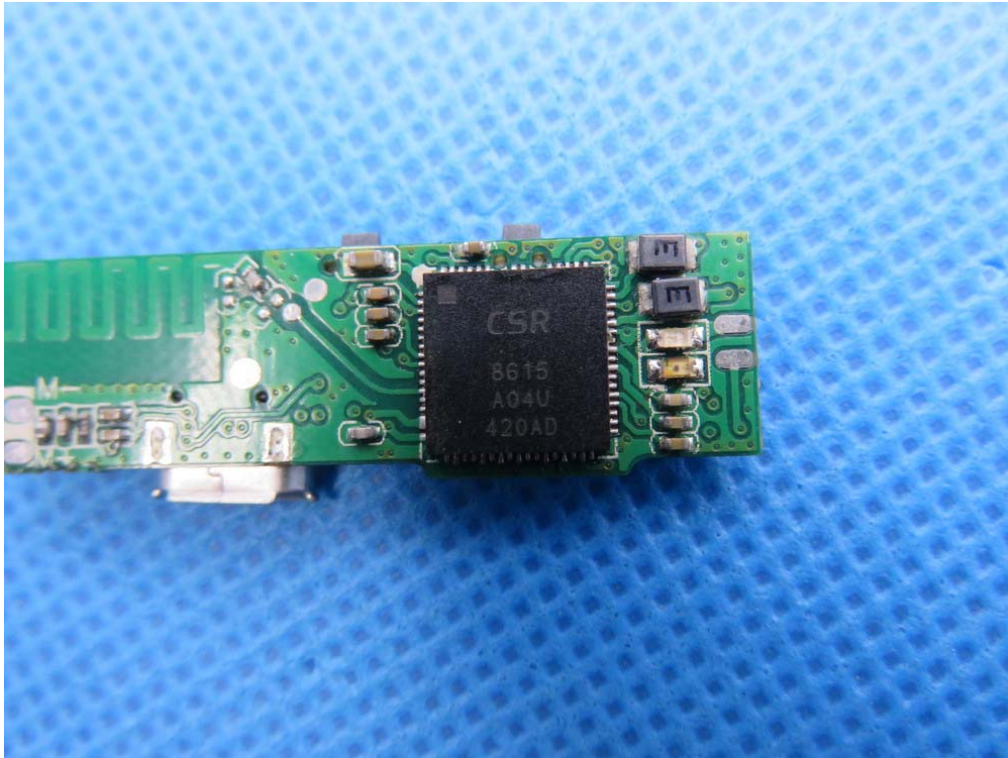
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



----END OF REPORT----